



## CO 24 - A New Sorghum Variety

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A new sorghum variety, developed through pedigree breeding was released as a new strain CO 24. The high yielding strain CO 24 is suited for cultivation both under rainfed and irrigated conditions and gives an average yield of 5050 and 2840 kg/ha under irrigated and rainfed conditions respectively.

Sorghum is a major food crop in Tamil Nadu. The most important objective in sorghum breeding is the development of adaptable strains which are responsive to improved agronomic practices and higher fertility levels. With this objective in view, breeding work was continued in the Tamil Nadu Agricultural University which culminated in the release of a new short duration sorghum strain, CO 24.

### MATERIAL AND METHODS

Crossing was done between a cytoplasmic male sterile line CK 60 A and a number of high yielding, short duration medium tall pollinators. The  $F_1$ s and  $F_2$ s of the above crosses were raised without selection. In the  $F_3$  generation, selection was exercised to obtain recombinants with high yield, medium stature and short duration. This resulted in the isolation of a culture USV 5 from the  $F_3$  of the combination CK 60 A X SPR 1341. This was tested in yield trials both under rainfed and irrigated conditions during 1975-76 to 1978-79.

The cul. USV 5 was tested in 41 locations in Tamil Nadu as well as in

different states under All India Co-ordinated Sorghum Improvement Project simultaneously.

### RESULTS AND DISCUSSION

Extensive trials conducted over the past four years revealed the high yield potential and wide adaptability of the new culture USV 5. It is suited for cultivation both under rainfed and irrigated conditions over varied agro-climatic regions. It is medium tall in stature (160—165cm) and matures in 100-105 days. As an irrigated crop, CO 24 has an yield potential to 5050 kg/ha and under rainfed conditions, the yield is 2840 kg/ha. The fodder yield under irrigated and rainfed conditions is 16.5 and 12.0 t/ha, respectively (Table I).

This variety responds favourably to high doses of fertilizers. Similar to recently released strains, this was found to be moderately tolerant to major pests and diseases (Table II) and its grain quality attributes was good (Table III).

The plants of this variety are red pigmented. The earheads are long and cylindrical. The grains are bold and

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TABLE I Grain and fodder yields of CO 24 in comparison with other varieties

Grain (kg/ha)	CO 24	CO 23	CO 21	CSH 6	SE	CD
Irrigated	5050	4180	3470	4991	210.6	843.9
Rainfed	2842	2511	2169	2747	105.0	420.0
<b>% of increase</b>						
Irrigated	—	20.00	45.49	1.18	—	—
Rainfed	—	13.20	31.03	3.46	—	—
<b>Fodder (t/ha)</b>						
Irrigated	16.40	15.90	17.13	10.63	—	—
Rainfed	11.78	11.89	12.73	7.55	—	—

TABLE II Pests and Diseases Reaction of CO 24 under field condition (Average of 3 seasons)

Details	CO 24	CO 23	CO 22	CO 21	CSH 5
Shootfly (%) (Dead hearts)	30.35	34.01	53.05	50.78	24.12
<b>Stemborer (%)</b>					
a. Dead hearts	9.12	11.09	14.10	8.47	48.46
b. Tunnel damage	1.76	15.17	22.86	16.00	—
Midge (%)	16.84	24.78	30.60	17.80	31.71
Downy mildew (%)	4.5	4.0	3.2	6.2	6.7
Headmould (Category value)	2.0	1.0	1.0	2.0	2.0
Rust (Category value)	3.0	1.0	1.0	2.0	1.0
Leaf Blight (Category value)	1.0	2.0	2.0	2.0	1.0
Cercospora leaf spot (Category value)	1.0	1.0	1.0	1.0	1.0
<b>Disease reaction under artificial condition</b>					
Downy mildew (%)	5.9	8.0	4.0	7.4	13.7
Headmould (Category value)	3.0	2.0	2.0	2.0	2.0
Rust (Category value)	3.0	2.0	2.0	2.0	2.0
Leaf Blight (Category value)	2.0	2.0	2.0	2.0	2.0

TABLE III Quality Attributes of Co. 24

Attributes	CO 24	CO 21	CO 22	CO 23
Protein (%)	9.63	10.95	8.00	10.95
Leucine (g/100g of protein)	5.50	5.50	5.53	5.50
Lysine	3.45	2.64	3.45	3.90
Isoleucine	3.00	—	1.40	3.30

pearly white, partly enclosed in reddish purple glume, serving as a marker to identify. In view of its many desirable attributes, the culture USV 5 was released as a new strain CO 24.

This variety is expected to replace CO 18 and CO 21 under irrigated conditions and CO 21, CS 3541 and IS 3541 under rainfed conditions. Being

a stable hybrid derivative variety, the seeds can be utilised for successive sowings.

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