

**Proceeding of Workshop-cum-Training under National Food Security Mission-Pulses
organized during 2-3rd November, 2022 at Agricultural University, Jodhpur**

ICAR-Agricultural Technology Application Research Institute, Jodhpur jointly organized Workshop-cum-Training of Cluster Front Line Demonstration on Pulses under National Food Security Mission during 2-3rd November, 2022 at Agricultural University, Jodhpur, Rajasthan. In the inaugural session, Dr. B.R. Choudhary, Hon'ble Vice-Chancellor of Agriculture University, Jodhpur emphasized upon inclusion of Pulses in non-traditional area. He also briefed benefits of cultivation of Pulses in Kharif and Rabi seasons in different Agro-Climatic Regions of Rajasthan. Dr. S.K. Singh, Director, ICAR-ATARI, Jodhpur highlighted that impressive growth in terms of production and productivity of Pulses in India has been witnessed during last one decade which has been widely recognized as "Pulses Revolution". He emphasized upon contribution of Seed-Hubs on Pulses in creating awareness about new varieties and production of seeds of farmer's preferred varieties on regular basis for promotion of formal and informal seed system. During 2021-22, India recorded ever higher production of Pulses (276.90 lakh tonnes).

Dr. Ishwar Singh, Director of Extension Education, AU, Jodhpur briefed about importance of Pulses under Arid-Ecosystem and Pulses play very important role in improving soil health. Dr. R.A. Kaushik, Director of Extension Education, MPUA&T, Udaipur, Rajasthan appraised that Pulses need to be promoted as major source of Nutritional Security. Dr. Balwan Mandal, Director of Extension Education, CCSHAU, Hisar, Haryana highlighted that inclusion of short duration Pulses (Green gram) during summer season in Paddy-Wheat prevalent cropping system in major parts of Haryana. Dr. B.L. Jat, Director of Extension Education, SKANU, Jobner also urged for improving productivity of Pulses by adoption of proven technology especially for Agro-ecological sustainability. Two interactive lectures including one from ICAR-Indian Institute of Pulses Research, Kanpur was organized in virtual mode. Total 66 participants of KVKs of Rajasthan, Haryana & Delhi took part in two days programme.

Session -1

The first technical session was held on presentation of progress report of CFLDs on pulses by ICAR, NGOs and Haryana state KVKs. Dr. S. K. Singh, Director, ATARI was chairman of the session. Dr. R. A. Kaushik, DEE, MPUAT, Udaipur was co-chairman of the session. Dr. Ramesh Kumar, Senior Scientist and Head, KVK, Mahendergarh and Dr. Pankaj Kumar Saraswat, Senior Scientist and Head, KVK-NDRI, Karnal acted as rapporteurs of the session.

Dr. M. S. Meena, Principal Scientist (AE), ICAR-ATARI, Jodhpur was convener of the session. The session began with the address of the chairman. The chairman, though outlined crops status of pulses production at national and state levels, identification of working areas, programmes started by Govt. of India for the promotion of pulse crops, the role of subject matter specialists of KVK in effective implementation of CFLDs programme effectively, etc. at the beginning of the session, yet again highlighted some of the points which need to be followed by each of the KVK. The important points mentioned by the chairman were.

1. **Reorientation of all staff of KVKs is essentially required as very poor level knowledge.**
2. Selection of varieties for conducting demonstration should be done according to the prevailing farming situation. New improved short duration varieties of pulse crops should be taken for conducting CFLDs and old varieties should be discarded.
3. Planning of demonstrations should be made on basis of last season experience.
4. Effect of temperature and rainfall aberration on performance of crop should be recorded and advisory in the regard should be issued timely to the farmers.
5. Assessment of gaps between existing farmers' practices and improved practices is very important and necessary step for the identification of proper technologies. Similarly, information on the input use pattern of CFLDs farmers is very essential for better future planning.
6. Identification and rationalization of critical inputs is must for utilizing funds properly.
7. Information/ data on the effect of the previous crop on fertilizer use, moisture availability and performance of the demonstration crop should be recorded in order to have better planning.
8. Farmers should be advised to keep 25 percent of the produce for seed purpose.
9. In order of the above remarks, the chairman made important observations on the presentation of the progress report of pulse crops by various KVKs. These observations were:

KVK, Alwar II:

- Area of chickpea crop in the district has decreased over the years. Therefore, conducting demonstrations on the crop is a matter of concern as needs to be looked into.
- Analysis of results was not done properly and hence should be taken care of.
- Farming situation of the demonstrated crop should be mentioned in the presentation.
- Quantification of control/ farmers' practice component is essential.
- Enrichment of concept of cluster frontline demonstration is very essential.
- Improvement in working pattern is required.

KVK, Jodhpur I

- Care should be taken to use proper terms in presentation.
- Minimum support price of moth bean is not fixed by the government as mentioned in the presentation.

- It is essential to include those varieties of crops which have been released recently/ less than 10 years old in demonstrations. The center has used chickpea variety RSG 974 which is more than 10 years old.
- Improvement in working pattern is required.

KVK, Pali

- Assessment of gaps between existing farmers' practices and improved practices is essential which was lacking in the presentation.
- Mentioning of details of farmers' practice should be done for comparing the results of demonstrations.
- Rationalization of inputs for conducting demonstrations for better utilization of allotted funds of ₹ 9000/ ha.
- It is essential to include those varieties of crops which have been released recently/ less than 10 years old in demonstrations. The center has used chickpea variety RSG 974 which is more than 10 years old.
- More devotion is required in field works.

KVK, Gurugram

- Care should be taken in selection of technologies for effective implementation of CFLDs.
- Application of fertilizers in demonstration crops should be decided according to fertilizers applied in previous crop.
- More attention & dedication is required to achieve real outcome.

KVK, Karnal

- Emphasis should be given on conducting demonstrations on intercropping of greengram in sugarcane.
- Presentation should be made properly with inclusion of events in sequence.
- Information on crop production technologies practised by the partner farmers should be recorded in the fact sheets.
- Need more emphasis in implementation of outreach programme.

KVK, Churu I

- Chickpea variety GNG 1958 was used in demonstrations which is more than 10 years old. Therefore, improved varieties released recently should be used in the demonstrations.
- Assessment of gaps should be done properly.
- The objective of conducting the CFLDs is to promote the technologies in large area hence efforts should be made to outreach the proven technology.
- Improvement in working & conducting demonstration is required.

KVK, Hanumangarh I

- Meteorological data previous crop season instead of relevant crop season was given in the presentation. Therefore, care must be taken to present information of the relevant season.
- Greengram cultivation is not suitable in heavy soils, therefore, in such soils demonstrations of black gram should be conducted.
- Information on crop production technologies practised by the partner farmers should be recorded in the fact sheets.
- Improvement in conducting demonstration is required.

KVK, Udaipur I

- Chickpea variety GNG 1958 was used in demonstrations which is more than 10 years old. Therefore, improved varieties released recently should be used in the demonstrations.
- Potential farmers should be selected for conducting cluster frontline demonstrations instead of non-responsive farmers.

- Technology developed by NCIPM on integrated pest management should be used for plant protection measures.
- Overall performance is not satisfactory which need to be improved as Udaipur is very reputed district in the country.

KVK, Jaipur I

- Assessment of gaps should be done properly.
- The objective of conducting the CFLDs is to promote the technologies in large area hence efforts should be made to outreach the proven technology.
- Selling price of the produce should be mentioned in range instead of fixed value.
- Team spirit is essentially required.

KVK, Ambala

- Selection of chickpea varieties should be made according to farming situation. The center has used chickpea var. P-3040 which is of very long duration. Therefore, care must be taken to include short duration crop varieties suitable for farming situation.
- Emphasis should be given on conducting demonstrations on intercropping of greengram in sugarcane.
- Scientific base must be emphasized and farming situations must be clarified.

KVK, Rewari

- Assessment of gaps should be done properly.
- Seed rate of summer moong should be decided according to time of sowing.
- Trainings and extension activities should be mentioned separately.
- Reorientation of all staff is required as all staff do not know concept of CFLDs.

KVK, Delhi

- Selection of crop and crop varieties should be done according to soil pH and quality of irrigation water.
- Proper information on gap assessment, technological package and input rationalization should be presented.
- The chairman, however, suggested to record observations and present results on basis of farming situation.
- Trainings and extension activities should be mentioned separately.
- Reorientation of all staff is essentially required as very poor level knowledge.

KVK, Bhiwani

- Trainings and extension activities should be mentioned separately.
- Analysis of results should be done according to previous crop grown in the demonstration plots.
- Seed Hub must be strengthened.
- Concerted efforts should be made to streamline the seed hub program.
- The events were presented in sequence in the presentation.

KVK, Faridabad

- New effective insecticides should be used for cluster frontline demonstrations.
- Efforts should be made to outreach the technology at far reach locations.
- Trainings and extension activities should be mentioned separately.
- The report should be presented properly with events in sequence.

KVK, Fatehabad

- Proper information on gap assessment, technological package and input rationalization should be presented.

- Application of fertilizers in demonstration crops should be decided according to fertilizers applied in previous crop.
- Information on crop production technologies practised by the partner farmers should be recorded in the fact sheets.

KVK, Hisar

- Application of fertilizers in demonstration crops should be decided according to fertilizers applied in previous crop.
- The gap between farmers' practice and improved practices is still wide which indicates poor technology transfers. Concerted efforts should be made in minimizing the gap.
- The center has conducted chickpea demonstrations in clusterbean-chickpea sequence which needs to be looked into.

KVK, Jhajjar

- Information on cultivation of summer moong in the district should be recorded for verification of status of crop in the district.
- Application of fertilizers in demonstration crops should be decided according to fertilizers applied in previous crop.

KVK, Jind

- Meteorological data specially on temperature should be recoded and presented for summer crop.
- Commitment of farmers regarding use of critical inputs should be presented.
- Trainings and extension activities should be mentioned separately.

KVK, Kaithal

- Time of sowing and recording of farmers perception is essential for conducting demonstrations in an effective manner.
- Demonstration on kabuli gram and lentil should be conducted.
- Proper information on gap assessment, technological package and input rationalization should be presented.

KVK, Kurukshetra

- Demonstrations on summer moong should be conducted in rice-potato and rice-mustard crop sequences and successful cases should be documented.
- Proper terms should be used in the presentation e.g treatment word should be avoided in the demonstrations.
- Planning for conducting demonstrations should be made in advance for conducting the demonstrations effectively.

KVK, Yamunanagar

- New effective insecticides should be used for cluster frontline demonstrations.
- Demonstration on lentil should be conducted in paddy fields.
- It is essential to rationalize the seed rate according to time of sowing.

KVK, Rohtak

- Proper information on gap assessment should be presented.
- Information on gap minimization should be presented.
- Proper terms should be used in the presentation i.e. treatment word should be avoided in the demonstrations.
- Technological package has to be demonstrated in CFLDs in ICM mode.
- Field pea demonstrations of dwarf pea varieties of white color need to be done under Rice-Wheat cropping system.

KVK, Mahendergarh

- Information on gap minimization should be presented.
- IPM component need to be addressed in systematic manner.

KVK, Panipat

- Information on weed flora of the crop sequence should be mentioned in the presentation.
- Impact assessment study be conducted.
- Local check needs to be described in proper manner.

KVK, Sirsa

- Concerted efforts should be made to streamline the seed hub program.
- Information on crop production technologies practiced by the partner farmers should be recorded in the fact sheets.
- Local check needs to be described in proper manner.
- Seed production of green gram must be undertaken 1000 quintal per year under Seed Hub programme.

KVK, Sonipat

- Possibility of exploring moong varieties suitable for sprouting purpose should be found out and promoted in the district.
- Information on crop production technologies practised by the partner farmers should be recorded in the fact sheets.
- Information on gap minimization should be presented.

KVK, Sri Ganganagar

- Chairman suggested that PPT are not proper clear and visible, too much contents in single slide, increase font size while making presentation in future.
- Suitable Rhizobium strains for inoculation should be used for particular pulse crops.
- Presentation lacking the information regarding adverse effect of weather *i.e.* rainfall in January month, abrupt rising in temperature in February months on chickpea crop.
- Trichoderma dose 2.5 kg/ha for soil treatment should be checked and justified.
- IPM techniques for pod borer management in chickpea must be used in chickpea instead of chemical-based measure.

KVK, Bikaner-I

- The suggestion has made by the chairman to clarify what are the factors involve in low yield and very less pod formation in mung bean crop.
- Chairman also suggested that PPTs are not proper clear and visible, increase font size while making presentation in future.
- Keep in consideration the soil type and farming situations while selecting fields for cluster CFLDs.
- What are the strategies for plant protection measures? always use IPM techniques in mung bean and others.
For sucking pest management in green gram blanket recommendation of management should be given to farmers.

KVK, Bikaner-II

- The suggestion has been made by the chairman to clarify what are the factors involve in low yield and very less pod formation in mung bean crop.
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- Keep in consideration the soil type and farming situation while selecting fields for cluster CFLDs.
- What are the strategies for plant protection measures? always use IPM techniques in mung bean and others.
- For sucking pest management in green gram blanket recommendation must be promoted amongst farmers.

KVK, Churu-II

- Chairman suggested that motivation to the farmers to take seed from previous crop of CFLDs
- Situation specific presentation need to be done.
- Seeds of GNG 2261 and GNG 2171 varieties seed need to be purchased while planning CFLDs on Chickpea in coming years.

KVK, Jaisalmer-I

- Chairman emphasized that always make situation specific presentation i.e. Undulated topography, irrigated/rain fed farming situation *etc.*
- Cost of cultivation in moth bean need to be verified.
- Observations from CFLDs plots and results of different locations/clusters should be presented separately in future
- Chairman also opined that PPTs are not proper, clear and visible, too much contents in single slide, increase font size while making presentation in future.
- Focus on establishment of livestock's-based demonstration units i.e. dairy, goatary, poultry *etc.*

KVK, Jaisalmer-II

- Chairman emphasized that always make situation specific presentation *i.e.* undulated topography, irrigated/rain fed farming situation *etc.*
- Seed production programme at KVK instructional farm must be undertaken and make focus on to establish livestock-based demonstration units i.e. dairy, poultry and goatary to generate resource.
- Natural farming model at KVK farm must be developed in one acer area.
- Participatory seed production must be undertaken.
- Loamy sand soil instead of sandy loam soil should be presented.
- Situation specific strategies *i.e.* heat wave, undulated topography, desert soil *etc.* should be presented.

KVK, Jhunjhunu

- Chairman instructed to raise the issue in ZREAC meeting on 40kg /ha sulphur recommendation in chickpea.
 - Make situation specific presentation, don't read PPT, be specific.
 - Chairman emphasized to focus on IPM techniques for pod borer management in chickpea instead of chemical-based measure.
 - Beekeeping needs to be promoted in district.
 - Drip irrigation, sprinkler irrigation at farm as well as farmers' fields need to be popularized.
 - Mention gap analysis in CFLDs farmers and local practices.
- Chairman suggested that PPT not proper clear and visible, too much contents in single slide, increase font size while making presentation in future.

KVK, Alwar-I

- Chairman emphasized that to take into considerations of farmer's affordability, accessibility and acceptability of particular technology while being feed to them.

- Farmers friendly, low-cost pesticides and more focus on IPM techniques for management of pod borer in CFLDs on chickpea crop need to be used.
- Integration of components must be undertaken.
- Application of seed inoculation with Rhizobium, PSB etc. instead of seed treatment must be done.
- NPV in chickpea as components of IPM for management of pod borer must be done.
- Font size while making presentation in future need to be used.

KVK, Bharatpur

- Chairman emphasized to work on strategies of adaptation and mitigation of district
- Focus on adoption IPM techniques for pod borer management in chickpea instead of chemical need to be done.
- Seed rate of chickpea crop for different situation like rain fed and irrigated condition need to be decided.
- Chairman also opined the need promotion of newly release varieties of lentil in the district and also try to demonstrate fortified varieties at farmers' fields
- Sowing time of mustard should be shifted from September to October month due to changing climatic scenario

KVK, Dausa

- Chairman suggested that PPTs are not proper clear and visible, too much contents in single slide, increase font size while making presentation in future
- There is lacking of commitment table on assurance of fertilizers application by farmers in Chickpea CFLDs during rabi 2022-23 while all are informed well in time for this.
- Effect of increase temperature in February month on chickpea yield and duration need to be presented.
- Real farming situation needs to be presented.
- Chairman also emphasized to establish mother Orchards of different fruits crops at KVK farm.

KVK, Dholpur

- Chairman suggested that always situation specific presentation need to be done.
- Commitment from farmers for application of fertilizers in chickpea CFLDs during Rabi 2022-23 must be done.
- Font size while making presentation in future should be taken care.

KVK, Ajmer

- Chairman instructed to promote small seeded chickpea varieties in district
- Situation specific presentation need to be done.
- Commitment from farmers for application of fertilizers in chickpea CFLDs during Rabi 2022-23 need to be done.
- Emphasis should be given on termite and root rot management in chickpea be done.

KVK, Jaipur

- Tables in presentation are not proper, visible and ensure to increase font size, less content in each table while making presentation in future.
- Situation specific presentation need to be done.
- There is lacking of commitment table on assurance of fertilizers application by farmers in Chickpea CFLDs during rabi 2022-23 while all are informed well in time for this.
- More focus on Night campaign at village level.

KVK, Sikar

- Chairman suggested for impact studies of KVK interventions in district as KVK has been working since long time, impact should reflect at farmers' fields.
- Situation specific presentation is required.
- Lacking of commitment table on assurance of fertilizers application by farmers in Chickpea CFLDs.
- Font size while making presentation in future need to be improved.

KVK, Baran

- Chairman suggested that at least 8-10 per cent CFLDs should be implement under TSP villages.
- Sowing time should be shifted in kharif season especially black gram.
- Tables in presentation are not proper, visible and ensure to increase font size, less content in each table while making presentation in future.
- Chairman opined in promoting raised bed planter, especially for soybean and black gram crops in the region during Kharif season.

KVK, Bundi

- Chairman pointed out that to make situation specific presentation in future.
- Lacking of commitment table on assurance of fertilizers application by farmers in Chickpea CFLDs.
- Seed rate of chickpea be revised as per the size of seed as well as farming situation.
- Nipping in chickpea is essential and it must be done after 35 days of sowing.

KVK, Jhalawar

- Tables in presentation are not proper, visible, and ensure to increase font size, less content in each table while making presentation in future.
- Lacking of commitment table on assurance of fertilizers application by farmers in Chickpea CFLDs.
- Situation specific presentation need to be done.

KVK, Karauli

- Chairman opined to earmark the land for technology park in every season and showcase the latest technologies
- Make commitment from farmers for using fertilizers in chickpea CFLDs during Rabi 2022-23
- Situation specific planning before CFLDs implementation need to b done.

KVK, Kota

- Chairman suggested that the seed rate of chickpea be revised as per the size of seed as well as farming situations.
- Chairman also opined in promoting raised bed planter, especially for soybean and black gram crops in the region under out high rainfall areas and work on how to save the crop under excessive water.
- Presentation needs to be improved.

KVK, Sawai Madhopur

- Chairman suggested that concise and situation specific presentation need to b done.
- Need to work on input management groups on community basis
- Farmers participatory Seed Production need to be undertaken.
- More focus to establish live demonstrations units at KVK to make visibility of KVK in the district.

KVK, Nagaur-I

- Training and extension activities must be presented separately.
- IPM in package must be taken care.
- ICM mode CFLDs need to be conducted.
- Technical terms in presentation need to be considered.
- Selection of farmers in CFLD should be done as per guidelines.
- Farmer's commitment for application of NPK fertilizers need to be done.

KVK, Nagaur-II

- New recommended variety of moth bean RMO 2251 need to be demonstrated.
- Horticulture unit at farmer's fields must be developed.
- Good quality photographs of farmer's field must be taken by Camera only.
- Disposal pattern can be developed.
- Budget utilization must be properly mentioned.

KVK, Barmer-II

- Training is not part of extension activities and it must be presented separately.
- IPM practices in pulses must be followed.
- Management group of farmers in every village of adopted villages need to be formed.
- Situation based resulted need to be presented.

KVK, Jalore – I

- Presentation need improvement.
- Farming situations should be mentioned in each table.
- Proper doses of fertilizers, insecticides, fungicides must be mentioned.
- Proper selection of village by following PRA techniques need to be done.

KVK, Jodhpur – II

- Technical terms in presentation need to be used.
- Proper name of old variety/local seed need to be mentioned.
- IPM practices in pulses must be followed.
- Farmer's commitment for NPK use in pulses need to be undertaken.
- Proper dose of herbicide and insecticide need to be mentioned.

KVK, Sirohi

- IPM practices in pulses must be followed.
- MSP should be used as selling price in each crop.
- Proper dose of insecticide and herbicides must be mentioned.
- Learning by doing technique must be followed.

KVK, Banswara

- Presentation needs to be improved.
- IPM practices in pulses must be followed.
- Farmer's commitment for NPK use in pulses must be done.
- Proper dose of herbicide needs to be mentioned.
- Seed treatment with bio-fertilizer by awareness programme and demonstration.

KVK, Bhilwara-I

- IPM practice for pod borer in chickpea need to be followed.
- Green gram in summer season needs to be introduced.
- Gap analysis need to be rechecked.

KVK, Bhilwara-II

- IPM practice for pod borer in chickpea need to be followed.
- Situation based presentation must be done.
- ICM mode demonstrations need to be conducted.

KVK, Chittorgarh

- Situation or cluster wise result should be presented.
- CFLD must be organized in ICM mode
- Farmer's commitment for NPK use in pulses must be undertaken.

KVK, Dungarpur

- Other fertilizers along with DAP in CFLD need to be mentioned.
- Selling price must be taken as average of one week market price.
- Proper dose of herbicide must be applied.
- Hybrid variety of pigeon pea (IPH15-9) need to be used.
- Intercropping of sorghum with pigeon pea need to be introduced.
- Proper fertilizer like sulphur in pulses need to be applied.

KVK, Pratapgarh

- Farmer's commitment for NPK application must be done.
- Summer green gram at farmer fields need to be promoted.
- IPM practice for pod borer in chickpea need to be followed.

KVK, Rajsamand

- Farmer's commitment for NPK application must be done.
- Seed treatment should be promoted.
- Good quality photographs of demonstration should be taken.
- High rainfall management techniques can be identified.
- Farm pond preparation at farmers field need to be done.

KVK, Udaipur-II

- Farmer's commitment for NPK application must be done.
- Soil parameters must be undertaken.
- Proper and clear photograph of demonstration be used.
- Bio-pesticide in demonstration must be used.
- Adoptability of fertilizers by farmers need to be ensured.
- Proper seed rate of chickpea must be decided by farmers.

KVK, Hanumangarh-II

- Local seed of variety must be mentioned.
- Unit development like: Mother orchard of fruit plants, Nursery must be done.
- IPM package s must be followed.
- Bio-fertilizers need to be demonstrated.

Concluding remarks:

1. Input management group in every village should be formed for arrangement critical inputs.
2. Crop cafeteria of latest varieties should be formed at KVK farm.
3. Frequent visit and monitoring should be done at farmer's field.
4. 25-30 per cent produce under Cluster Front Line Demonstrations of Kharif, Rabi and Zaid/Summer Pulses crops must be kept as seed for next year multiplication and farmer to farmer exchange.

5. Commitment before sowing of demonstrations must be done for cent percent contribution of cost of NPK fertilizers and other external inputs by partner farmers to obtain desired level of productivity of pulses in per unit area.
6. Fact sheets must be given to each farmer to timely updating all data and information as well as empowerment of farmers.
7. IPM packages from sowing too harvesting must be followed in each demonstration.
8. Measurement of each field is essentially required and in future length and width of each field need to be presented.
9. At least one visit of SMSs (Agronomy, Plant Protection, Agricultural Extension & Home Science) in a week at each field.
10. Hard and soft data and information of each farmer must be mentioned.
11. Cluster of 8-10 ha must be maintained in each crop. Scattered fields will not serve purpose.
12. Field day must be organized in each village at the site of demonstration.


(S.K. SINGH)
DIRECTOR

21/11/2022

Copy to:

1. Hon'ble DDG (AE), ICAR, New Delhi for kind information.
2. Hon'ble Vice-Chancellor(s) of SAUs of Rajasthan & Haryana for kind information.
3. Director, ICAR-CAZRI, Jodhpur/ICAR-DRMR, Bharatpur/ICAR-NDRI, Karnal/ICAR-IARI, New Delhi for kind information and needful action.
4. DEEs of SAUs of Rajasthan & Haryana, please ensure to hold fortnightly meeting to review progress of CFLDs on Oilseeds & Pulses on regular basis.
5. Dr. M.S. Meena, PS (AE), ICAR-ATARI, Zone-II, Jodhpur for regular follow up.