

Research achievements (2017-18)

New entries submitted in AICRP on Chickpea (IVT trial)

Research work under ICAR-AICRP Chickpea was mainly oriented towards enhancing productivity and production of chickpea through development of high-yielding, multiple disease resistance, intercropping, and nutrient and water management in the Bundelkhand region. Large entries from various trials, viz. IVT, AVT (rainfed, irrigated, kabuli, desi and extra large kabuli) were tested and estimated for yield, its contributing traits and disease tolerance/resistance.

Two new high-yielding entries, each in Kabuli (RLBGK-1 and RLBGK-2) and Desi (RLBG-1 and RLBG-2) were submitted in the IVT trials 2017-18 for zone-wise screening for yield and yield contributing traits, disease and insect resistance /pest tolerance, and susceptibility indexing for various diseases.

Trials in collaboration with other organisations like ICARDA, ICRISAT and ICAR-IARI, New Delhi were conducted for screening of high-yielding and disease-tolerant/resistant chickpea lines.

Entries submitted in the AICRP trials during Rabi 2017-18

S.N.	Entry	Pedigree	Seed yield (t/ha)		Trial
			Test entry	Check	
1.	RLBGK-1	JGK 1 x ICCV 95333	1.51	1.43 (KAK 2)	IVT Kabuli
2.	RLBGK-2	ICC12961 x KAK 2	1.48	1.43 (KAK 2)	IVT Kabuli
3.	RLBG-1	JAKI 9218 x JG 74	3.02	2.29 (JG 16)	IVT Desi
4.	RLBG-2	(ICCV 10 x GG 2) x ICCV 92944	3.01	2.29 (JG 16)	IVT Desi

Entries promoted in AICRP trials AVT-1 (Rabi 2018-19)

S.N.	Entry	Pedigree	Reported seed yield (t/ha)	Promoted in trial 2018-19
1.	RLBGK-1	JGK 1 x ICCV 95333	1.60 (at second position in SZ)	AVT-1 (Kabuli + Extra-large seeded kabuli)
2.	RLBGK-2	ICC12961 x KAK 2	1.42(at fifth position in SZ)	AVT-1 (Kabuli + Extra-large seeded kabuli)
4.	RLBG-2	(ICCV 10 x GG 2) x ICCV 92944	2.11 (at third position in ECZ)	AVT-1 (Desi-irrigated, timely sown)

Entries submitted in the AICRP trials (Rabi 2018-19)

Trial	Entry	Pedigree	Seed yield (t/ha) in station trial
IVT Kabuli	RLBGK-3	KAK 2 x ICC 3279	1.38

IVT Kabuli	RLBGK-4	(ICCV 92337 x ICC14194) x JGK1	1.43
IVT Desi	RLBG-3	[(ICC 4958 x ICCV 10) x (ICCV 93952 x ICCV 93954)] x [(ICCV 94954 x ICCV 96970) x (ICCV 97105 x ICCV 00108)]	2.36
IVT Desi	RLBG-4	(ICC 4958 x ICCV 97105) x (ICCV 10 x ICCV 00108)	2.19

Pathological studies

- Evaluation of 252 chickpea entries of IVT, AVT1, AVT2 (desi, Kabuli, rainfed, late-sown) each against wilt and dry root rot disease was taken up by pot culture method where 92 entries exhibited incidence of wilt of 70% and above. Nineteen entries were in the range of 80-95% wilt incidence, 14 entries exhibited low incidence (below 20%). On the other hand, 59 entries exhibited the incidence of root rot in the range of 60-95% and 16 entries exhibited low incidence of root rot (below 20%).
- Evaluation of 219 IVT, AVT 1 and AVT 2 entries (desi, kabuli, rainfed, late-sown, MH, DTIL etc.) against collar rot disease of chickpea was taken up by pot culture method. Only four entries, viz. NBeG 773, RG 2015-05, GNG 2299 and CSJ 882 exhibited moderate resistance ranging from 19.4-29.2%.
- The set of differentials for *Fusarium oxysporum* f. sp. *ciceris*, viz. C 104, JG 74, CPS 1, BG 212, WR 315, KWR 108, Chaffa, Annegiri, L550, Delta and K 850 are being multiplied.
- Multiplication of wilt susceptible variety, JG-62 was taken up to supply to different centres for its utilization as a check in wilt screening at different AICRP centres.
- Evaluation of new strains of *Trichoderma* along with combination of fungicides for the management of collar rot of chickpea showed that seeds treated with *Trichoderma harzianum* T6 + Propineb were most effective against the *Sclerotium rolfsii* by improving plant population and yield of chickpea.
- Partial characterization of coat protein gene of virus infecting chickpea was done.