

Dated:10.03.2016

Sub.- Project on “Generation advancement and development of new genotypes through pre breeding in Lentil and Kabuli Chickpea” funded under NFSM- Monitoring Report regarding.

Reference: F. No. CPS 5-8/2013-NFSM Dated 18th Feb. 2016.

The NFSM-funded ICAR-ICARDA collaborative research programme envisages pre-breeding and genetic enhancement in breaking yield barriers in kabuli chickpea and Lentil. The project was initiated from 2010-11 (Rabi Season). The other cooperating centres for hybridization involving accessions of wild species and land races are ICARDA, IIPR, IARI and RAK College of Agriculture.

Administrative Approval for Rs.314.21 Lakh vide DAC's letter No. CPS 5-25/20009-NFSM, dated 25th August, 2010 for the first Phase (2010-11 and 2011-12) and Rs. 296.59 Lakh vide letter No.CPS 5-13/2013-NFSM, dated 04.10.2013 for the second phase (2013-14 to 2016-17) has so far been issued.

To monitor the pre-breeding project on the above cited subject, undersigned visited R.A.K. College of Agriculture, Sehore (M.P.), the project site, on 2nd March 2016. Dr. Ashok Saxena, Project In-charge and Dr. R.P. Singh, In-charge MULLaRP, Dr. M.Yasin, Chickpea Breeder and Dr. Sandeep Sharma, Chickpea Entomologist, also accompanied the visit.

2. A presentation on the brief rationale of the project and outcome of the objectives and work-plan during Phase-I (2010-11 to 2012-13) and Phase –II (2013-14 to 2016-17) was made by the Project Team.

3. The presentation/meeting was followed by the field visit of the nurseries.

OBSERVATIONS

- As regards the achievement, the Wild races from ICARDA were tested at Sehore Station. These crosses were not found successful. Later on Land races and crosses from donor agency i.e. ICARDA were tested.
- Further 400 Land races of different countries were taken from IIPR, Kanpur, the lead centre for the project.
- The another project partners are RAK College, Sehore (Dr. Ashok Saxena, (PI) + IIPR (Dr. Jitendra Kumar, Lentil Breeding)+IARI (Dr. H.K. Dixit, PS/Breeder Division of Genetics) + NBPGR , New Delhi).
- The project has employed one SRF who is being paid only Rs. 16,000/- + HRA per

month instead of Rs. 25,000/- PM.

- During Ist Plan the characters identified earliness, bold seed size, wilt resistant. These donors are being used for hybridization programme. So far the project has achieved up to F-3 generation.
- **The project has proceeded with following activities:**
 - a. Evaluation and maintaining of landraces ii) Multiplication of Wild accession iii) Crossing Block a) Cultivation with wild b) Cultivated with cultivated iv) Multiplication of wilt resistant material v) Material sown in wilt sick plot for wilt screening vi) Multiplication of promising lines received from ICARDA headquarter in 2014-15 for early and F4 generation vii) Evaluation of heat tolerant lines

Segregating/Advance generations efforts are given under table :

Generation	No. of Crosses
F1	24
F2	27
F3	22
F4	13
F5	11
Multiplication	
Evaluation of selected landraces for bold seed high yield	28 lines
Evaluation of Selected landraces for early maturity	28 lines
Multiplication of SP selected in 2014-15 for high biomass, bold seed size	

- **The summary findings as below, were also observed during the field visit:**
 - i) Landraces from different origin of countries (400 no.) are maintained well and evaluation of these for particular traits like early maturity, high yield, bold seed size, high biomass and wilt resistance is made.
 - ii) Out of 400 landraces are being selected and multiplied for bold seed size with high yield (28), earliness, and high biomass (28), early maturity(30) respectively.
 - iii) Crosses were attempted to incorporate gene of interest from ICARDA donors for e.g. High yield, bold seed size, wilt resistant and high temperature tolerance.
 - iv) Crosses were attempted for wilt resistance from wild donor.
 - v) Generations (F₁,F₂,F₃,F₄ and F₅) are being advanced to next level.

- vi) In F₃ and F₄ generations some lines showed early maturity with good biomass.
- vii) Selection for early maturity, heat tolerance, high yield, bold seed size and high biomass were made from crosses of JL 3 X selected landraces of ICARDA generated under the project.
- viii) Three lines from F₄ generation showed early maturity with high yield will be tested in Station Varietal Trial in 2016-17 for inclusion in IVT.

SUGGESTION

- i) Since it is a collaborative project. Such projects need that breeders /partners should visit the field trial/ nursery atleast once in crop season.
- ii) Further to monitor such collaborative project, the similar Headquarter Team (DAC&FW) or it's representative i.e. CDDs should visit all the centers / project partners field for comparative assessment.
- iii) The RA (Research Associate) /SRF (Senior should be paid the prescribed honorarium of Rs. 25000/- as per revised rates. It is also need to be ascertain that RA/SRF/Contractual Staff under the project is paid equally by each participating centers including ICARDA.