jaggery samples prepared under this group ranged from 84.29 to 86.34%, total non-sugars from 4.62 to 5.58% and colour reading from 113 to 122. The jaggery yield ranged from 12.72 to 14.08 t/ha. The best quality jaggery was obtained from CoT 8201 and Co 7219 with sucrose values of 86.34 and 86.13%, total non-sugars values of 4.62 and 4.81% and colour reading of 113 and 118 respectively. Variety CoT 8201 recorded the highest jaggery yield of 14.08 t/ha among all the varieties in different maturity groups. Variety CoA 7602 also gave the quality jaggery similar to Co 7219.

Late maturing varieties

Varieties CoR 8001 and Co 7706 gave an excellent quality jaggery of grade I with high sucrose content (89.55 and 87.15%), low total non-sugar content (4.88 and 4.39%), golden yellow colour (111 and 108) and hardness (0.34 and 0.34 cm). These two varieties recorded the highest jaggery yield of 11.51 and 11.17 t/ha respectively Variety CoA 8402 followed by Co 419 and Co 62175 also gave better quality jaggery with bright colour, hardness, high sucrose content and jaggery yield per hectare.

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PAIYUR 1 - A NEW HIGH YIELDING COWPEA VARIETY

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ABSTRACT

A high yielding cowpea culture DPI 1243 has been developed through pure line selection. Under rainfed condition, this culture recorded a mean grain yield of 760 kg/ha, registering 16 and 14 per cent increased yield over Co 3 and C 152 respectively. Maturing in 85-90 days, it retains its greeness till harvest enhancing fodder value. The culture has been released as Paiyur 1 for cultivation in dry tracts of the State.

KEY WORDS : High yield, Cowpea variety, Drought tolerance.

Cowpea (*Vigna unguiculata* (L.) walp.), one of the grain legumes, forms an important component crop in dry land cropping pattern of the State for a long time. About 19 per cent (22,800 ha) of the total area under the crop in the State is grown in Dharmapuri - Salem region. The general productivity of the crop in the region is as low as 200 kg/ha. With a view to identify a high yielding variety with resistance to drought and major diseases, breeding work was undertaken at the Regional Research Station, Paiyur and the results are reported.

MATERIALS AND METHODS

Sixty five types collected from local places and from other Research Centres at

Table 1. Performance of the cowpea culture DPI 1243 at Research Stations

Year	Research Station	Grain Yield (kg/ha)		
		DPI 1243	Co 3	C 152
1977	Regl.Res.Station,Paiyur	2074	1630	1000
1978	-do-	3084	2907	2713
1979	-do-	1098	912	939
1980	-do-	1533	1295	1170
	National Pulses Res. Centre, Vamban	2103	561	-
	Sheep Breeding Res. Station, Pottaneri	615	511	-
	Agrl.College and Res. Institute, Madurai	461	412	-
	Agrl. Res.Station, Bhavanisagar	687	511	-
	Agrl.Res.Station, Aliyarnagar	352	512	-
1981	Regional Res.Station, Paiyur	211	111	152
	Sheep Breeding Res.Station, Pottaneri	377	360	567
	Agrl.Res.Station Aliyarnagar	629	480	551
	Veterinary College, Madras	531	513	565
1982	Regional Res. Station Paiyur Trial 1	2037	1784	1902
	Trial 2	1776	1214	1230
1983	TNAU, Coimbatore - UVT	1076	774	733
	CVT	645	-	531
	Mean	1146	968	1071
	% on Co 3	118.3	100.0	110.6
	% on C 152	107.0	90.4	100.0

National level were evaluated under rainfed condition during 1976. A pure line selection from V 16 (a mutant of Pusa Phalguni developed at IARI, New Delhi) was found to be high yielder and was designated as DPI 1243. This selection was evaluated in yield trials against the checks Co 3 and C 152 for three years from 1977 - 79 to confirm its yield potential. It was tested in other Research Stations of Tamil Nadu Agricultural University and in Adaptive Research Trials in different districts of the State. The culture was also tested in large scale demonstration plots in farmers' holdings in the region.

RESULTS AND DISCUSSION

The results of the culture DPI 1243 at Regional Research Station, Paiyur and other Research Stations of TNAU are presented in Table 1. It recorded a mean grain yield of 1146 kg/ha representing 18.4 per cent increase over Co 3 and 7.0 per cent over C 152.

The Adaptive Research trials conducted over the State indicated the adaptability of the culture DPI 1243 to the drylands of Dharmapuri, Salem, North Arcot, Periyar and Ramanathapuram Districts. The mean yield realised by the culture was 672 kg/ha with an increase of 6.3 and 19.8 per cent over Co 3 and C 152 respectively (Table 2). Extensive demonstration trials conducted in the region at farmers' holdings also indicated the superiority of this culture in grain yield over the checks, outyielding the strain Co 3 by 23.6 per cent and C 152 by 25.6 per cent.

Table 2. Mean Performance of DPI 1243 Cowpea culture in Research Stations, Adaptive Research Trials and Large Scale Demonstration Plots

Experiment	No.of trials	Grain Yield (kg/ha)		
		DPI 1243	Co 3	C 152
Research Station Trials	17	1146	968	1071
Adaptive Research Trials	17	672	632	561
Large scale Demonstration plots	38	461	373	367
Mean		760	657	666
% on Co 3		115.6	100.0	101.4
% on C 152		114.1	98.6	100.0

The performance of DPI 1243 under various trials revealed its consistent

Table 3. Morphological and grain quality characteristics of Cowpea culture DPI 1243

Characters	Description
Plant height (CM)	60
Duration (days)	85 – 90
Days to 50% flowering	52
No.of branches/plant	3.4
No.of clusters/plant	5.4
No.of pods/cluster	2.0
Pod length (cm)	15
No.of seeds/pod	16
100 -Seed weight (g)	9.9
Grain colour	Brick red
Protein (%)	24.6

superiority over the ruling strains. As a rainfed crop, it gave on an average a grain yield of 760 kg/ha, the increase in yield being 15.7 per cent over Co 3 and 14.1 per cent over C 152.

The morphological and grain quality of the culture DPI 1243 are presented in Table 3. The culture maturing in 85-90 days is highly tolerant to drought and moderately resistant to *Cercospora*, rust and mosaic under field conditions. Its grains with attractive colour are accepted by consumers and traders. Besides high grain yield, the culture also retains greenness till harvest with minimum shedding of leaves enhancing fodder value (493 Kg/ha/day). Its suitability for bund cropping in rice fields is an added advantage of this culture. The presence of inverted 'V' shaped white spot on leaflets helps to distinguish this culture from other cultivars.

Based on the above desirable features, the culture DPI 1243 was released by TNAU as Paiyur 1 during 1984 for general cultivation in dry tracts of Tamil Nadu.

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COMBINING ABILITY OF SOME QUANTITATIVE TRAITS IN TRITICALE

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ABSTRACT

A line x tester (6 x 3) analysis involving morphologically diverse females of triticale showed JNK6T-233 and JNIT-73 as best general combiners for the characters studied. Specific combining ability analysis represented the combinations of best x good (grain number/ear), good x average (ear number, grain weight/ear and grain yield), poor x average (days to maturity) and poor x poor (ear length) general combiners. The epistatic type of gene action appeared to be involved in the most of the cases.

KEY WORDS : Triticale, Combining ability

Combining ability analysis provided useful information on the nature of inheritance of quantitative characters and also helps in identifying the superior parents and the cross combinations likely to yield better progenies. The combining ability approach for line x tester analysis is used for classification of parental genotypes in terms of their hybrid performance and preferred where maternal effect, epistasis and non independent gene action are suspected. The present investigations were conducted in 6 x 3 line x tester set to study the general and specific combining ability and gene actions of desirable quantitative traits of triticale *Triticosecale* Wittmack)