



PERFORMANCE OF OIL PALM HYBRID CROSSES UNDER THE KRISHNA-GODAVARI ZONE OF ANDHRA PRADESH

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Abstract

The present investigation comprising of eleven hybrid crosses of oil palm was carried out at the Horticultural Research Station, Vijayarai, West Godavari district of Andhra Pradesh under alfisols to evaluate their growth and yield characters. The eleven hybrid crosses of oil palm tenera hybrids were viz., 128D × 291P, 124D × 266P, 18D × 32P, 35D × 291P, 65D × 111P, 104D × 98P, 82D × 266P, 109D × 291P, 115D × 291P, 148D × 98P and 220D × 98P were planted at a spacing of 9m X 9m in a randomized block design, replicated thrice during the year 1992 under tube well irrigation. The data recorded has revealed that the hybrid crosses derived of 291P male parent recorded tallest in height where as the hybrid crosses derived of 98P male parent have recorded shortest in plant height. The variation in collar girth of palms was found non-significant. The perusal of pooled performance of the past four years data it can be concluded that significantly highest fresh fruit bunch yield (15t/ha/year),

highest number of fresh fruit bunches (7.6) and fresh fruit bunch weight (15.7 kg) were recorded with 115D × 291P. Based on the differences in both growth and yield data in different dura × pisifera hybrid crosses it can be concluded that 115D × 291P has been identified as precocious in bearing coupled with Fresh Fruit Bunch yield potential of 15t/ha/year.

Key words: Bunch weight, FFB yield, hybrid crosses, oil palm, plant height

Introduction

Andhra Pradesh is one among the eleven states identified by the Central Working Group on oil palm suitable for cultivation of oil palm in about 4,00,000 ha (Anonymous, 1988). At present the area under cultivation in Andhra Pradesh is about 65,000 ha with a total production of 2,20,000 tonnes of FFBs from a productive area of 32,000 ha (2006-07). Oil Palm, recognized as the most profitable producer of vegetable oil with a yield potential of 4-5 tonnes of edible oil/ha/year under irrigated conditions (Rethinam and Chadha, 1992). Being perennial plantation crop, which is committed to the land for nearly 25 to 30 years, an assurance of quality planting material is essential for this crop. Although tenera hybrids comprising of Dura × Pisifera hybrid crosses are considered ideal for commercial plantation parental combination wise differences have been reported by

Nampoothiri and Ravindran (1996), which necessitates the need for identifying specific high yielding hybrid crosses for a specific location. Keeping all these things in view, the present experiment has been planned with the main aim of evaluating and identifying the best hybrid cross/crosses of oil palm suitable to the alfisols of Krishna-Godavari zone of Andhra Pradesh. Accordingly various hybrid crosses made at Palode (Kerala), using Dura × Pisifera have been planted at the Horticultural Research Station, Vijayarai to identify the best hybrid cross of oil palm suitable to the Krishna-Godavari zone of Andhra Pradesh.

Materials and Methods

The present evaluation trial was initiated in 1992 in the farm of Horticultural Research Station, Vijayarai, West Godavari district of Andhra Pradesh. The hybrid crosses seeds viz., 128D × 291P, 124D × 266P, 18D × 32P, 35D × 291P, 65D × 111P, 104D × 98P, 82D × 266P, 109D × 291P, 115D × 291P, 148D × 98P and 220D × 98P developed at CPCRI Research Centre, Palode (presently NRC for Oil Palm Regional Station, Palode, Kerala State) were used for raising the seedlings. Planting was done with 9m X 9m spacing in a randomized block design with three replications and each hybrid cross combination had 8 seedlings excluding the border. Standard package of practices (Varghese & Cecil, 1992) with regard to nutrient

and irrigation management were followed. The growth characters, number of bunches, bunch weight, fresh fruit bunch yield were recorded and used for evaluating the performance trends. The data were analyzed statistically for interpreting the results.

Results and Discussion

All the 11 hybrid crosses of oil palm planted have established well with satisfactory growth and the results are presented in table 1. The data has indicated that all the 11 hybrid crosses have recorded significant differences in plant height (2006-07). The data has revealed that the hybrid crosses derived of 291P male parent recorded tallest in height where as the hybrid crosses derived of 98P male parent have recorded shortest in plant height. The variation in collar girth of palms was found non-significant. However, the collar girth had the range of

Table 1: Growth of tenera hybrid crosses of oil palm under Krishna-Godavari zone of Andhra Pradesh (up to 2006-07).

Hybrid cross	Plant height (m)	Girth (m)
V1 (128D×291P)	4.7	2.7
V2 (124D×266P)	4.4	2.6
V3 (18D×32P)	4.2	2.5
V4 (35D×291P)	4.0	2.6
V5 (65D×111P)	4.5	2.7
V6 (104D×98P)	5.3	2.6
V7 (82D×266P)	4.2	2.5
V8 (109D×291P)	4.2	2.7
V9 (115D×291P)	4.5	2.8
V10 (148D×98P)	5.2	2.9
V11 (220D×98P)	5.3	2.6
	0.6	NS

2.5m in 18D × 32P to 2.9m in 148D × 98P. Similar kind of observations on vegetative growth of palms was reported by Rethinam (1990).

The trends with respect to FFB yield of hybrid crosses of oil palm during the past four years (2003-04 to 2006-07) are presented in table 2. All the hybrid crosses differed significantly with respect to number of bunches/palm and fresh fruit bunches yield during all the years. There were significant differences in the bunch weight during the years 2003-04 and 2005-06. Among the hybrid crosses 115D × 291P recorded significantly highest fresh fruit bunch yield (13.9t/ha) and highest number of bunches/palm (8.3) during the year 2003-04. During the year 2004-05, the hybrid cross combination 82D × 266P recorded highest yield of fresh fruit bunches (9.8t/ha) and highest number of fresh fruit bunches (6.9) per palm followed by the hybrid cross combinations 115D × 291P and 148D × 98P. During the year 2005-06, the hybrid cross combination 109D × 291P recorded highest FFB yield of 14.1 t/ha with the highest fresh fruit bunch weight of 16.6 kg followed by 115D × 291P with 13.8 t/ha. During the year 2006-07, the hybrid cross combination 115D × 291P recorded highest FFB yield of 22.6 t/ha with fresh fruit bunches of 8.4/palm with an average bunch weight of 21.8 kg.

Perusal of average performance of the past four years data as shown in table 3, it can be concluded that significantly highest fresh fruit bunch yield (15 t/ha/year) with highest number of fresh fruit bunches (7.6) were recorded with 115D × 291P. Highest average fresh fruit bunch weight (15.7 kg) was obtained with 115D × 291P even though the data were found non-significant. The variations in different dura × pisifera crosses are

Table 2: Trends of Fresh Fruit Bunch yield in tenera hybrid crosses of oil palm during the period from 2003-04 to 2006-07.

Hybrid Cross	FFBs during 2003-04			FFBs during 2004-05			FFBs during 2005-06			FFBs during 2006-07		
	No.	Avg. wt. (kg)	Yield t/ha/year	No.	Avg. wt. (kg)	Yield t/ha/year	No.	Avg. wt. (kg)	Yield t/ha/year	No.	Avg. wt. (kg)	Yield t/ha/year
V1 (128D×291P)	5.8	12.7	9.2	5.3	12.6	8.2	6.8	10.9	8.9	5.5	19.8	13.5
V2 (124D×266P)	4.7	15.0	8.8	5.6	11.6	8.0	5.7	12.8	9.0	6.1	18.5	14.0
V3 (18D×32P)	4.9	17.3	10.5	3.4	11.5	4.8	5.9	9.2	6.7	5.1	18.7	11.8
V4 (35D×291P)	6.5	14.0	11.2	5.1	13.2	8.2	6.8	15.4	13.0	5.6	18.5	12.7
V5 (65D×111P)	6.2	13.6	10.4	5.2	10.4	6.7	6.5	13.0	10.3	5.2	17.9	11.4
V6 (104D×98P)	5.0	14.9	9.3	4.7	12.7	7.3	7.2	13.2	11.8	6.8	19.4	16.5
V7 (82D×266P)	4.3	13.6	7.1	6.9	11.5	9.8	5.3	14.0	9.1	8.3	17.1	17.3
V8 (109D×291P)	5.9	14.2	10.3	5.2	11.0	7.1	6.9	16.6	14.1	7.7	20.9	20.0
V9 (115D×291P)	7.3	15.6	13.9	6.4	11.9	9.5	8.3	13.6	13.8	8.4	21.8	22.6
V10 (148D×98P)	5.5	15.2	10.4	6.1	12.4	9.5	7.5	13.5	12.3	6.4	19.7	15.4
V11 (220D×98P)	4.1	15.3	7.7	6.0	10.6	7.9	5.1	15.8	9.9	4.4	19.5	10.4
CD at 5%	1.4	2.3	2.7	1.2	NS	2.1	1.2	3.9	2.8	1.5	NS	2.5

Table 3: Four years average yield performance of oil palm hybrid crosses under Krishna-Godavari zone of Andhra Pradesh.

Hybrid cross	Average data of four years (2003-04 to 2006-07)		
	FFB Nos. (per palm)	Avg. wt. of FFB (kg)	FFB yield (t/ha/year)
V1 (128D×291P)	5.9	14.0	10.0
V2 (124D×266P)	5.6	14.5	10.0
V3 (18D×32P)	4.8	14.2	8.5
V4 (35D×291P)	6.0	15.3	11.3
V5 (65D×111P)	5.8	13.8	9.8
V6 (104D×98P)	5.9	15.1	11.2
V7 (82D×266P)	6.2	14.1	10.8
V8 (109D×291P)	6.5	15.7	12.9
V9 (115D×291P)	7.6	15.8	15.0
V10 (148D×98P)	6.4	15.3	11.9
V11 (220D×98P)	4.9	15.3	9.0
CD at 5%	0.8	NS	1.2

necessary for field testing to identify the best one for a specific location (Nampoothiri, 1994).

Among all the tenera hybrid crosses tested the hybrid cross combination 115D × 291P has been found to record precocious in bearing coupled with FFB yield potential of 15t/ha/year. This can be considered as the promising hybrid for future area expansion programme in the alfisols of Krishna-Godavari zone of Andhra Pradesh.

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