

A New Barnyard Millet (*Echinochloa frumentacea* L.) Strain For Tamil Nadu

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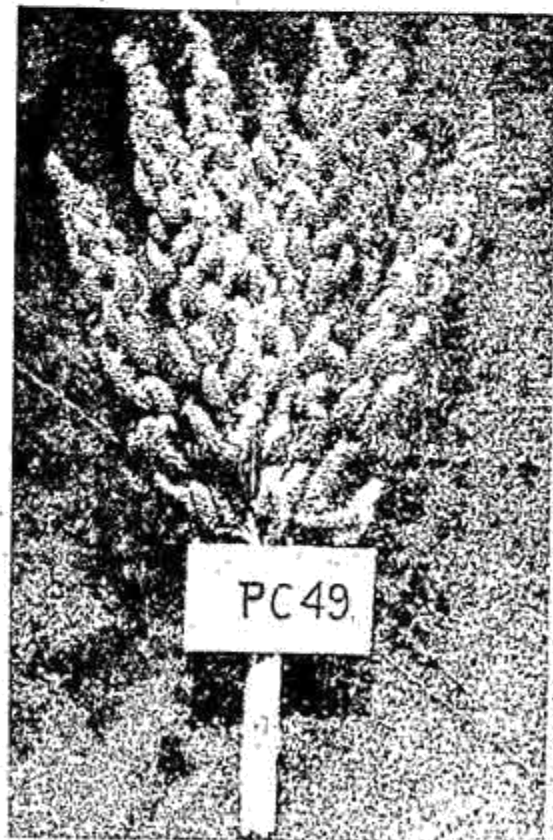
Kudiraivali (Barnyard millet - *Echinochloa frumentacea* L.) variety PC. 49 is a selection from Coimbatore local. This selection registered a mean yield of 1689 kg/ha in the station trials, which is 13.2 per cent higher than the yield of K.1. In the All India trials, it recorded a mean yield of 1337 kg/ha, 15.9 per cent higher than the yield of 1153 kg/ha of K.1. The selection was also found to be free from grain smut under field conditions. In view of its higher yield and smut resistance, this was released as a new strain Co. 1 for Tamil Nadu State.

Barnyard millet or *kudiraivali* (*Echinochloa frumentacea* L.) is one the minor millet crops cultivated in Tamil Nadu. It is suitable for cultivation in areas receiving meagre rainfall as well as for areas with water-logged conditions. The ruling *Kudiraivali* strain, namely K 1, gives a mean yield of 1400 kg/ha in a duration of about 110 days. In a crop like *Kudiraivali* whose cultivated area in Tamil Nadu is more or less stable for over 10 years, increase in grain production can be achieved by developing varieties with better yields. Diversification of genotypes in rainfed crops like *Kudiraivali* is desirable to avoid total devastation due to disease epidemics.

MATERIAL AND METHODS

Selection was carried out from the genepool available at the Millet Breeding Station, Coimbatore, to spot out high yielding varieties of *Kudiraivali*.

A variety, PC. 49, a local collection from Coimbatore was identified in 1972. This was selected further by pureline method and studied in various stages of breeding trials. The material



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was tested in advanced yield trials from 1975 to 79 in Coimbatore using K.1 as check variety and in All India trials during 1977, 1978 and 1979. Grain smut incidence was scored as number of infected earheads per plot during 1978-79 and was expressed as per cent of the total earheads.

RESULTS AND DISCUSSION

The performance of PC. 49 in yield trials in Tamilnadu State and in All India trials is presented in Table I and II respectively. The quantitative characters are given in Table III.

Under irrigated conditions in Coimbatore P. C. 49 registered a mean yield of 2926 kg/ha while K.1 gave only 2593 kg/ha. Under rainfed conditions of Coimbatore during the years 1975 to 1979 and Kovilpatti during 1977-78, this selection recorded a mean yield of 1689 kg/ha as against 1492 kg/ha of K.1. The increase in yield was 13.2 per cent. In All India trials, P.C. 49 gave better yields than K 1 in all the six states where this was tried, with mean yield of 1337 kg/ha and an increase of 15.9 per cent grain yield over K.1. The mean duration of

TABLE I Performance of PC. 49 in Tamil Nadu

Centre	Grain yield kg/ha		Per cent of K.1
	PC. 49	K.1	
COIMBATORE			
1975-76 (Irrigated)	2926	2593	113.0
1975-76 (Rainfed)	1056	1250	84.5
1976-77	1910	1368	139.6
1977-78 (a)	2250	1909	117.9
1977-78 (b)	1256	1124	111.7
1978-79	2014	2011	100.2
KOVILPATTI			
1977-78	408	186	219.4
Mean	1689	1492	113.2

TABLE II Performance of PC. 49 in All India Trials

Centre	Grain yield kg/ha		Percent of K.1
	PC 49	K.1	
Dholi (Bihar)	1020	870	117.2
Waghai (Gujarat)	2361	2147	110.0
Rewa (Madya Pradesh)	933	794	117.6
Almora (Uttar Pradesh)	2102	1646	127.7
Anantapur (Andra Pradesh)	724	623	116.2
Jeypore (Orissa)	886	839	105.6
Mean	1337	1153	115.9

this selection is 105 days which is equal to that of K.1. The selection was also completely free from smut incidence during 1978-79 whereas K.1 had an average of 3.0 per cent smutted earheads indicating that it is relatively less susceptible to this disease.

In view of its outstanding performance, this selection was released as Co. 1 for Tamil Nadu State by the Tamil Nadu Agrl. University, Coimbatore.

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TABLE III Morphological Description and Yield Potentialities of Kudiraivali Co. 1

Duration (Days)	: 105-110
Pigmentation	: Green
Earhead	: Loose and spear shaped
Grain colour	: Smoky white
Flag leaf	
Length (cm)	: 35 - 60
Breadth (cm)	: 4 - 6
Lodging	: Non-lodging
Plant height (cm)	: 120 - 140
Number of productive tillers	: 7 - 10
Number of leaves	: 8 - 11
Length of earhead (cm)	: 20 - 26
Number of branches/ear	: 30 - 40
Number of grains/branch	: 65 - 90
Weight of 1000 grain (g)	: 3.5
Average grain yield (kg/ha)	: 1600
Reaction to smut under field condition	: Less susceptible under field condition