

Table 1. Variability parameters for important characters in exotic pulses

Character	Cowpea		Guar		Mothbean		Mungbean	
	Range	Mean	Range	Mean	Range	Mean	Range	Mean
Days to 50 % flowering	40 – 60	48	35 – 45	41	32 – 90	66	32 – 61	49
Days to 50 % maturity	54 – 90	64	114 – 116	115	60 – 110	89	55 – 90	78
Plant height (cm)	14 – 80	25.1	48 – 107	78.4	11.7 – 35.4	26.2	12.8 – 45.4	31.9
Branches	1 – 10	5.6	2 – 9	6.0	2 – 8	5.0	1 – 6	3.0
Seed yield/ plant (g)	2.5 – 48.9	18.2	4 – 11	6.8	1.6 – 8.1	5.1	0.1 – 17.2	6.3
100 seed weight (g)	4.7 – 19.7	10.0	2.8 – 4	3.4	1.8 – 2.6	1.9	2.9 – 8.8	6.1

Accessions EC 101929, EC 109493-2010-1 (cowpea); EC 248A, EC 36954-P4-1, EC 36954-P5 (guar); EC 100064 (mothbean); EC 520037, 520038 and EC 520041 (mungbean) had maximum seed yield per plant. Highest 100 seed weight was recorded in EC 61395, EC 367682 (cowpea); EC 36954 - P4 -1, EC 36954 - P5 (guar); EC 100064 (mothbean); EC 512793, EC 520042 and EC 520043 (mungbean). EC 107183, EC 107191 (cowpea), EC 2484, EC 2448 – P3, EC 36951 and EC 36952 (guar) were identified as vegetable types. Bold and white coloured seeds were noticed in EC 367680, EC 367682 and EC 367683 (cowpea). Bhatnagar and Bhandari (1999) also reported some promising early maturing exotic collections of cowpea germplasm. In *Cyamopsis senegalensis* and *C. serrata* seeds shatter after pod maturation.

These promising accessions with desirable superior traits can be of immense value for the pulse breeding

programme in arid and semi-arid regions of India. In future, these accessions can also be screened for disease and pest resistance and various quality parameters.

References

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ABSTRACTS

Genetic Variability and Associations among Agro-Morphological Traits in Exotic Germplasm of Pea (*Pisum sativum* L.)

S Sardana, RK Mahajan, NK Gautum and Babu Ram

National Bureau of Plant Genetic Resources, New Delhi-110 012

Pea (*Pisum sativum* L.) is an important winter crop and believed to be evolved in Mediterranean basin. The success of any breedings programme depends upon the availability of diverse germplasm and their judicious utilization.

Therefore, efforts were made to augment the germplasm through introduction and their evaluation for yield and yield components. In present study 32 germplasm accessions were introduced from Germany, Japan, Russia, Syria, Taiwan, UK and USA.

Genetic variability parameters such as phenotypic and genotypic coefficient of variations (PCV and GCV), heritability and genetic advance were estimated for various agro-morphological traits. High estimates of PCV and GCV were observed for plant height, yield per plant, clusters per plant and primary branches where as moderate for seeds per pod, pod length and pods per plant, indicating wide variability in the material for these traits. However, there was little variability

in the material for days to 50% flowering and days to maturity. High heritability coupled with high genetic advance was observed for plant height indicates scope for improvement through simple selection.

Grain yield showed significant positive association with clusters per plant, plant height, pods

per plant, primary branches and seeds per pod and low association with days to 50 percent flowering and days to maturity. EC334160 is sugar podded and early in flowering, EC398588, EC398599 and EC342007 were long podded and EC398588 possessed high yield per plant.

Characterization of Cowpea Germplasm Introduced from Indigenous and Exotic Sources

RN Arora

Forage Section, Department of Plant Breeding, CCS Haryana Agricultural University, Hissar-125 004, Haryana

Thirty seven germplasm accessions of cowpea (*Vigna unguiculata* (L.) Walp.), procured from NBPGR, New Delhi were characterized on the basis of morphological traits during *khariif*, 2002 at CCS Haryana Agricultural University, Hissar. Among 37 accessions, 22 have been designated with IC and NIC numbers indicating their native origin while, 15 have been designated with EC numbers indicating their alien origin. On the basis of market value of the accessions, 4 of the indigenous and 3 of the exotic sources were found to be fodder type, while rest of the accessions were grain type. However, among grain types, 6 accessions from indigenous and 7 from exotic sources were of early maturing types, while 17 belonging to normal maturity group had 12 from indigenous sources and 5 from the exotic ones. All the indigenous collections showed field resistance to CYMV while one of the exotic collections was found susceptible. Among indigenous collections, 16 accessions had violet flowers, 4 of intermediate type and 2 with white flowers, whereas among exotic collections, 13 had violet flowers and 1 each had white and intermediate

flower colour, respectively. As for as plant height is concerned, 4 were tall, 14 were medium tall and 4 were dwarf among the indigenous collections while, among exotic collections, 2 were tall, 7 were medium and 6 were dwarf in stature. Thirteen accessions were viny, and 9 were non-viny in growth habit among the indigenous sources while among exotic collections, 6 had viny growth and 9 had non-viny growth habit. Some of the accessions, namely NIC 22780, 22789, 22810 were observed as early maturing and high grain yielder; NIC 260A, 22815, 23010 as normal maturing and high grain yielder among indigenous collections while EC 367678 as high fodder yielder, EC 244018, 367680, and 367713 as early maturing and high grain yielder and EC 309500, 332354 as normal maturing and high grain yielder among the exotic collections were found to be very promising. Three accessions namely, IC 202824, NIC 23010 and IC 201073 had market traits as well. The promising collections mentioned above can be used in cowpea improvement programme.