

**Rajasthan Agricultural Research Institute  
(S K N Agriculture University)  
Durgapura, Jaipur**

**Proceeding of *Rabi* ZREAC meeting of Zone IIIa  
held on September 18-19, 2014**

<b>Venue:</b>	Conference Hall, Seed Technology Research, Rajasthan Agricultural Research Institute, Durgapura-Jaipur
<b>Chairman:</b>	Professor Swaroop Singh, Director, RARI, Durgapura-Jaipur
<b>Co-Chairman:</b>	Sh. R.P. Kumawat, Jt. Director Ag. (Ext.) Jaipur Division, Pant Krishi Bhawan, Jaipur
<b>Convener:</b>	Dr. E V Divakara Sastry, Rajasthan Agricultural Research Institute, Durgapura, Jaipur
<b>Rapporteurs:</b>	Dr. R.S. Sain, Professor (PBG), STR, RARI Durgapura-Jaipur Dr. D.K. Pareek, Professor (SS&AC), RARI, Durgapura-Jaipur

1. Chairman Prof. Swaroop Singh welcomed all the participants i.e. scientists of RARI Durgapura, SKNCOA, Jobner, ARSSs (Tabiji, Diggi and Kotputli), KVKs (Ajmer, Chomu, Dausa and Kotputli) and Govt. officials engaged in research and extension activities in Zone IIIa. Besides Joint Director Ag. (Extension) Jaipur Division, especially welcomed scientists and government officers who attended the meeting for the first time. He urged all the participants to contribute their best in bringing out eco-friendly and economically viable recommendations or production & protection technologies to enhance the production and productivity of *Rabi* crops in Zone IIIa. Then, Chairman invited Dr. E V Divakara Sastry, convener of the meeting to appraise the house about Action Taken Report and progress on feedback problems of ZREAC meeting *Rabi* 2012-13.
2. Dr. Sastry appraised the house that needful actions were taken on the decisions of *Rabi* 2012-13 ZREAC meeting of Zone IIIa held at RARI,

Durgapura-Jaipur on September 11-13, 2013 (Annexure I) i.e., inclusion of recommendations in POP, conduction of trials at adaptive testing at ATC, Tabiji, Ajmer. Thus, the minutes of the meeting were confirmed.

3. A special presentation was given by Dr. Indra Rajvanshi, Head, Division of Nematology to appraise the participants with the growing menace of nematodes. All the protected cultivation projects are slowly being infected with nematodes reducing their productivity and in some cases abandoning the costly structures created for the protected cultivation. The lecture was discussed at length and probable solutions were also put forward for adaptation. Some of the salient conclusions from her lecture are given below (**Action: Department of Agriculture, Govt. of Rajasthan along with Nematology Division of RARI.**)

- 3.1. Varieties released and notified for nematode resistance in any crop in the country be included in POP after adaptability testing.
- 3.2. It is recommended to standardize the schedule of chemical sprays in crops particularly in fruits.
- 3.3. It is recommended that the soil analysis for nematode population be done before permission/ grant for setting up of green houses is given. Selection of crops should also be done with regard to their relative sensitivity to nematode infestation particularly in the horticultural crops.
- 3.4. Survey for nematode menace be undertaken with the help of line departments. The survey should be aimed at mapping of nematode species and menace as well as the selection of suitable crops/ varieties.
- 3.5. At present 40% formalin is used for soil sterilization. This practice be discouraged as formalin has carcinogenic properties.
- 3.6. At regular intervals, the top 1' soil in the current green houses/ net houses be replaced with clean soil to reduce the nematode buildup.
- 3.7. Feasibility of recommendation of perforated tubes for drip irrigation and soil sterilization in green houses/ protected cultivation be explored.
- 3.8. As a startup, the installation of perforated tubes and soil sterilization be installed for experiments/ demonstrations at RARI.
- 3.9. A note on the nematode problems of the state be prepared for consideration by the Department of Agriculture, Govt. Rajasthan. (**Action: Dr. Indra Rajvanshi**).

4. The presentations by individual scientists from RARI and ATC scientists followed.

- 4.1. Wheat

- 4.1.1. Water management in wheat using micro irrigations (Dr. P.K.Sharma): Use of drip irrigation has significantly increased the

wheat yields over the conventional flood and sprinkler irrigations. The WUE was 9.84 kg/ha/mm in comparison to 8.00 through flood irrigation and 7.18 through sprinkler irrigation. **Recommendation:** *The experiment will be conducted at ATC.*

- 4.1.2. Effect of hydrogel on the productivity of wheat (Dr. P.K.Sharma): pooled analysis over three year period indicated that use of 5.0 kg hydrogel has significantly increased the grain yield in wheat. Use of hydrogel with four irrigations and 100% NPK gave significantly higher grain yield over either no hydrogel or 2.5 kg hydrogel saving the water requirement. It is also noted that the final recommendation for inclusion in POP will be made only after its commercial availability. **Recommendation:** *The experiment will be conducted at ATC.*
- 4.1.3. Bio efficacy of herbicides against broad leaved weed flora in wheat (Dr. P.K.Gupta): Use of Carfentrazone at 20 g/ha as post emergence treatment has given significantly higher yield over control and statistically at par with the next best treatment (Metsulfuron). Even the B:C ratio was also best with Carfentrazone treatment. Similar results were also obtained at ATC. **Recommendation:** *Use of Carfentrazone as well as Metsulfuron may be included in POP. Since a similar recommendation is already made for Zone I B, the recommendation may also be included in the POP of Zone IIIa.*
- 4.1.4. Post-harvest survey for ear cockle disease (Dr. Indra Rajvanshi): Survey was conducted to know the extent of field infestation by nematodes in wheat. A total of 760 samples from the *mandies* of Ajmer, Alwar, Dausa, Jaipur and Tonk were collected. The analysis revealed that 118 samples were found infected with ear cockle disease. Highest percentage of infestation was recorded from Kishangarh (30.30%) followed by Devli (24.00%) of Tonk district. The situation is slowly becoming alarming. It is recommended that resistant varieties be used to contain the menace.
- 4.1.5. Management of nematodes through neem based formulations and chemicals in wheat (Dr. Indra Rajvanshi): Three year pooled data has indicated that use of Neem gold @ 10 ml/kg seed as seed treatment was effective in control of cereal cyst nematode (*Heterodera avenae*). The results were at par with the control obtained with the use of chemicals namely Carbosulfan 25 EC 2%. The B:C ratio was also higher with the treatment of neem gold (3.36) in comparison to Carbosulfan (3.17). **Recommendation:** *The technology may be tested at ATC, however, as the ATC does not*

*have facilities to conduct such experiments, the experiment will be conducted at RARI in association with ATC.*

- 4.1.6. Diversification of existing wheat based systems for CCN management (Dr. Indra Rajvanshi): Three year pooled data indicated that among the different cropping systems tested, cabbage-wheat rotation was found to be most effective in controlling the cereal cyst nematode (*Heterodera avenae*). The Pi (100 soil ml) and Pf (100 soil ml) were found 3.96 and 2.31 respectively which were significantly lower than control. ***Recommendation: Recommended for inclusion in the POP.***

4.2. Barley

- 4.2.1. New varieties (Dr. Ajeet Singh Shekhawat): Dr. Shekhawat informed the house about the recently developed barley varieties.

4.2.1.1. RD 2849 (two rowed barley): In the recently concluded annual group meeting of wheat and barley workers, malt barley variety RD 2849 has been identified for release for NWPZ. This variety was found to be high yielding (50.9 q/ha) with the nearest competitive line across the locations in NWPZ. This variety was found good in all desirable traits *viz.* test weight, bold grain, low husk, low protein, high filtration rate, etc. ***Recommendation: This variety may be included in POP as soon as it is released by the CVRC.***

4.2.1.2. RD 2832: RD2832 is medium in height, has non-lodging plant characteristic, flowering and maturing early as compare to all the checks. In agronomic trial, the variety has better performance even under late planting indicating its flexibility for sowing time. The variety has given a weighted mean of 47.58 q/ha as against checks RD 2552 (44.87 q/ha), RD 2035 (43.84 q/ha) and BH 902 (44.61 q/ha). ***Recommendation: This variety may be tested at ATC.***

4.2.1.3. RD 2786: This variety was identified and released for central zone for the timely sown irrigated conditions. The variety has shown higher degree of resistance against yellow rust (a serious threat to barley cultivation in the Zone) compared with the qualifying variety BH-933 and check variety PL-751. The variety RD-2786 has shown high thousand grain weight and fairly good number of tillers per plant, with non-lodging plant characteristic. ***Recommendation: This may be tested at ATC.***

- 4.2.2. Effect of different treatments on grain yields of barley against cereal cyst nematode *Heterodera avenae* (Dr. Indra Rajvanshi): Three year pooled data has indicated that use of Neem gold @10 ml/kg seed as seed treatment was effective in control of cereal

cyst nematode (*Heterodera avenae*). The results were at par with the chemical control i.e Carbosulfan 25 EC 2%. The B:C ratio was higher with the treatment of neem gold (3.22) in comparison to Carbosulfan (2.56). ***Recommendation: Recommended for inclusion in the POP. Since the ATC does not have wilt sick plots to test the above technology and since the experiment was conducted in association with ATC, the same is recommended for inclusion in POP.***

#### 4.2.3. Gram

4.2.3.1. New variety of kabuli gram CSJK 54 (Dr. S.S.Shekhawat):  
A new variety of kabuli gram CSJK 54 was recommended for release at the recently concluded annual group meeting of chickpea workers. The variety was found to be superior to the nearest competitive variety as well as checks. This variety has also been tested at ATC. ***Recommendation: It is recommended to be included in POP as soon as it is approved by the CVRC.***

4.2.3.2. Management of nematodes through neem based formulations and chemicals in gram (Dr. Indra Rajvanshi):  
Neem based preparations were found to be superior to chemical control using carbosulfan in controlling the root knot nematode and thereby increasing the seed yield. ***Recommendation: It is recommended to repeat the experiment in association with ATC. As the ATC does not have required facilities, the experiment will be conducted at RARI.***

#### 4.2.4. Taramira

4.2.4.1. New variety RTM 1355 (Dr. Mohal Lal Jakhar):  
Dr. Jakhar made a presentation about RTM 1355, a new variety of taramira. This variety has been identified for release at National level at the recently concluded annual group meeting of the rapeseed mustard workers. This variety is suitable for rainfed conditions and has resistance against staghead, downey mildew and powdery mildew with low aphid infestation. It is identified for mustard growing zones of II, III and IV with an yield potential of 12-14 q/ha. ***Recommendation: This variety may be included in POP as soon as it is released by the CVRC.***

4.2.4.2. Moisture stress mitigation in rapeseed-mustard (taramira) using agro chemicals (Dr. Parvati Devan):  
Application of thiourea at the rate of 0.05% spray at initiation of flowering and at initiation of pod filling have significantly increased the average seed yield over a period of three years. Further, the mean net returns (₹/ha) were also highest with this

treatment. **Recommendation:** *This experiment may be conducted at ATC.*

#### 4.2.5. Field pea:

4.2.5.1. Screening of field pea genotypes and survey report of farmers' fields for root knot nematode infection (Dr. R.L.Midha): Survey conducted for root knot nematode in field pea in the areas of Lalpura, Kalakh and Boraj have indicated infestation of a minimum of 20% to a maximum of 100%. Among the various species, *M. incognita* was the most prevalent species infesting field pea. **Recommendation:** *The Government officials are advised to take steps to contain the menace.*

#### 4.2.6. Lentil

4.2.6.1. Effect of sulphydryl bio-regulator for improving the productivity of lentil under restricted irrigation conditions (Dr. V.D.Fageria): Three year experimentation has shown that the average yield of lentil was the highest with the application of thiourea 500 ppm at pre-flowering stage and at pod initiation stage. The seed yield was 1940.67 kg/ha with a B:C ratio of 2.66. Similar results were also recorded at ATC, Ajmer **Recommendation:** *This may be included in POP.*

#### 4.2.7. Horticulture

4.2.7.1. Application of oxycyclin in jamun plantation (Dr. S.K.Khandelwal): Yellowing In jamun is seen as a problem in the areas of Pushkar. Pathogenicity studies have not indicated involvement of any type of organism, hence was thought to be a problem of environmental in nature. The soil analysis has also not indicated any type of deficiency. However based on the experience in oil palm, application of oxycyclin has been tried. Initial results have indicated that the application of oxycyclin injection into the stem has shown some reduction in the yellowing although the effect does not sustain for more than 3-4 months. The experiment will be further continued.

4.2.7.2. Drip irrigation scheduling in broccoli (Dr. B.D.Yadav): Irrigating broccoli with drip irrigation every alternate day with 100% PE has given the highest yield as well as net returns with a B:C ratio of 3.29. **Recommendation:** *Recommended for inclusion in POP.*

4.2.7.3. Intercropping of seed spices in vegetables (Dr. B.D.Yadav): In order to maximize monetary returns per unit land with vegetables, different combinations of vegetables and seed spices were tried. A three year experimentation has shown that carrot + ajwain intercropping has given the highest



pooled mean and vegetable equivalent of carrot, which was closely followed by carrot + fennel. **Recommendation:** *Recommended for inclusion in POP.*

4.2.7.4. Management of powdery mildew with chemicals (Dr. K. Bhatnagar): Three year experimentation at RARI and one year at ATC have indicated that application of Triadimifon @ 0.25% foliar spray was found effective in the control of powdery mildew in vegetable pea. **Recommendation:** *Recommended to be included in POP.*

4.2.7.5. Evaluation of PGPR bioformulations on fenugreek (Dr. A.C.Shivran): A three year experimentation has shown that seed treatment with bioformulation consisting of FK 14 + FL 18 has significantly increased seed yield over control and its nearest treatment with a B:C ratio of 2.05. **Recommendation:** *It may tested at ATC.*

4.2.7.6. Evaluation of PGPR bioformulations on cumin (Dr. A.C.Shivran): A three year experimentation has shown that seed treatment with bioformulation consisting of FK 14 + FL 18 has significantly increased seed yield over control and its nearest treatment with a B:C ratio of 1.69. **Recommendation:** *It may tested at ATC.*

4.2.7.7. Micro irrigation management in fennel (Dr. A.C.Shivran): Micro irrigation experiments conducted over a period of two years indicated that drip irrigation at IW/CPE 0.8 (paired row method of sowing) in fennel has given significantly higher seed yields with high net returns and B:C ratio of 6.93. **Recommendation:** *Recommended for testing at ATC. The experiment will be conducted at NRCSS in association with ATC.*

4.2.7.8. Micro irrigation management in fenugreek (Dr. A.C.Shivran): Micro irrigation experiments conducted over a period of two years indicated that drip irrigation at IW/CPE 0.6 (Paired Row) in fenugreek has given significantly higher seed yields with high net returns and B:C ratio of 2.59. **Recommendation:** *Recommended for testing at ATC. The experiment will be conducted by NRCSS in their fields in association with ATC.*

4.2.7.9. Field evaluation of insecticides/ botanicals against seed midge infesting fennel (Dr. K. S. Shekhawat): An experiment conducted over two year period indicated that two sprays at 10 days interval with acetamiprid 20 SP @ 0.004% was found effective in reducing the seed midge infestation and increased

seed yield with a B:C ratio of 8.67. **Recommendation:**  
**Recommended to be tested at ATC.**

4.2.7.10. Management of root rot diseases in fenugreek (Dr. K. Bhatnagar): A three year experimentation has shown that soil application of *Trichoderma viridae* 2.5 kg in 500 kg FYM/ha + seed treatment with carbendazim 0.5 g/kg + *Trichoderma viridae* 6 g/kg has significantly controlled the root rot complex in fenugreek besides giving average seed yield of 15.25 q/ha. **Recommendation:** *It may be tested at ATC.*

4.2.7.11. Module for integrated pest and disease management of cumin (Dr. S.K.Tak): A module was prepared to control different diseases in cumin. The module was found to be effective in controlling the diseases and pests in cumin. **Recommendation:** *The module may be verified through experimentation at ATC and also at NRCSS, Ajmer.*

#### 4.2.8. Mustard

4.2.8.1. Maximization of quality seed production in mustard (Dr. R.S.Sain): To study the effect of integrated yield maximization practices in enhancing seed yield and its quality in mustard crop an experiment was conducted at Rajasthan Agricultural Research Institute (RARI), Durgapura, Jaipur. A two year experimentation has shown that the seed yield was maximum (22.30 q/ha) in treatment RDNPK + Gypsum + Fe (FeSO<sub>4</sub> @ 25 kg/ha) + Zn (ZnSO<sub>4</sub> @ 25 kg/ha) with maximum 1000-seed weight (6.50 g) and seedling vigour index (3518). **Recommendation:** *The effective treatment may be tested at ATC.*

5. All the KVK incharges except Vanasthali presented highlights of the research/extension activities carried out during the Rabi 2012-13 at the centre and at cultivator's fields. They reported results of the demonstrations of improved varieties, production and protection technologies conducted at farmer's fields. Results undoubtedly showed that improved varieties and technologies were eco-friendly and economically viable with higher returns than the farmer's practice.
6. NRCSS, Tabiji made a presentation on experiments related to cultivation of coriander for leaves and cumin. Experiment involving different types of protected cultivation structures (walk in tunnel, green net walk in tunnel and open cultivation (control), and different nutrient management conditions indicated that plastic walk in tunnel was found to be the best giving higher green leaf and seed yields in coriander and seed yield in cumin. The experiment may be repeated as the crop was damaged by hail storm.



7. Dr. A.K.Gupta made a presentation on the researches conducted by the Integrated farming systems at RARI. Several modules and trades were integrated into the farming systems to maximize the returns of an average sized land holding in Rajasthan. After thorough discussion the house was of the opinion to include the outcome of the project in POP and a one note summary of salient findings may be included in POP for the benefit of the farmers. ***Recommendation: A one page note may be included in POP.***
8. District wise presentations were made by the concerned agriculture officers. The *rabi* 2012-13 while witnessed good rainfall which has boosted luxuriant growth of *rabi* crops, incessant rains and hailstorms have wreak havoc on the crops leading to reduction in the yields, in some cases even severely. The presentations were made in the new format developed for the purpose to give meaningful interpretations of the results presented. The problems for research solutions were put for discussion before the house in the district wise presentations. The possible solutions were also provided. The chairman and cochairman urged the district officials to give the approximate area in which a particular problem is reported when reporting problems for possible solutions. Further they are requested to apply the available recommendations before reporting the problem for research solution. The following resolutions were also made.
  - 8.1. The government officials informed the house that sufficient funds are available to support research on development of package of practices for organic cultivation of horticultural crops and vegetables. Accordingly Director, RARI has urged the scientists to prepare project proposals for favour of funding by Govt. of Rajasthan. ***Action: Scientists of RARI to come up with project proposals for onward transmission to Govt.***
  - 8.2. The district officials should prepare a list of ten progressive farmers in each district who may be contacted for various activities.
  - 8.3. The agricultural officers and officers from KVK are advised to include rhizobial culture in gram/ legumes as an essential operation in the seed dressing. The necessary culture will be supplied by RARI with prior booking.
  - 8.4. The officials when reporting the usage of NPK, the usage of NPK in each crop be reported, by taking a sample of farmers from their districts. The report should include the fertilizer use in crop made by a farmer, which nutrient should also be reported.

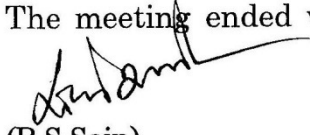
At the end of the meeting, the house has given farewell to the following scientists who are retiring from their services.

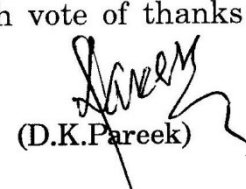
Dr. V. D. Fageria  
Dr. R. L. Mahla

Dr. B. L. Kumawat  
Dr. B. S. Rathore

The house remembered the yeoman's services offered by these scientists in addressing various research problems and developing appropriate technologies.

The meeting ended with vote of thanks to the chair.

  
(R.S.Sain)

  
(D.K.Pareek)

  
(E V Divakara Sastry)

  
Chairman and Director, RARI

Copy of the proceedings of *rabi* 2014 of Zone IIIa forwarded for favour of information and necessary action to:

1. Commissioner of Agriculture, Govt. of Rajasthan, Pant Krishi Bhawan, Jaipur.
2. Commissioner of Horticulture, Govt. Rajasthan, Pant Krishi Bhawan, Jaipur.
3. The Director (Research), SKN Agriculture University, Jobner.
4. The Director, Extension, SKN Agriculture University, Jobner.
5. Dean, SKN College of Agriculture, Jobner.
6. Dean, College of Agriculture, Lalsot, Dausa.
7. Dean, College of Agriculture, Kumher (Bharatpur).
8. Dean, College of Agriculture, Fatehpur Shekhawati
9. Managing Director, Rajasthan State Seed Corporation, Pant Krishi Bhawan, Jaipur.
10. The Director of Millet Development, Govt. of India, II Floor, Block-A, Kendriya Sadan, Sector 10, Vidyadhar Nagar, Jaipur.302023
11. Addl. Director of Research (seeds), SKNU, Rajasthan Agricultural Research Institute, Durgapura, Jaipur.
12. Addl. Director of Agriculture, Pant Krishi Bhawan, Jaipur
13. The Joint Director of Agric. (Extn.), Jaipur Division, Pant Krishi Bhawan, Jaipur.
14. The Joint Director Agriculture (ATC), Pant Krishi Bhawan, Jaipur.
15. The Dy. Director of Agriculture (Extn.), Jaipur/Ajmer/Tonk/Dausa.
16. The Zonal Director Research, ARS, Navgaon (Alwar)/Fatehpur-Shekhawat (Sikar)/ Sri Ganganagar, Bikaner
17. Officer Incharge, Agril. Research Sub-Station, Tabiji(Ajmer)/ Diggi(Tonk)/ Kotputli, Kumher
18. Officer Incharge, KVK, Chomu/ Tabiji/ Banasthali/ Dausa/ Kotputli.
19. The Dy. Director Agriculture (Agronomy), ATC, Tabiji (Ajmer).
20. All Section/*Kharif* Crop Scheme In-charges, RARI, Durgapura-Jaipur.
21. In-charge, Technical Cell, RARI, Durgapura-Jaipur
22. Dr. R.S. Sain, Rapporteur, RARI, Durgapura-Jaipur.
23. Dr. D.K.Pareek, Rapporteur, RARI, Durgapura, Jaipur.

*E.V.D. Sastry*

(E V Divakara Sastry )

Convener of the Meeting & Professor,  
RARI, Durgapura-Jaipur

Action Taken Report on minutes of *Rabi* 2013-14 ZREAC meeting of Zone IIIa held at RARI, Durgapura-Jaipur on September 18-19, 2014

S.No.	Decision	Action Taken
1.	Inclusion of recommendations in PoP	A total of 20 recommendations (which included 4 varietal, 7 production & 9 Protection recommendations) finalized in the meeting were communicated to the Joint Director Agric. (Extn.), Jaipur Division and the Director of Horticulture, Government of Rajasthan for the needful action.
2.	Conduction of trials for adaptive testing at ATC, Tabiji, Ajmer: All the trials were conducted.	
	I. Performance of chickpea varieties	
	CSJ 564 (desi type)	CSJ 564 yielded 14.45 q/ha which is lower to RSG 931 (15.10 q/ha).
	CSJ 697 (late sown)	The variety CSJ 697 yielded 15.36 q/ha in comparison to 14.45 q/ha, the next best variety RSG 963
	CSJK 54 (Kabuli type)	CSJK 54 has yielded higher than all the other entries tested.
	II. Performance of seed spices varieties	
	RCr 475 (coriander)	RCr 475 yielded superior with 8.05 q ha <sup>-1</sup> .
	RMt 365 (Fenugreek)	RMt 365 (16.49 q ha <sup>-1</sup> ) and AFg 3 (16.84 q ha <sup>-1</sup> ) yielded at par and superior over other varieties.

S.No.	Decision	Action Taken
	RF 281 (Fennel)	RF 281 yielded superior (11.38 q ha <sup>-1</sup> ).
	AFg-3 and AFg-4 (Fenugreek)	AFg-3 was the highest yielder at 10.94q ha <sup>-1</sup> .
III.	Effects of seed treatment with Azotobacter & PSB with 75% recommended nitrogen in taramira	T5- 75% NP + Seed treatment with Azotobacter &PSB gave a higher seed yield of 12.50 q ha <sup>-1</sup> which is at par with T6- 100% NP (30:15)+ Seed treatment with Azotobacter & PSB.
IV.	Mitigation of terminal wheat stress in wheat under late sown conditions	During the experimental period the heat stress was not observed.
V.	Protected cultivation of coriander and cumin under walk-in tunnel.	Coriander grown in Plastic walk in tunnel with 48:24:8 (80% RDF) gave a seed yield of 705.56 q ha <sup>-1</sup> in comparison to green net walk tunnels.  Cumin grown in Insect proof net walk tunnel with 80% RDF (24:16:16) gave highest seed yield of 71.25 q ha <sup>-1</sup> .
VI.	Control of <i>Orobancha</i> weed in mustard by pre-plant incorporation of pyrazosulfuron ethyl 10WG @ 200g a.i./ha	Orobancha weed infestation was not observed in the experimental site. Hence the experiment dropped.
VII.	Frost management in mustard and gram	In chickpea, the application of wettable sulphur (0.2%) gave an yield of 12.67 q ha <sup>-1</sup> which is non significantly superior to thio urea (500 ppm).  In mustard, the application of wettable sulphur (0.2%) gave an yield of 15.63q ha <sup>-1</sup> which is non

S.No.	Decision	Action Taken
		significantly superior to thio salicylic acid (100 ppm).
VIIII.	Heat stress mitigation in gram and barley	<p>The application of thioglycolic acid @100 ppm gave 14.58 q/ha yield in chickpea.</p> <p>The application of thio salicylic acid @ 100 ppm gave an yield of 40.26 q ha<sup>-1</sup> seed in barley.</p>
IX.	Effects of thio-urea spray on productivity of lentil	Application of 2% urea spray at pre flowering stage (45DAS) + Pod initiation stage gave a seed yield of 7.68q ha <sup>-1</sup> which is higher to Thiourea 500 ppm spray at pre flowering stage (45DAS) + Pod initiation stage.



Progress of Research on Feedback Problems submitted in *rabi* 13-14 ZREAC meeting of Zone IIIa

जिला	समस्या	समाधान
ललसोट, सिकराय (दौसा), अजमेर	लसोड़ा/ सौंफ में गमोसिस तथा सूखने की समस्या।	<p>प्रारम्भिक अनुसंधान से यह पता लगा की यह जीवाणु या फफूंद जनित बीमारी नहीं है। डॉ कायम सिंह शेखावत ने बताया की वे और उनसे पूर्व डॉ ई वी दिवाकर शास्त्री ने संबन्धित अधिकारियों से पत्र लिख कर उचित समाधान सूचित किया है साथ ही विस्तृत समाधान के लिए जिलों से वातावरण संबंधी जानकारी एवं बीमारी दिखते ही उन्हें सूचित करने का ञ ग्रह किया था लेकिन उचित जानकारी उपलब्ध नहीं कराई गयी जिससे स्थायी समाधान प्रेषित करने में बाधा हो रही है।</p> <p>Action: The district officials should report to the scientists as soon as the problem is noticed. Further, they should note the weather parameters of the locality where the problem is reported. The district officials are requested to contact Dr. K S Shekhawat in this regard.</p>
दौसा जिला/ टोंक/ सांभर (जयपुर)	सरसों तथा टमाटर में ओरोबेकी की समस्या	The research is in progress
ललसोट, दौसा, सीकराय, बांदीकुई (दौसा)	फल/ सब्जियाँ/ फसलों में फसलवार ड्रिप सिंचाई शेडुलिंग की ञ वश्यकता	The research is in progress

जिला	समस्या	समाधान
दौसा	फल तथा सब्जियों में प्रसंस्करण तथा वैल्यू एडिशन मॉडल की □ वश्यकता	Since there is no reported area where this is possible, no research intervention is needed. As such technologies are available with the PHT division of the institute which may be used.
पीसागण/ जवाजा (अजमेर)	जीरें में फूल □ ते समय पीलापन	Once again this is more of a physiological and environmental issue more related to ground water usage. As such the scientists working in spices project at Jobner may be contacted as soon as the problem is reported.
पीसागण / जवाजा (अजमेर)	रिजिका में दो-तीन कटिंग के बाद विलटिंग।	किसान प्रायः कटिंग के बाद खेत में फ्लूडिंग करते हैं जिसके वजह से विलटिंग की समस्या होती है। किसानों को सलाह दिया जाये की वे कटाई के बाद खेत को पूरी तरह पानी से संतृप्त ना करें।
जयपुर/ अजमेर	सरसों में बुवाई की बाद खरपतवार नियंत्रण	अनुसंधान जारी है।
गोविंदगढ़ (जयपुर)	गेहूं व जौ में सफ़ेद लट की समस्या	Farmers are advised to follow the available recommendations
मालपुरा, टोडा (टोंक)	चना में उखटा रोग	Farmers are advised to follow the available recommendations
मलपुरा, टोडा (टोंक)	रबी फसलों में छाजस/ बायसुरी खरपतवार की समस्या	Farmers are advised to follow the available recommendations
टोंक	गेहूं में चौड़ी व सकड़ी पत्ती खरपतवार का एक साथ नियंत्रण	Researches are in progress

**Production recommendations approved in *Rabi* 2013-14 ZREAC Meeting of Zone-IIIa**

1. In wheat, use of Carfentrazone at 20 g/ha or Metsulfuron at 4 g/ha +0.2% surfactant as post emergence treatment has given significantly higher yield over control and least weed dry weight.
2. गेहूं फसल में खरपतवार नियंत्रण के लिए क्लोनिडफोप 15 प्रतिशत + मेटसुल्फुरान 1 प्रतिशत डबल्यू पी का 52 ग्राम सक्रिय तत्व प्रति हैक्टर के दर से बुवाई के 30-35 दिन बाद छिड़काव करें।
3. cabbage-wheat rotation was found to be most effective in controlling the cereal cyst nematode (*Heterodera avenae*).
4. A two row barley variety RD 2849 has been identified for release in NEPZ. This has high malt content.
5. In barely, use of Neem gold @10 ml/kg seed as seed treatment was effective in control of cereal cyst nematode (*Heterodera avenae*).
6. A new kabuli gram variety CSJK 54 is recommended for release.
7. In taramira a new variety RTM 1355 is recommended for release.
8. In lentil, the application of thiourea 500 ppm at pre-flowering stage and at pod initiation stage is recommended for higher seed yield.
9. In broccoli, drip irrigation every alternate day with 100% PE has given highest yield
10. carrot + ajwain intercropping has given highest pooled mean and vegetable equivalent of carrot
11. application of Triadimifon @ 0.25% foliar spray was found effective in the control of powdery mildew in vegetable pea.

**List of experiments to be conducted/ technologies to be verified at ATC, Ajmer during *rabi* 2014-15**

Name of the technology/ experiment to be conducted	Concerned Scientist <sup>1</sup>
Water management in wheat using micro irrigations	Dr. P.K.Sharma
Effect of hydrogel on the productivity of wheat	Dr. P.K.Sharma
Management of nematodes through neem based formulations and chemicals in wheat	Dr. Indra Rajvanshi
Adaptability/ performance testing of barley variety RD 2832	DR. Ajeet Singh Shekhawat
Adaptability/ performance testing of barley variety RD 2786	DR. Ajeet Singh Shekhawat
Management of nematodes through neem based formulations and chemicals in gram	Dr. Indra Rajvanshi
Adaptability/ performance testing of taramira variety RTM 1355	Dr. Mohan Lal Jakhar, Jobner
Moisture stress mitigation in rapeseed-mustard (taramira) using agro chemicals	Dr. Parvati Devan, Jobner
Evaluation of PGPR bioformulations on fenugreek	Dr. A.C.Shivran, Jobner
Evaluation of PGPR bioformulations on cumin	Dr. A.C.Shivran, Jobner
Micro irrigation management in fennel	Dr. A.C.Shivran, Jobner
Micro irrigation management in fenugreek	Dr. A.C.Shivran, Jobner
Field evaluation of insecticides/ botanicals against seed midge infesting fennel	Dr. K.S.Shekhawat, Jobner
Management of root rot diseases in fenugreek	Dr. K. Bhatnagar
Module for integrated pest and disease management of cumin	Dr. S.K.Tak
Maximization of quality seed production in mustard	Dr. R.S.Sain

<sup>1</sup> Except where indicated, the scientists are from Rajasthan Agricultural Research Institute, Durgapura, Jaipur