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COH-3 A Grain cum Fodder Sorghum Hybrid for Tamilnadu

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COH-3 (Coimbatore Hybrid 3) a grain cum fodder hybrid in cholam with pearly white grain and sweet stem has been released for general cultivation from Tamil Nadu Agricultural University. It has a duration of 110 to 115 days and can be cultivated both in monsoon and summer seasons. The hybrid yields 6100 kg of grains and 26.5 tonnes of fodder per hectare under irrigation. Under rainfed conditions it yields 2800 kg of grains and 19.6 tonnes of fodder. The parents of this hybrid are 2077 A and 699 Tall. The special features of this hybrid are that it is non-lodging and does not snap at nodes. The leaves remain green till maturity and the hybrid is resistant to striga and tolerant to major pests and diseases.

Utilizing the principle of hybrid vigour, a quantum jump in yield was witnessed in sorghum during the sixties. Since then remarkable advances have been made during the last two decades which maximised the per hectare grain yield of sorghum. But the remarkable yield increase in grain was obtained with reduced yield of fodder due to the dwarf nature of the hybrids released. Since the farmers of Tamil Nadu prefer tall varieties to serve both for grain and fodder yields attempts were made to release such hybrids. Ealier work resulted in the release of COH 2 (Appadurai *et al.* 1973). This hybrid popularly known as Kovilpatti Tall had the disadvantage of lodging at the time of maturity. Hence, attention was directed towards the development of a non-lodging tall hybrid suitable both for rainfed and irrigated conditions. The research work culminated in the release of a new non-lodging tall hybrid sorghum COH-3.

MATERIAL AND METHODS:

Six new crosses utilzing the male sterile lines and elite combiners were evaluated in their initial stages in preliminary yield trials in comparison with CSH-5 and COH-2 during 1977 summer at the Millet Breeding Station, Coimbatore. Among the six hybrids suited, USH-1 (2077A x 699 Tall) scored the highest yield of both grain and straw. To get confirmatory results, the hybrid was studied from 1977 to 1980 both under irrigated and rainfed conditions at Coimbatore as well in the University research stations. Simultaneously it was entered into All India Co-ordinated trials also. Multilocation tests were also conducted at State level.

RESULTS AND DISCUSSION :

The mean performance of USH-1 in the different States of the Indian Union and in the district of Tamil Nadu is givan in Table-1. From the

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table it can be seen that this new hybrid USH-1 recorded higher yields than CSH-5 and K-tall both under irrigated and rainfed conditions. The special features of this hybrids are that it is non-lodging and does not snap at nodes at the time of maturity. The leaves remain green till harvest and the stem is sweet and juicy. This hybrid is tolerant to major pests and diseases (Table 2). The grains are pearly white in colour. The yield and associated charactars are presented in Table. 3.

This hybrid responds well to Nitrogen (Table-4). The protein content of USH-1 is higher (11.20) compared to Kovilpatti Tall (10.72%) and CSH 5 (10.31).

REFERENCE

APPADURAI, R., 1973 V.K. KUNJAMMA KRISHI, K. MEENAKSHI and S. SURESH, COH-2 A fodder cum grain sorghum hybrid for Tamil Nadu *Madras Agric. J. 60* (9 to 12): 1237-40.

Table 1 Mean performanee of COH-3 (Both irrigated and rainfed) in different States of India and Districts of Tamil Nadu.

Particulars	Irrigated						rainfed					
	Grain kg/ha			Straw T/ha			Grain kg/ha			Straw T/ha		
	COH-3	CSH-5	K. Tall	COH-3	CSH-5	K. Tall	COH-3	CSH-5	T. Tall	COH-3	CSH-5	K. Tall
Different States Mean of 21 trials	4559	4255	—	16.0	11.11	—	2809	2205	—	16.5	10.8	—
% of increase over CSH-5	7.14			44.0			27.4			52.9		
Adaptive Research Trails in Tamil Nadu (Mean of the trials)	5913	—	4659	22.5	—	19.7	2824	—	2382	20.3	—	18.3
% of increase over K. Tall	26.9			14.2			18.6			9.2		
TNAU Research Stations Mean of 4 trials	6203	5629	5673	30.5	18.0	26.4	2783	2400	2342	19.2	13.3	17.3
% of increase over K. Tali	9.3			15.5			18.8			8.5		

Table-2 A. Disease reaction of COH-3 (Average of four seaons)

Entries	Downy mildew in%	Head mould	Rust	Leaf blight (Category values)	Gray leaf spot
			Under field condition		
COH-3	6.3	2.0	1.0	1.0	1.0
K. Tall	4.0	1.0	1.0	2.0	1.0
CSH-5	6.7	2.0	1.0	1.0	1.0
			Under artificial condition		
COH-3	6.7	2.0	2.0	2.0	
K. Tall	16.7	2.0	3.0	3.0	
CSH-5	13.7	2.0	2.0	2.0	

Table-2 : B Pest reaction of COH-3 Under field condition (Averge of four seasnos)

Details	COH-3	K-Tall	CSH-5
Shootfly (% Dead Heart)	24.92	23.68	—
Stem borer (%)			
(a) dead hearts	4.84	4.03	6.82
(b) Tunnel damage	7.19	—	16.24
(c) Leaf injury	0.81	4.12	—
Midge (%)	23.30	—	33.90

Table-3 Yield and yield attributes of COH-3

Charecter	COH-3	K-Tall
Plant height (cm)	262	254
Days to 50% bloom	65	60
Days to maturity	110-115	105-110
Earhead length (cm)	27.32	26.01
Earhead weight (g°)	108.5	95.4
Per plant yield (g°)	71.6	65.4
Grain yield (kg/ha)		
Irrigated	6058	5166
Rainfed	2804	2362
Fodder yield T/ha		
Irrigated	26.5	23.0
Rainfed	19.6	18.0

Table-4 Response to Nitrogen in COH-3 (Yield kg/ha)

Name of the hybrid	Nitrogan level (kg/ha)			
	60 N	90 N	120 N	Mean
COH-3	5080	5545	5650	5425
K. Tall	4892	5238	5046	5059
CSH-5	4986	5372	5429	5262