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RESULTS OF REPLICATED EVALUATION OF NEW CHICKPEA GERMPASM  
ACCESSIONS FROM MADHYA PRADESH, INDIA



ICRISAT

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## RESULTS OF REPLICATED EVALUATION OF NEW CHICKPEA GERMPLASM ACCESSIONS FROM MADHYA PRADESH, INDIA

### IV. New accessions from Madhya Pradesh, India

This is the fourth report on results of replicated evaluation of chickpea germplasm. We have been testing specific sets of germplasm accessions for their agronomic performance and results were distributed to chickpea workers. The evaluation is carried out in replicated and relatively larger plot size. By the term 'germplasm set' we mean accessions that were sampled from a particular geographic region or country and have some similarity in morphoagronomic characteristics.

During the chickpea maturity seasons of 1986 and 1987, we conducted two germplasm expeditions in Madhya Pradesh and collected 351 seed samples from farmers' fields. According to information obtained from the farmers, the majority of the samples are landraces. Some of these samples are apparently heterogenous for characters such as pod size, single/twin podded, seed surface etc. Based on the observation from the initial seed increase growouts, we subdivided these samples into homogenous groups that resulted in 465 samples from the original 351 collected from Madhya Pradesh.

To facilitate evaluation of these accessions, we grouped these into the following five germplasm sets:

**Germplasm sets****No. of accessions**

1. Twin podded	20
2. Kabuli and large-seeded desi	25
3. Tuberculated seed type	155
4. Short growth cycle	160
5. Medium and long growth cycle	105

These germplasm sets were evaluated at ICRIAT Center and at Gwalior.

**Evaluation at ICRIAT Center**

All the five sets were grown at ICRIAT Center in three replications in 1.2 x 4 m plots in augmented, randomised block design. Lattice design was used for those with less number of entries. Appropriate check cultivars were used in the respective trials. Sowing was made in vertisol field on 4 Nov 1988 in 4 row plots of 4 m length, 30 cm apart, and 10 cm between plants. As a basal fertilization, 20 kg N and 60 kg P per ha were applied. Two furrow irrigations, one right after seed sowing and another after one month were given. Five insecticide sprays were made to check pod borer infestation.

Ten representative plants per plot were selected at harvest time on which plant canopy height, number of pods per plant, and number of seeds per pod were recorded. Plot yield was recorded from all the 4 rows. The observations of the plots were included in statistical analysis if the crop growth and plant stand were near normal.

The results of the 3 trials (set 1, 2, and 4) are presented in this report. Sets 3 and 5 were damaged by soil salinity and therefore the data was not analysed. These sets will be sown again in 1989/90 for evaluation. Summary of performance of the 3 trials are shown in Tables 1 to 3.

### Evaluation at Gwalior

Second and fifth gerplasm sets were also evaluated at Gwalior. Sowing was done on 5 Nov 1988 on 60 cm apart ridges, accommodating two rows on each ridge and maintaining a plot size of 1.20 x 4.0 m. Ten centimeter spacing was maintained between plants. The soil at Gwalior is peculiar in that it was low in moisture holding capacity and so the crop was irrigated four times. The other details on fertilization and recording of observations were similar to those carried out at ICRISAT Center. The results of these two experiments are given in Tables 4 and 5.

The information from the five trials (3 at ICRISAT Center and 2 at Gwalior) has been further summarized in Table 6. For each set of materials, the range of variation of the important yield characters are given along with the performance of respective characters in check cultivars. The list of the top five seed yielding accessions are also given. Chickpea scientists are invited to further test and utilise these promising lines in their research programs.

All of these accessions are yet to be tested for tolerance to biotic and abiotic stresses and seed quality characteristics.

Table 1. Summary performance of twin podded chickpea accessions of Madhya Pradesh, India evaluated at ICRISAT Center during 1988/89.

ICC No.	Mean Yield kg ha <sup>-1</sup>	Days to 50% Rank flowering	Flowering Duration (Days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)	
14614	1211	1	50	27	23.3	97	34	1.0	15.7
JG 62	1200	2	49	29	25.3	97	34	1.2	15.7
14772	1145	3	50	28	24.2	98	33	1.2	15.5
15160	1122	4	46	31	23.5	99	37	1.2	16.0
15158	1083	5	51	28	23.4	97	37	1.0	15.6
ANNIGERI <sup>1</sup>	1078	6	46	33	25.5	103	36	1.2	19.8
15084	1078	6	50	28	25.0	99	40	1.0	15.8
15169	1072	7	50	28	24.5	99	31	1.0	15.3
15143	1067	8	49	28	25.3	99	37	1.1	16.0
14784	1022	9	50	30	27.2	100	44	1.1	15.3
15109	1006	10	56	27	25.3	101	26	1.1	13.7
14697	989	11	49	29	25.6	98	31	1.1	15.7
14793	989	11	63	22	27.2	108	38	1.1	13.9
15195	989	11	54	31	27.8	106	47	1.1	13.9
15083	983	12	51	29	23.0	98	30	1.2	13.6
15150	972	13	51	28	24.3	97	30	1.0	15.9
14845	945	14	50	29	24.7	101	34	1.2	15.1
ANNIGERI DP <sup>1</sup>	839	15	46	33	23.7	99	40	1.1	16.4
SE±	92.53		1.10	1.02	0.89	1.22	4.14	0.08	0.21
Mean	1044		50.7	28.7	24.9	99.8	35.4	1.1	15.5
CV(%)	15.4		4.0	6.1	6.2	2.1	20.3	12.9	2.3

1. Check cultivar

Table 2. Summary performance of labuli and bold-seeded desi chickpea accessions of Madhya Pradesh, India, evaluated at ICRISAT Center during 1988/89.

ICC No.	Mean Yield		Days to 50% flowering	Flowering duration (days)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
	kg ha <sup>-1</sup>	Rank						
4953 <sup>1</sup>	1360	1	46	32	103	32	1.1	33.4
14627	1330	2	45	32	106	28	1.0	32.2
15070	1280	3	45	32	103	27	1.0	32.0
14628	1280	3	46	34	102	32	1.0	30.3
14637	1260	4	56	28	109	35	1.1	13.7
15151	1260	4	49	30	104	33	1.1	29.0
14643	1250	5	46	31	103	23	1.0	32.6
15152	1230	6	57	27	108	31	1.3	17.0
14663	1210	7	47	31	105	28	1.0	32.6
14649	1210	7	47	30	105	19	1.0	31.4
14648	1210	7	47	30	103	24	1.0	31.4
15073	1190	8	44	32	103	26	1.0	30.5
14694	1170	9	45	33	105	30	1.0	31.3
15192	1170	9	62	26	112	32	1.2	20.3
15076	1150	10	47	29	103	31	1.0	31.3
14673	1140	11	62	25	111	26	1.1	31.8
15077	1120	12	46	30	102	23	1.0	31.3
14696	1110	13	70	26	114	41	1.3	18.8
14625	1110	13	47	31	103	25	1.0	31.5
14665	1080	14	47	30	105	27	1.0	31.6
L 550 <sup>1</sup>	1070	15	62	27	113	29	1.1	19.2
14636	1060	16	62	28	114	25	1.1	21.9
14607	1030	17	45	32	105	18	1.0	32.5
14808	930	18	63	25	109	28	1.0	34.0
14639	910	19	62	26	110	30	1.1	20.1
SE±	114.4		1.4	1.2	1.3	3.6	0.0	1.0
MEAN	1160.0		52.0	30.0	106.0	28.0	1.0	28.0
CV(%)	17.0		4.5	7.0	2.1	22.1	8.0	6.0

1. Check cultivar.

Table 3. Summary performance of short-duration chickpea accessions of Madhya Pradesh, India, evaluated at ICARISAT Center during 1988/89.

ICC No.	Yield kg ha <sup>-1</sup>	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
15129	1817	51	27	25.6	96	34	1.1	14.6
14750	1796	56	25	27.3	99	32	1.1	13.5
14743	1784	59	24	27.3	103	33	1.0	15.0
14670	1783	50	29	25.1	100	32	1.0	14.5
15128	1763	54	23	26.0	97	28	1.0	14.9
14683	1733	59	27	26.4	98	27	1.4	14.0
15121	1731	59	24	24.0	100	34	1.3	13.6
15115	1711	55	26	29.5	100	26	1.1	20.7
14729	1708	59	24	24.6	98	26	1.2	13.5
15118	1696	60	23	26.0	98	31	1.3	13.7
15104	1693	63	22	28.0	102	30	1.3	13.8
15155	1686	59	23	25.5	100	29	1.6	12.9
15231	1676	55	25	26.6	96	33	1.4	13.9
15111	1674	59	23	26.4	97	28	1.5	14.1
15165	1670	56	23	24.9	98	31	1.2	13.5
14634	1663	60	22	27.0	99	22	1.1	13.8
14686	1663	60	23	27.2	99	31	1.2	13.7
14744	1657	53	27	25.5	102	25	1.1	14.9
15101	1655	59	23	27.1	99	29	1.3	13.5
14701	1644	55	24	25.0	99	32	1.1	14.9
15154	1639	57	23	25.0	98	35	1.3	12.7
15099	1635	58	24	26.2	99	28	1.1	14.0
15230	1634	53	26	27.6	99	28	1.2	14.8
14733	1632	55	26	24.2	100	25	1.1	14.0
14687	1631	60	22	27.0	98	31	1.3	14.0
14868	1628	60	23	24.6	101	37	1.2	13.4
14654	1624	54	26	24.5	96	28	1.2	15.9
15229	1616	53	26	24.7	101	27	1.2	15.3
14690	1615	60	23	26.9	98	31	1.1	12.4
15125	1611	55	25	27.5	96	25	1.2	13.8
15103	1609	60	23	25.9	100	35	1.3	14.2
14857	1607	62	22	27.4	101	29	1.3	15.5
14643	1603	61	22	26.6	99	28	1.2	13.7
14852	1596	62	22	28.2	101	31	1.2	15.0
14650	1595	46	30	25.0	97	33	1.2	14.1

Cont....



ICC No.	Yield kg ha <sup>-1</sup>	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
14740	1585	54	25	25.7	97	23	1.3	14.4
14646	1582	60	23	26.0	98	30	1.2	13.7
14728	1565	58	25	25.0	98	38	1.4	12.4
14705	1563	59	23	25.5	99	26	1.2	12.8
14760	1558	59	23	26.0	98	30	1.1	13.6
14847	1558	58	23	24.8	99	25	1.4	13.8
K 850 <sup>1</sup>	1557	59	24	27.5	104	22	1.1	27.8
14613	1552	47	29	24.4	98	26	1.1	15.8
15127	1547	53	26	26.5	98	29	1.3	13.8
14753	1547	61	23	25.8	101	34	1.1	13.9
15138	1542	59	24	26.1	101	30	1.2	12.0
14754	1542	61	22	26.6	102	35	1.1	13.7
14682	1533	58	23	24.8	96	28	1.3	13.9
15133	1527	50	28	24.5	94	29	1.1	14.9
14727	1526	59	23	24.6	101	30	1.3	11.8
14738	1523	53	27	24.8	99	28	1.1	15.3
14851	1515	62	23	26.0	101	24	1.1	14.0
14624	1513	58	24	23.9	105	29	1.1	13.8
14651	1512	48	31	24.0	101	30	1.1	12.7
15564	1512	52	25	24.8	94	29	1.3	13.8
14629	1511	55	25	27.2	99	32	1.3	13.3
15170	1507	59	23	25.3	99	31	1.3	12.4
15117	1503	59	22	25.8	99	30	1.3	13.1
14756	1496	61	22	26.1	96	28	1.0	14.1
14731	1483	53	27	24.5	97	24	1.1	15.4
15181	1483	62	23	24.9	105	31	1.4	12.8
14638	1482	56	26	25.2	100	32	1.2	13.8
14652	1479	55	25	28.2	102	21	1.1	19.8
15137	1471	58	23	24.7	96	33	1.1	13.1
14862	1462	61	23	26.7	100	25	1.1	13.5
15096	1461	61	23	25.3	98	28	1.1	14.2
14714	1457	55	25	25.0	99	33	1.0	12.7
14619	1454	54	25	24.2	96	27	1.1	14.0
15239	1451	56	24	24.4	94	20	1.2	-
15113	1451	55	25	24.5	99	29	1.2	13.8

Cont...

ICC No.	Yield kg ha <sup>-1</sup>	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
14746	1450	61	22	26.7	99	25	1.2	14.4
15087	1449	61	21	24.9	99	32	1.1	13.3
14758	1444	57	24	24.8	100	29	1.3	11.7
14700	1437	58	24	24.5	99	31	1.3	13.8
15561	1434	55	26	24.0	96	33	1.1	13.2
14848	1430	60	23	26.9	101	23	1.2	13.9
14749	1428	56	24	25.6	101	32	1.1	13.7
14617	1428	52	29	24.3	98	29	1.0	13.9
14752	1422	60	23	26.8	102	33	1.1	14.2
14650	1419	60	23	25.1	95	23	1.1	14.3
15091	1417	59	23	25.9	98	25	1.2	13.7
14662	1416	61	23	24.4	99	27	1.1	13.4
15147	1411	59	22	23.3	102	26	1.4	11.7
14668	1409	61	23	24.0	101	27	1.2	13.1
14676	1409	60	23	26.1	98	29	1.3	13.8
14658	1407	59	23	24.1	96	25	1.1	13.3
15559	1405	50	27	24.6	95	29	1.2	14.4
14616	1396	58	24	26.3	97	26	1.0	12.8
14769	1396	60	23	24.8	96	27	1.3	13.5
14724	1392	58	24	25.6	98	31	1.3	12.6
15560	1388	52	27	25.8	96	35	1.0	14.8
14858	1388	62	21	26.9	101	29	1.2	14.2
14735	1382	56	25	25.5	100	31	1.1	13.7
14864	1379	49	29	22.6	97	23	1.1	13.7
14730	1363	57	24	24.7	101	24	1.2	13.8
14719	1362	59	24	24.6	101	31	1.4	13.3
14757	1356	62	23	26.2	100	28	1.0	13.5
BDN 9-31	1345	47	29	22.7	95	22	1.2	13.3
14717	1328	59	24	26.8	102	30	1.3	12.5
14722	1326	58	25	23.7	101	27	1.3	12.0
14737	1325	55	26	24.2	100	25	1.1	14.0
14846	1324	60	22	25.2	97	26	1.3	15.1
14770	1319	62	23	24.3	103	32	1.2	13.4
ANNICER1	1317	49	29	24.2	97	30	1.2	17.9
15233	1316	54	26	25.4	99	26	1.5	13.8

3. Continued

ICC No.	Yield kg ha <sup>-1</sup>	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
15088	1313	60	23	22.8	99	27	1.1	12.7
14865	1313	61	22	26.2	96	28	1.1	12.8
14707	1312	56	25	24.9	97	29	1.4	12.4
14621	1303	57	24	24.5	99	24	1.2	12.9
15238	1297	56	24	23.8	100	26	1.3	14.8
14854	1294	59	23	25.0	96	21	1.0	14.8
15563	1291	58	25	23.7	99	26	1.4	11.5
14859	1282	60	23	28.0	101	25	1.1	14.7
14920	1282	58	24	26.6	102	28	1.1	14.9
14640	1273	58	24	23.9	95	26	1.1	13.2
14635	1272	61	21	30.0	96	30	1.2	13.9
14615	1270	60	23	24.7	100	28	1.2	14.2
14623	1269	50	27	21.9	94	24	1.0	15.0
14732	1267	62	23	27.8	105	25	1.2	11.4
14611	1264	71	24	31.7	109	33	1.1	12.9
14761	1263	62	21	22.4	103	25	1.3	14.1
15558	1259	55	25	26.5	97	30	1.3	11.1
14742	1257	58	25	25.4	98	27	1.1	13.7
14645	1256	60	22	25.6	96	23	1.1	13.5
14631	1254	53	27	23.9	99	22	1.1	14.3
14685	1251	60	23	23.7	97	27	1.2	13.6
14721	1247	62	23	23.6	102	29	1.1	13.8
14856	1243	61	22	25.4	101	25	1.0	14.5
15112	1239	60	23	26.2	99	27	1.4	14.0
15102	1233	61	23	25.7	103	26	1.2	13.2
15122	1231	59	24	26.6	94	42	1.3	14.2
14626	1229	56	23	24.2	98	25	1.3	13.4
14747	1228	56	25	23.9	102	26	1.3	13.9
14725	1220	57	24	24.2	100	26	1.1	14.2
15145	1213	56	25	22.5	95	26	1.1	13.4
14855	1211	62	22	23.0	102	25	1.1	14.3
14706	1204	60	22	24.0	96	28	1.2	13.4
15177	1202	62	23	22.5	102	26	1.1	13.4
15236	1195	57	24	24.5	100	27	1.4	13.7
14655	1193	52	28	24.4	94	27	1.1	15.0

Cont

## 3. Continued

ICC No.	Yield kg ha <sup>-1</sup>	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
14767	1188	58	25	23.5	95	22	1.0	13.4
15114	1185	55	25	24.1	98	31	1.1	13.7
15119	1160	53	27	22.6	99	29	1.3	13.9
14657	1157	49	28	22.4	97	23	1.1	13.3
14661	1155	62	22	23.7	96	28	1.1	12.9
15097	1139	59	22	25.1	96	20	1.1	13.9
14844	1128	63	22	23.2	102	24	1.3	13.1
15179	1123	65	24	22.3	107	26	1.2	10.3
15180	1123	61	23	25.3	101	28	1.4	12.6
15176	1098	66	23	21.6	108	31	1.2	10.4
15141	1093	56	25	21.7	101	34	1.2	11.5
14921	1054	50	28	22.6	97	22	1.2	13.9
14659	1045	63	23	25.5	107	25	1.4	11.6
15178	1022	67	21	22.2	104	22	1.2	11.2
15173	1017	71	21	26.4	105	32	1.4	11.1
15172	877	69	28	24.7	107	33	1.2	10.7
15175	870	68	23	24.9	106	22	1.3	9.9
SE ±	178.6	1.3	1.1	1.2	2.1	3.8	0.1	0.4
Mean	1413.9	57.6	24.3	25.2	99.1	28.2	1.2	13.9
CVA	19.9	3.6	6.8	7.8	3.3	21.4	14.6	4.8

1. Check cultivar.

Table 4. Summary performance of medium- long-duration chickpea genotypes in Madhya Pradesh, India evaluated at Gwalior during 1988/89.

ICC No.	Yield kg ha <sup>-1</sup>	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
14817	3411	82	34	68.2	141	67	1.5	14.7
14802	3355	80	35	56.4	141	71	1.3	14.5
14791	3344	86	34	66.7	141	73	1.3	14.8
14811	3315	81	33	60.7	139	54	1.4	14.4
14798	3224	82	36	57.2	142	66	1.5	15.1
14821	3220	84	32	57.8	144	54	1.2	14.5
14803	3214	78	36	56.4	133	72	1.3	14.3
15202	3185	85	29	53.2	141	70	1.5	15.2
14822	3170	85	30	55.6	142	76	1.3	14.4
15187	3160	83	32	56.2	143	71	1.4	14.4
15220	3121	85	31	60.0	139	50	1.4	14.5
15188	3070	82	34	55.2	141	59	1.6	13.9
15227	3067	90	32	60.3	147	51	1.1	22.2
14833	3065	83	33	58.2	142	67	1.5	13.7
15221	3008	84	29	48.5	139	69	1.6	14.3
15226	3005	88	32	62.2	144	43	1.2	21.4
14786	2994	85	32	61.8	143	70	1.3	14.0
15217	2978	85	33	63.3	141	73	1.6	14.2
15205	2974	80	32	56.4	143	62	1.5	15.2
15218	2969	83	34	61.5	143	69	1.6	14.3
14783	2945	87	28	56.6	144	58	1.3	14.8
ANNICERII	2942	60	52	55.8	139	54	1.3	20.5
15209	2941	83	31	58.5	139	71	1.7	14.2
14773	2935	87	30	56.0	143	56	1.6	14.2
14768	2930	83	33	58.5	141	67	1.4	14.2
14813	2928	86	33	60.9	141	63	1.4	13.1
K 850 <sup>1</sup>	2916	82	34	59.6	141	43	1.3	28.3
14795	2915	88	28	58.5	141	77	1.6	15.1
15186	2913	88	30	61.3	143	48	1.2	21.1
15201	2910	88	31	60.3	144	48	1.2	22.1
14809	2905	84	32	57.3	141	76	1.5	14.0
14779	2895	85	29	57.1	141	71	1.3	14.7
14785	2883	85	28	58.2	138	71	1.4	15.2
14841	2880	87	28	54.3	140	63	1.6	15.8
15223	2677	87	23	55.8	145	64	1.5	14.5

Cont.....

## 4. Continued.

ICC No.	Yield kg ha <sup>-1</sup>	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
14774	2074	86	32	59.2	144	63	1.5	13.9
14810	2872	81	31	55.6	136	69	1.4	14.2
14814	2862	81	36	64.7	142	49	1.5	14.7
14816	2859	79	33	57.0	137	64	1.7	13.7
14818	2850	85	29	54.6	138	85	1.5	12.7
15216	2846	86	29	61.7	142	51	1.3	16.7
15204	2840	81	32	52.4	138	66	1.7	13.4
15225	2839	85	30	55.1	141	63	1.2	14.1
14806	2830	84	31	59.6	141	67	1.4	13.6
14792	2826	86	28	55.5	141	55	1.1	15.2
15208	2807	83	29	52.7	138	52	1.7	13.8
14799	2807	87	25	52.6	137	70	1.3	14.4
15198	2804	83	30	53.7	137	55	1.5	14.5
14807	2803	77	36	55.5	141	67	1.5	14.2
15211	2787	79	38	57.8	140	67	1.4	13.8
15214	2777	80	33	52.6	138	69	1.5	14.2
15215	2774	86	26	59.2	143	57	1.7	15.6
14800	2770	81	31	53.1	137	60	1.5	14.3
15228	2752	75	36	58.8	137	54	1.7	15.2
15189	2731	80	34	58.3	140	49	1.4	15.2
14842	2730	89	27	60.2	142	56	1.4	16.2
14830	2726	81	33	58.0	141	60	1.3	13.9
14796	2722	85	30	57.2	143	59	1.3	14.8
15203	2717	86	29	56.7	139	72	1.8	12.9
14794	2714	88	27	59.2	141	64	1.3	15.3
15210	2711	84	32	53.5	141	75	1.4	14.5
15197	2709	87	31	60.2	141	65	1.4	14.7
14836	2709	87	29	52.9	140	61	1.1	15.4
14775	2692	84	30	57.5	141	82	1.4	14.6
14843	2691	88	30	61.0	142	56	1.1	14.8
14820	2691	87	28	59.1	143	54	1.7	13.1
14827	2690	85	30	55.3	139	63	1.4	16.1
14823	2689	87	27	52.8	137	45	1.3	12.9
14778	2686	84	30	58.2	138	56	1.8	12.4
14812	2675	83	31	60.2	138	56	1.2	15.4

## 4. Continued.

ICC No.	Yield kg ha <sup>-1</sup>	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)
K 3151	2674	74	38	57.6	137	63	1.1	14.7
14804	2671	82	30	55.5	141	61	1.5	14.3
15191	2661	82	33	57.7	142	57	1.4	14.9
14832	2660	87	29	54.3	143	65	1.5	15.2
14827	2659	84	30	58.6	140	54	1.2	14.6
15200	2632	78	33	53.5	136	52	1.2	14.4
15199	2629	90	24	59.6	143	51	1.2	19.2
14828	2614	85	30	55.1	139	62	1.5	13.6
14781	2613	84	31	56.0	140	61	1.3	13.0
14790	2609	85	28	58.5	138	53	1.4	14.6
14831	2601	86	30	54.0	142	62	1.3	13.6
14819	2595	82	34	56.3	143	66	1.6	13.6
14834	2591	86	31	60.9	139	63	1.4	14.9
14840	2587	85	28	56.2	142	58	1.5	13.3
14829	2551	85	29	57.6	137	48	1.4	14.6
14797	2550	84	31	57.6	141	58	1.2	14.9
14782	2539	84	29	55.6	137	64	1.3	14.8
14805	2536	81	34	55.3	140	61	1.6	13.5
14826	2504	79	32	56.0	136	59	1.5	13.3
15222	2493	87	24	50.1	134	56	1.3	13.8
15266	2493	81	31	59.7	136	45	1.6	14.4
15224	2491	83	30	49.9	137	57	1.6	15.4
14815	2487	84	31	59.8	141	56	1.3	15.1
14839	2455	83	30	58.5	140	55	1.3	16.5
14824	2437	83	28	56.1	135	58	1.3	14.0
15190	2432	86	26	48.5	140	73	1.6	14.4
15838	2419	83	30	53.1	136	54	1.3	14.9
14787	2375	86	29	60.5	140	60	1.3	14.7
14777	2350	83	31	55.5	138	69	1.5	13.0
14776	2225	84	27	53.8	137	54	1.4	13.2
14801	2220	81	28	52.2	134	57	1.4	14.3
15194	2155	85	27	54.4	137	50	1.3	15.2
SE*	243.7	1.9	2.4	3.1	2.4	8.8	0.2	0.6
Mean	2791.1	83.0	31.6	57.1	140.0	60.8	1.4	13.3
CV%	13.2	3.4	11.4	8.1	2.6	21.9	16.3	5.7

1. Check cultivar.

Table 3. Summary performance of kabuli and bold-seeded desi chickpea accessions of Madhya Pradesh, India, evaluated at Gwalior during 1988/89.

ICC No.	Mean Yield kg ha <sup>-1</sup>	Days to 50% Rank flowering	Flowering duration (days)	Plant height (cm)	Days to maturity	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)	
15115	3097	1	82	76	82.3	145	44	1.5	23.9
15116	2774	2	76	41	75.5	141	47	1.3	23.2
15117	2401	3	89	31	71.6	147	42	1.2	22.4
L 590 <sup>1</sup>	2888	4	76	42	70.9	142	43	1.2	23.4
14648	2872	5	64	51	83.5	145	31	1.0	35.1
15112	2606	6	68	49	76.8	141	56	1.4	19.5
14637	2603	7	83	36	74.0	140	46	1.3	16.7
14645	2498	8	51	64	71.4	135	39	1.0	34.2
14625	2458	9	59	57	70.5	143	38	1.0	33.9
14665	2392	10	60	59	75.3	141	42	1.1	32.4
15051	2383	11	60	53	74.3	143	33	1.1	35.7
14663	2337	12	50	56	77.2	142	40	1.1	34.1
15073	2316	13	60	56	76.9	141	30	1.1	33.2
15073	2298	14	68	50	79.2	140	51	1.0	29.3
14628	2295	15	59	58	78.3	143	31	1.2	33.3
14694	2267	16	67	49	75.1	145	39	1.2	35.3
14627	2168	17	60	56	75.3	141	35	1.1	32.7
14637	2147	18	84	34	75.2	144	22	1.1	24.7
14608	2091	19	85	33	87.3	144	24	1.0	36.3
15073	2085	20	67	54	82.5	146	50	1.1	29.8
14673	1991	21	83	34	78.7	142	48	1.0	33.4
SE <sub>e</sub>	245.76		4.34	4.23	3.84	1.87	5.22	0.08	0.78
MEAN	2474.0		69.7	47.7	76.7	142.6	38.6	1.1	29.5
CV(%)	17.2		10.8	15.3	9.7	2.3	23.4	12.5	4.0

1. Check cultivar.



Table 6. Summary results of replicated evaluations of chickpea germplasm of Madhya Pradesh origin, tested at ICRISAT Center and Gwalior, 1988/89.

	Days to 50% flowering	Flowering duration (days)	Plant height (cm)	Range of variation				Seed yield kg ha <sup>-1</sup>	Top five seed yielding accs.	
				Matu- rity (days)	Pods plant <sup>-1</sup>	Seeds pod <sup>-1</sup>	100-seed mass (g)		Acc. No.	Yield kg ha <sup>-1</sup>
<b>Trial 1</b>										
Twin podded Evaluation at ICRISAT Center Entries: 16	44-64	21-36	21.5-29.5	96-113	17-57	1.0-1.5	13.5-20.3	650-1383	ICC 14614	1211
JG 62 (check)	49	29	25.3	97	34	1.2	15.7	1200	JG 62	1200
									ICC 14772	1145
									ICC 15160	1120
									ICC 15158	1083
<b>Trial 2</b>										
Kabuli and large-seeded desi Evaluation at ICRISAT Center Entries: 24	43-74	24-37	-	98-117	13-55	1.0-1.5	13.2-36.2	717-1767	ICC 4953	1360
L 550 (check)	62	27	-	113	29	1.1	19.2	1070	ICC 14627	1330
									ICC 15070	1280
									ICC 14628	1280
									ICC 14637	1260
<b>Trial 3</b>										
Short dur. Evaluation at ICRISAT Center Entries: 157	41-73	18-33	15.2-37.1	92-113	11-57	1.0-1.9	9.5-29.2	208-3062	ICC 15129	1817
Annigeri (check)	49	29	24.2	97	30	1.2	17.9	1317	ICC 14750	1796
									ICC 14743	1784
									ICC 14670	1783
									ICC 15128	1763
<b>Trial 4</b>										
Med. & long dur. Evaluation at Gwalior Entries: 102	58-90	20-56	36.8-79.8	130-147	31-121	1.0-2.1	12.0-33.2	1476-4332	ICC 14817	3411
JG 315 (check)	74	38	57.6	137	63	1.0	14.7	2674	ICC 14802	3355
									ICC 14791	3344
									ICC 14811	3315
									ICC 14798	3224
<b>Trial 5</b>										
Kabuli and large seeded desi, Evaluation at Gwalior Entries: 21	45-90	27-71	51.4-93.1	134-148	18-73	1.0-1.7	15.3-38.2	1339-3736	ICC 15115	3097
L 550 (check)	76	42	70.9	142	43	1.2	23.4	2888	ICC 14639	3084
									ICC 14696	2901
									L 550	2888
									ICC 14648	2872