

Performance of Oil Palm Hybrids in Laterite Soils of Konkan Region in Maharashtra

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ABSTRACT

Eleven dura x pisifera cross combinations of oil palm were evaluated in laterite soils of Konkan region at Agriculture Research Station, Mulde in Sindhudurg District of Maharashtra. Pooled yield data on fresh fruit bunches (FFB) revealed that the hybrid 124D X 266P with an yield of 19.00 t ha⁻¹ followed by 148D X 98P (16.81 t ha⁻¹) proved promising as compared to that of hybrids. The higher FFB yields of these hybrids were due to more number of FFB and higher bunch weight. The economic analysis also revealed that these two hybrids gave higher gross returns of Rs. 85,500/- and Rs. 75,645/- respectively.

Key words: Oil palm, hybrids, fresh fruit bunches, bunch weight, gross returns

INTRODUCTION

Oil palm (*Elaeis guineensis* jacq.) is one of the important oil seed crops gaining popularity in India in the recent years. In India, it is mainly grown under irrigated conditions in an area of 1,71,680 ha. An area of about 10,000 ha has been identified as potential area for cultivation of this crop in Maharashtra State and so far about 1000 ha have already been brought under oil palm cultivation in Sindhudurg district of Konkan region in Maharashtra. The Farmers have shown interest for cultivation of this newly introduced crop. Potentially high yielding hybrids play a key role in increasing the oil palm production and productivity. The present investigation is aimed to evaluate the different tenera oil palm hybrids for identifying the best suitable hybrids for commercial exploitation in Konkan region of Maharashtra.

MATERIALS AND METHODS

The experiment was initiated at Agriculture Research Station, Mulde in Sindhudurg district of Maharashtra in 1991. The Experimental Station is located at 16°2' latitude, 73°42' longitude and at 17 m elevation above mean sea level in Konkan region of Maharashtra. The soils are with a pH of 6.01, EC 0.082 ds m⁻¹. The organic carbon content in the soil is 1.23 percent, available N 364 kg ha⁻¹, available P 423 kg

ha⁻¹ and available K 181.30 kg ha⁻¹. The soils are well drained with 10 to 15 per cent slope. At the field capacity, the moisture content is 28 to 30 per cent and at permanent wilting point, it is 16 to 18 per cent. The infiltration rate of the soil is very high (4.5cm hr⁻¹). The palms were planted at 9m x 9m spacing on contour. The experiment was laid in randomized block design with three replications and eleven treatments (eleven tenera hybrids). Eight palms of each hybrid were used as experimental material. Eleven dura x pisifera oil palm hybrids developed from Directorate of Oil Palm Research, Research Centre, Palode were collected and planted as experimental material. Experimental palms were irrigated @ 80 lit day⁻¹ through micro jets for a period of 8-9 months annually. Fertilizers were applied @ 1200:600:2700 g N, P₂O₅ and K₂O per palm per year in single dose in the month of August. Data on fresh fruit bunches (FFB) yield and yield attributing characters were recorded and statistically analysed by following the method described by Gomez and Gomez (1985).

RESULTS AND DISCUSSION

FFB yield: The fresh fruit bunches yield during 2007 revealed that the performance of the hybrids 148D X 98P was found significantly superior to all other hybrids but remained on par with 124D X 266P (Table 1). The hybrid 148D X 98P recorded an FFB yield of 161.93 kg palm⁻¹. Similar results were reported by Masthana

Reddy *et al.* (2009) and from Chithara (Anonymous, 2003). This was followed by the hybrids 124D X 266P (145.07 kg palm⁻¹) and 115D X 291P (135.00 kg palm⁻¹).

Pooled FFB yield: The pooled FFB yield over a period of five years from 2005 to 2009 revealed that the hybrid 124D X 266P was found significantly superior to all other hybrids but on par with that of 148D X 98P and 115D X 291P. The hybrid 124D X 266P recorded significantly highest pooled FFB yield (19.00 t ha⁻¹) which was 68 percent more than the check hybrid 65D X 111P (13.00 t ha⁻¹). The second best hybrid was 148D X 98P (16.81 t ha⁻¹) followed by the hybrid 115D X 291P (16.35 t ha⁻¹). Gawankar, *et al.* (2002) also reported that among the eleven hybrids, 148D X 98P and 115D X 291P were found to be dwarf as compared to other hybrids, which would favour easy harvesting of FFB.

Yield parameters: Data presented in Table.1 revealed that, during the year 2007, the average fresh fruit weight (g/fruit) was found more in the hybrid 18 D x 32 P (18.16 g fruit⁻¹). However, the differences between different hybrids were non-significant. Hybrid 148 D x 98 P produced significantly more number of FFB per palm (7.2) as compared to that of other hybrids. The bunch weight was found significantly higher in hybrid 124D x 266P (25.93 kg bunch⁻¹) and this was followed by 115D X 291 (23.23 kg bunch⁻¹) and 148D X 98P (22.67 kg bunch⁻¹). The higher yields in hybrids 148D X 98P, 124D x 266P and 115D X 291 were due to FFB and higher bunch weight.

The results revealed that hybrids 124D x 266P ranked first for fresh fruit bunches (FFB) yield followed by 148D X 98P and 115D X 291 due to significantly more number of FFB/ palm and higher bunch weight. The hybrids 124D x 266P and 148D X 98P with higher yield potential of 19.00 t ha⁻¹ and 16.81 t ha⁻¹ respectively with better gross returns of Rs.85500 ha⁻¹annum⁻¹ and Rs.75645 ha⁻¹ annum⁻¹ appeared to possess greater potential for exploitation in this region and hence could be recommended for commercial cultivation in Konkan region of Maharashtra.

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Table 1: FFB yield as influenced by different hybrid combinations of oil palm at Mulde, Maharashtra.

Treatments	Fruit weight (g fruit ⁻¹)	No. of FFB palm ⁻¹	Bunch weight (kg bunch ⁻¹)	FFB yield (kg palm ⁻¹ annum ⁻¹)	Pooled FFB mean yield for last 5 years (t ha ⁻¹ annum ⁻¹)	Gross returns* (Rs. ha ⁻¹ annum ⁻¹)
Hybrids	2007	2007	2007	2007	2005-2009	
115D x 291P	9.19	5.9	23.23	135.00	16.35	73575
104 D x 98 P	14.57	3.3	19.40	65.23	10.48	47160
109 D x 291P	13.31	4.5	22.93	105.67	14.64	65880
124 D x 266 P	9.23	5.6	25.93	145.07	19.00	85500
220 D x 98 P	11.98	2.6	18.65	50.97	7.83	35235
65 D x 111 P	10.51	4.9	21.27	106.73	13.00	58500
35 D x 291 P	7.96	5.4	22.40	122.40	13.05	58725
82 D x 266 P	16.35	5.1	22.33	113.50	11.69	52605
148 D x 98 P	10.51	7.2	22.67	161.93	16.81	75645
18 D x 32 P	18.16	5.2	21.90	119.43	12.25	55125
128 D x 291P	15.97	5.2	20.77	105.57	14.31	64395
S. Em. ±	-	1.05	1.66	25.86	1.42	-
CD at 5 %	-	3.11	4.88	76.28	4.16	-

*@Rs.4500/tonne of FFB