

Table 2. Fibre and spinning properties of SVPR.1

Particulars	Summer 89*		Summer 90*		Summer 89**	
	SVPR.1	MCU.7	SVPR.1	MCU.7	SVPR.1	MCU.7
2.5% Span length (mm)	26.7	25.1	27.2	24.4	25.8	23.9
Uniformity ratio %	48	50	47	48	48	49
Fineness						
a. Millitex	150	138	135	125	114	114
b. Micronaire value	3.80	3.50	3.43	3.18	2.9	2.9
Maturity Coefficient	0.73	0.69	0.68	0.68	0.62	0.64
Bundle strength (1/8" gauge)	22.9	24.3	-	-	25.6	25.5
CSP Value	2199	2107	2410	2157	2088	1964

* - Test conducted by Cotton Technological Laboratory, Coimbatore.

** - Test conducted by CTRL, Bombay.

The reaction of this culture to major pests and diseases under field and controlled conditions was tested during 1989 and 1990. Cotton SVPR.1 showed relatively low incidence of bollworms (11.6) and stem weevil (40.3%) than MCU (14.5%, 54.5% respectively) and was moderately resistant to *Alternaria* and bacterial leaf blight.

In respect of spinning and fibre tests performed both at the Technological Laboratories, Coimbatore and Bombay, the culture SVPR.1 was found to be distinctly superior to MCU.7 (Table 2).

As such the cotton variety SVPR.1 is superior to the existing strain MCU.7 in respect of yield, and fibre properties. Besides this, it is short in duration (135 days) and medium in staple length as that of MCU.7

Thus the cotton variety SVPR.1 was identified to be a good substitute for MCU.7 under summer irrigated and rich fallow conditions.

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PAIYUR 2: A NEW RED GRAIN SORGHUM VARIETY FOR SALEM DISTRICT

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ABSTRACT

Paiyur 2 red grain sorghum is a new grain cum fodder variety suitable for cultivation in the rainfed tracts of salem district. It was tested as IS 15845, a pureline selection from germplasm accession, in the station as well as in the adaptive research trials. It has recorded an average yield of 2113 kg of grain and 8789 kg of fodder per ha in 90-95 days duration. The yield increase was 61 and 36 per cent for grain and fodder over the ruling variety Co4 respectively. The grain and fodder qualities are acceptable to the farmers. The incidence of shoot fly, stem borer, downy mildew, grain mould, sugary and charcoal rot was relatively less in the new variety. The earheads are semicompact and elliptical possessing medium sized grains.

KEY WORDS : Paiyur2, Red Grain Sorghum, Salem District

In Dharmapuri and Salem districts of the north western zone of Tamil Nadu, sorghum is being cultivated in an area of 1.52 lakh ha both under rainfed (70%) and irrigated conditions. In the rainfed areas of Dharmapuri district, the ruling land race in *Thalaivirichan cholam* (*Sorghum roxburghii* (L) Moench), Co2 and Co19. In Salem district,

kharif and *rabi* sorghum is covered with red grain sorghum *Sorghum subglabrescens* (L) Moench.) Co4. Intensive efforts were made to develop a high yielding short duration red grain sorghum variety superior to Co4 for grain and fodder and the results are reported.

Table 1. Overall mean performance of the red grain sorghum culture IS 15845

Trial	No. of trials	Grain yield (kg/ha)		Fodder yield (kg/ha)	
		IS15845	Co 4	IS15845	Co 4
1. Research Station Trials (Regional Research Station, Paiyur).	6	2387 (203)	1178	8854 (154)	5738
2. Adaptive Research Trials (Salem District)	21	2035 (150)	1354	8770 (132)	6640
Overall mean		2113 (161)	1315	8789 (136)	6439

(Figures in the parentheses indicate percentage of increase over Co 4)

MATERIALS AND METHODS

The breeding work was carried out at the Regional Research Station, Paiyur, Dharmapuri district. One hundred red grain sorghum germplasm accessions obtained from the International Crops Research Institute for the Semi-Arid Tropics, Patancheru, Hyderabad, Andhra Pradesh were evaluated during *kharif* and *rabi* seasons of 1991 to 1994. Among the accessions tested, IS 15845 was found as a high yielder. Single plant selections of this genotype were tested both under rainfed and irrigated conditions in comparison with Co4. Adaptive research trials (ART) were also conducted in the farmers holdings in Salem district along with the check Co4 during *kharif* and *rabi* seasons of 1993 and 1994.

RESULTS AND DISCUSSION

The overall mean yield performance of the culture IS 15845 is given in Table 1.

In the station trials, the culture IS15845 recorded a mean grain yield of 2387 kg/ha which was double the yield of Co4. The fodder yield increase was 54 per cent. In the ART conducted in Salem District, the culture has registered an average yield of 2035 kg of grain and 8770 kg of fodder per ha with 50 and 32 per cent yield increase over Co4 respectively.

Under field screening for pests, the culture was found to be tolerant to shoot fly and stem borer and moderately resistant to earhead bug. However, under controlled condition it was moderately resistant to shoot fly and susceptible to stem borer.

The culture was field resistant to downy mildew, grain mould, sugary and rust diseases. But under artificial inoculation, it was moderately

resistant to charcoal rot, grain mould, sugary, leaf spot and rust diseases and susceptible to downy mildew.

Studies on physiological parameters revealed that the culture was found to possess high leaf area (2009.29 sq.cm), harvest index (0.22%) relative water content (75.34%) and total dry matter production (58.75 g/plant) than CO4. Juice quality of stem at physiological maturity indicated 5.78 per cent of brix and 1.93 per cent of commercial cane sugar when compared to 5.62 and 1.55 per cent in CO4 for these traits respectively. Studies on the physico-chemical characteristics of the grain revealed that grain weight (100 grain weight 2.80g), grain density and flour swelling capacity were higher in this culture. Protein, nitrogen, phosphorus, potassium and calcium contents of its grain were 9.44, 1.51, 0.34, 0.29 and 0.64 per cent respectively. These estimates were also higher than the check.

Analysis of dry fodder qualities showed an increasing trend in the culture for nitrogen (0.50%), crude protein (3.13%) crude fibre (26.6%) and calcium (0.96%) while the check registered slightly high percentage of phosphorus (0.11) and potassium (1.22).

Therefore, it is clearly evident that the culture possessed many desirable yield and quality attributes. Hence, it is pointed out that a long felt need of Salem district to replace the ruling variety CO4 which was released in the year 1946 has been fulfilled by the release of the culture IS 15845 as Paiyur 2 red grain sorghum during January 1995 for general cultivation under rainfed condition (*Adi* and *Puratasi pattams*). By release of this new variety an area of about 90,000 ha in Salem district would be benefited.

The description of Paiyur - 2 is as follows:

Pedigree	: Pureline selection from germplasm accession IS 15845	Peduncle	: Well exerted above the boot leaf
Plant height (cm)	: 200-215	Glume colour at maturity	: Deep red
Duration (days)	: 90-95	Grain colour (at maturity)	: Red
No. of leaves/plant	: 8-9	Panicle compactness	: Semicompact
Leaf length (cm)	: 70-80	Panicle shape	: Elliptic
Leaf width (cm)	: 7.5-8.0	Panicle length (cm)	: 20-25
Pigmentation	: Tan	Panicle width (cm)	: 7.5 - 8.5
Leaf colour	: Green	Awn	: Absent
Sheath colour	: Green	Seed size	: Medium
Midrib colour	: White		

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K.1: A HIGH YIELDING, DROUGHT TOLERANT BLACK GRAM FOR RAINFED VERTISOL

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ABSTRACT

A high yielding drought tolerant black gram culture KBG 512 has been released as K 1 variety. It is a hybrid derivative of the cross Co.3 x US 131. It is suitable for cultivation in southern districts viz., V.O.Chidambaranar, Tirunelveli-Kattabomman, Ramanathapuram and Pasumponthevar Thirumaganar under rainfed conditions during *Purattasi pattam*. It has recorded an average grain yield of 711 kg/ha with an increase of 35.9 per cent over Co5. The crop duration is 70-75 days.

KEY WORDS : Black Gram, K 1, Yield, Rainfed.

Black gram (*Vigna mungo* (L.) Hepper) is one of the major pulse crops in Southern districts of Tamil Nadu under rainfed vertisol. Area under pulses as pure crop is found to be increasing year after year and sorghum area is being replaced by black gram as a pure crop in rainfed tract. Besides,

black gram is mostly grown as an intercrop in cotton under rainfed conditions. Hence, development of black gram varieties with high yield and drought tolerance is of paramount importance for enhancing black gram production as well as economic status of dry land farmers.

Table 1. Overall performance of black gram culture KBG 512

Trials	No. of trials	Yield (kg/ha)		% increase over Co 5
		KBG 512	Co 5	
Station trials	8	949	721	31.62
Multilocation trials	4	807	497	63.36
ART 1990-91	12	610	559	9.12
ART 1991-92	6	462	406	13.80
Co-ordinated trials	9	728	432	68.50
Mean		711	523	35.9