

Table 3. Cluster means and contribution of different characters to divergence

Characters	Cluster								Contribution to divergence (%)
	I	II	III	IV	V	VI	VII	VIII	
Plant height (cm)	18.60	18.68	28.56	15.80	24.54	36.32	22.10	32.70	9.72
No. of Primary branches	1.97	2.88	1.69	2.36	2.11	1.50	2.77	2.10	18.02
No. of clusters	5.14	7.31	5.62	5.47	5.63	5.77	6.63	6.92	1.52
No. of pods/plant	21.56	24.02	20.34	16.81	20.47	20.79	13.83	24.97	1.58
Pod length (cm)	4.58	4.53	4.79	4.46	4.60	4.40	4.93	5.23	5.71
Seeds/pod	6.46	6.37	6.70	6.73	6.77	6.58	6.96	7.12	20.56
Pod yield (g)	11.15	12.13	10.53	8.45	10.60	10.25	7.15	13.33	42.43
Seed yield (g)	6.31	6.86	5.94	4.98	6.06	5.89	4.15	7.64	0.46

cluster VIII with a single strain (Lu 229) revealed highest mean values for all the other five characters (Table 3). The percentage contribution to divergence by the eight characters were computed and furnished in Table 3. The highest contribution was made by the character pod yield (42.43%) followed by seeds per pod (20.56%) and number of primary branches (18.92%). These traits are important yield contributing attributes and should be very useful for further consideration in hybridization and improvement of black gram.

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HIGH YIELDING RED GRAM HYBRID : CoH 2

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ABSTRACT

The high yielding red gram hybrid CoH 2 was developed using the genic male sterile line ms Co 5 as female parent and ICPL 83027 as male parent. This hybrid is photoinensitive and matures in 120 to 130 days. It gives an average yield of 1050 kg/ha and is also suited for rainfed and irrigated conditions.

KEY WORDS : Genetic male sterility, CoH 2, hybrid red gram, Tamil Nadu

Pulses are rich in protein and form the part of the vegetarian diet. In Tamil Nadu, black gram, green gram, cowpea and red gram are some of the major pulses grown. Of which, red gram occupies the second place in area. There has been a general increasing trend in area, and production of pulses during the past three decades but a major break through is not observed in productivity. Hence, heterosis breeding was contemplated to open new vistas in increasing the productivity by using genic male sterility.

MATERIALS AND METHODS

The parentage of this hybrid is ms Co 5 x ICPL 83027. The female parent ms Co 5 was developed from the spontaneous male sterile mutant from the variety Co 5. The pollen parent ICPL 83027 and ms Co 5 were raised in isolation and multiplied. In next season, the female and male parents, were raised in 6:1 ratio with two rows of male parent in border and one row of sunflower in order to attract honeybees to enhance cross pollination during *kharif* 1991. The hybrid performed well in station trials (ST) conducted

Table 1. Results of OFT : Kharif 1993

Location*	Yield (Kg/ha)		
	CoH 2	CoH 1	Co 5
Dcenampalayam	1375	1650	1500
Semmedu	1150	1250	1150
Amaravathipalayam	1200	1175	1000
Amaravathipalayam	1125	1150	950
Mean	1212	1306	1150

Per cent increase of
CoH 2 over CoH 1 = 8
Co 5 = 14

* One acre plot each ; OFT : On farm trials

during *kharif* 1992. Based on the performance, it was promoted for multilocation trial (MLT) and later to adaptive research trails (ART) during *kharif* 1994 and *kharif* 1995. This was also tested in farmers holdings as on farm trials (OFT) in one acre plots.

RESULTS AND DISCUSSION

The ST conducted reveal that this hybrid out yielded the earlier hybrid as well as the varietal check to a desirable amount. In the MLT, conducted during *kharif* 1993, the hybrid has recorded 200 kg/ha increased yield over the check Co 5. In the OFT conducted in and around Coimbatore, a maximum yield of 1650 kg/ha was also recorded (Table 1). In the overall performance (Table 2), CoH 2 recorded a mean yield of 1045 kg/ha, which is around 13 per cent increase over the hybrid check CoH 1 and 35 per cent increase over the varietal check Co 5. This hybrid is less affected by wilt disease when compared to checks. With respect to protein content, the whole grain contains 20.21 per cent protein and dhal contains 25.05 per cent protein (Table 3). Regarding the cooking quality and organoleptic traits, the hybrid has good score and it is acceptable (Table 4)

Table 2. Overall performance of CoH red gram hybrid

Trials	Grain yield (Kg/ha)		
	CoH 2	CoH 1	Co 5
Station Trials (3)	1398	802	727
MLT (4)	616.7	-	429.5
ART (53)	863.3	768.8	768.7
OFT (4)	1306	1212	1150
Mean	1045	927.6	788.8

Per cent of increase over CoH 1 = 12.66
Co 5 = 35.93

Figures in paranthesis are number of trials ; MLT : Multilocation Trials ; ART : Adaptive Research Trials ; OFT : On Farm Trials.

Table 3. Protein content in the hybrid CoH 2

Sample	Protein content g/100 g dry weight basis (%)
Dhal	
CoH 2	25.05
CoH 1	23.88
Co 5	25.73
Whole grain	
CoH 2	20.21
CoH 1	20.58
Co 5	20.85

Table 4. Cooking quality and organoleptic traits of CoH 2

Characters	CoH 2	CoH 1	Co 5
Mean score in organoleptic traits	8.55	8.53	8.87
Cooking time (min)	35	40	32
Increase in weight and volume ratio	1 : 2.2	1 : 2.2	1 : 2.5

This hybrid CoH 2 is indeterminate in growth habit and grows around 90 cm height with 4 - branches. The flower colour is yellow. The dorsal side of standard petal is yellow with faint red vein at the base. Pod length is around 5.8-7.6 cm length and green with purple streaks when young and brown at maturity as that of parents. The seed coat is tan brown in colour and the hundred seed weight is 9.8 to 10.7 g. The hybrid was released during January 1997 in order to benefit the farmer of Tamil Nadu.

The major advantage of this hybrid CoH 2 is in the seed production. The female and male parents matures simultaneously and there is no problem of synchrony in flowering and hence there is no need for staggered sowing.

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