

Performance of Different Oil Palm Cross Combinations Under Tungabhadra Command Area

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ABSTRACT

Field performance of different Dura x Pisifera cross combinations of oil palm was evaluated in medium deep black soils of Tunga Bhadra command area at Agricultural Research Station, Gangavathi. Data on FFB yield revealed that the hybrids 109 D x 291 P with 8.36 and 16.41 t ha⁻¹ and 148 D x 98 P with 8.24 and 12.67 t ha⁻¹ respectively during 2005 and 2006 proved superior to other hybrids. The higher FFB yield in these hybrid combinations were due to a combination of more number of bunches, higher mean bunch weight and more number of fruits per bunch. The economics revealed that the hybrids 109 D x 291 P and 148 D x 98 P recorded higher net returns of Rs 57013 and Rs 40168 ha⁻¹ respectively during 2006.

Key words: cross combinations, FFB, bunch weight, net returns

INTRODUCTION

Oil palm (*Elaeis guineensis* Jacq.) is an important perennial oil seed crop gaining popularity in recent years. It is mainly concentrated in irrigated areas and occupies an area of 93153 ha in India and 4500 ha in Karnataka. High yielding hybrids play important role in increasing the yield and oil productivity in oil palm. Performance of Dura x Pisifera combinations at Chithara revealed that maximum number of bunches and weight of FFB were recorded with the combination 104 D x 291 P (NRC-OP, 2003). In the present study different cross combinations of Dura x Pisifera developed from NRC-OP were evaluated for their performance under black soils of Tungabhadra command.

MATERIALS AND METHODS

Field experiment was conducted at Agricultural Research Station, Gangavathi of University of Agricultural Sciences, Dharwad, Karnataka state. The soil was medium deep black clay and had a pH of 8.3, available N of 247 kg ha⁻¹, available P of 23.8 kg ha⁻¹ and available K of 456 kg K₂O ha⁻¹. Eleven Dura x Pisifera cross combinations of oil palm developed from NRC-OP, RS Palode were tried in RBD design with three replications. Palms were planted during 1992.

Irrigation was given through basin method for a period of 8-9 months annually. Fertilizers were applied at the rate of 1200:600:1200 g N,P₂O₅ and K₂O palm⁻¹ year⁻¹ which was given in two equal splits in the months of August and December. Data on fresh fruit bunch (FFB) yield and yield parameters for the years 2005 and 2006 were recorded, statistically analysed and presented.

RESULTS AND DISCUSSION

FFB yield : The FFB yield during 2005 revealed that the hybrid combinations 104 D x 98 P (8.87 t ha⁻¹), 109 D x 291 P (8.36 t ha⁻¹) and 148 D x 98 P (8.24 t ha⁻¹) recorded significantly higher FFB yield over other hybrids but remained on par with the combinations 35 D x 291 P, 115 D x 291 P and 128 D x 291 P (Table-1).

Similarly during 2006 the performance of the combination 109 D x 291 P was significantly superior to all other combinations (Table 1). The hybrid recorded highest FFB yield of 16.41 t ha⁻¹ which was 32 percent higher than the check hybrid 65 D x 111P which recorded an FFB yield of 11.21 t ha⁻¹. The next best combination appeared was 148 D x 98 P with an FFB yield of 12.67 t ha⁻¹. Similar superior performance of Dura x Pisifera combination was reported from Chithara (NRC-OP, 2003).

Table 1 : FFB yield of Oil palm as influenced by different hybrid cross combinations, Gangavathi, Karnataka.

Treatments	Bunches palm ⁻¹		Bunch weight (kg bunch ⁻¹)		Fruits bunch ⁻¹
	2005	2006	2005	2006	2006
<i>Hybrids combinations</i>					
18 D x 32 P	3.20	4.28	10.77	16.03	1589
35 D x 291 P	4.80	4.97	11.38	13.57	1173
65 D x 111 P	3.33	5.64	10.70	13.89	1298
82 D x 266 P	4.00	5.44	9.73	13.63	1528
104 D x 98 P	5.50	5.13	11.16	11.82	1172
109 D x 291 P	4.78	6.50	12.41	17.82	2197
115 D x 291 P	4.42	3.33	10.28	18.77	1521
124 D x 266 P	3.95	3.89	9.93	14.19	1302
128 D x 291 P	3.67	5.97	13.57	11.51	1009
148 D x 98 P	5.22	4.77	11.04	18.71	1441
220 D x 98 P	3.11	4.14	9.77	10.80	1948
<i>SE m ±</i>	0.40	0.48	1.00	1.43	65.0
<i>CD (p=0.05)</i>	1.18	1.42	NS	4.21	204

Table 2 : Economics of Oil palm cultivation as influenced by different hybrid combinations, Gangavathi, Karnataka.

Treatments	G R (Rs ha ⁻¹)		COC (Rs ha ⁻¹)		N R(Rs ha ⁻¹)	
	2005	2006	2005	2006	2005	2006
Hybrid combinations						
18 D x 32 P	24320	46471	18127	19293	6193	27178
35 D x 291 P	37494	45141	18820	19223	18673	25918
65 D x 111 P	24114	53248	18116	19650	5998	33598
82 D x 266 P	26442	50239	18239	19491	8203	30748
104 D x 98 P	42117	41705	19064	19042	23053	22663
109 D x 291 P	39773	77963	18940	20950	20833	57013
115 D x 291 P	31429	43288	18501	19125	12928	24163
124 D x 266 P	26030	37066	18217	18798	7813	18268
128 D x 291 P	33852	44808	18629	19205	15223	25603
148 D x 98 P	39125	60183	18906	20015	20218	40168
220 D x 98 P	20789	33440	17941	18607	2848	14833
<i>SE m ±</i>	1942	2954	223	277	1779	2752
<i>CD (p=0.05)</i>	5730	8713	657	817	5249	8118

GR: Gross Returns; COC: Cost of cultivation; NR :Net returns

Yield parameters : The higher FFB yield in the case of 109 D x 291 P and 148 D x 98 P were mainly due to more number of bunches and higher bunch weight. The combination 109 D x 291 P recorded 4.78 and 6.5 number of bunches during 2005 and 2006 respectively which were significantly higher than other hybrids. Similarly, the hybrid recorded higher mean bunch weight of 12.41 and 17.82 kg during 2005 and 2006 respectively which had contributed to higher FFB yield. While the hybrid 148 D x 98 P produced 5.22 and 4.77 number of bunches with bunch weights of 11.04 and 18.71 kg during 2005 and 2006 respectively which were higher than other hybrids. The higher FFB yields were also due to significantly more number of fruits per bunch in these hybrids.

Economics : During 2005 gross returns(GR) were significantly higher with 104 D x 98 P (Rs 42117 ha⁻¹) which however remained on par with 109 D x 291 P and 148 D x 98 P with a GR of Rs 39773 and Rs 39125 ha⁻¹ respectively (Table-2). However, during 2006 GR were significantly higher with 109 D x 291P (Rs 77963 ha⁻¹) than any other hybrid. It was followed by 148 D x 98 P (Rs 60183 ha⁻¹).

Net returns(NR) during 2005 were higher in the case of 104 D x 98 P (Rs 23053 ha⁻¹) which remained on par with 109 D x 291P (Rs 20833 ha⁻¹). While during 2006 the hybrid 109D x 291P recorded significantly higher NR of Rs 57013 ha⁻¹ than others. It was closely followed by the combination 148 D x 98 P with a NR of Rs 40168 ha⁻¹.

The two years data indicated that the combinations 109 D x 291 P and 148 D x 98 P with improved number of bunches, higher mean bunch weight and significantly higher FFB yield proved superior to other hybrids. The hybrids 109 D x 291 P and 148 D x 98 P with an yield potential of 16.41 and 12.67 t ha⁻¹ respectively recorded higher gross and net returns and appeared to have better prospects for adaptation under Tungabhadra command and can be recommended for cultivation on farmers fields.

REFERENCES

NRC-OP,2003, Annual Report of National Research Centre for Oil Palm, 2002-03.