

Data on morphological and reproductive characters revealed that hybrids have a higher number of functional leaves, leaf length and breadth of middle leaf, spikelets in inflorescence and more setting per cent are the main components, determining the yield. Patel (1938) reported that the length of stem and number of leaves at the crown are significantly correlated with average yield. This was supported by Satyabalan *et al.* (1972) who recorded highly significant relation between height of the palms, number of leaves and yield of nuts. The present study also confirmed this fact that hybrids involving ECT recorded higher number of leaves, length and breadth of middle leaf and more number of spikelets and had higher nut yield.

The highest yield realised in hybrids were due to higher setting percentage and optimum number of button as compared to parents. The highest nut yield was recorded by ECT x MOD (table 1).

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Research Notes

Growth and yield performance of oil palm genotypes

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The oil palm genotypes are being evaluated to express their production potential under uniform condition. Each genotype expresses its phenotypic variation differently depending upon the environmental condition. Eleven oil palm genotypes were evaluated under rainfed condition at Central

Plantation Crops Research Institute, Regional Centre, Palode, Kerala during 1986 to 1990 which were planted in 1976. The number of bunches per palm per year ranged from 3.7 to 7.3 with fresh fruit bunch (FFB) yield of 64 to 155 kg per palm per year (Nampoothiri,

Table 1. Particulars of oilpalm genotypes

S.No.	Cross No.	Type
1.	C.11040	DELI.EKONA
2.	C.11075	KIGOMA.EKONA
3.	C.11084	DELI.YANGAMBI
4.	C.11092	ANGOLA.CALABAR
5.	C.11097	KIGOMA.CALABAR
6.	C.11107	DELI/ANGOLA.LAME
7.	C.11108	DELI.LAME
8.	C.11146	DELI.AVROS
9.	C.11162	EKONA/EKONA?LAME
10.	C.11163	EKONA/EKONA?EKONA
11.	C.11167	ANGOLA.LAME
12.	C.11176	ANGOLA.EKONA?
13.	C.11187	KICOMA.LAME?
14.	C.1189	DELI.ANGOLA.CALABAR
15.	C.11200	DELI/ANGOLA.EKONA
16.	C.11235	ANGOLA.AVROS
17.	C.11225	KIGOMA.AVROS
18.	C.11248	EKONA/EKONA?CALABAR
19.	C.11263	KIGOMA.LAME
20.	C.11265	DELI/ANGOLA.LAME
21.	C.65893	BAMENDA.AVROS
22.	C.11043	DELI.CALABAR
23.	C.11136	DELI.AVROS (S.CROSS)
24.	-	AVROS
25.	-	GHANA
26.	-	EKONA

1994). Under irrigated conditions of East and West Godavari and Krishna districts of Andhra Pradesh, an yield of 20 to 25 tonnes of FFB per ha per year was obtained by farmers from 5 year old plantation if irrigation and fertilizers were given regularly. A high yield of 30 tonnes of fresh fruit bunches per ha per year was also obtained by a few farmers during sixth year. There was no yield difference between the source of planting materials received from ASD, Costa Rica and Indigenous tenera hybrid (Rethinam, 1998). Keeping these in mind, an experiment was laid out to evaluate the growth and yield performance of oil palm genotypes and to identify the high yielding oil palm genotypes suitable for Cauvery delta region.

Twenty six oil palm genotypes received from Department of Agriculture, Government of Tamilnadu, were planted during April 1999 at Sugarcane Research Station, Sirugamani on a clayey loam soil. The soil pH is 9.0. The experiment was conducted in randomised block design with three replications. The oil palm genotypes were planted with 9 m x 9 m spacing in square planting method. The particulars of oil palm genotypes are furnished in Table 1. The present experiment was started during April 1999.

The growth and yield performance of oil palm genotypes during 1998-2000 are presented in Table 2. The genotype C.11235 recorded

Table 2. Growth and yield parameters of oil palm genotypes during 1998-2000

Genotypes	Palm height (m)		Palm basal girth (m)		Nos. of leaves per palm		Leaf length (m)		FFB yield (kg ha ⁻¹)	
	1998-1999	1999-2000	1998-1999	1999-2000	1998-1999	1999-2000	1998-1999	1999-2000	1998-1999	1999-2000
C.11084	5.53	5.68	2.33	2.57	40.67	35.67	3.70	4.90	3795	2574
C.11200	5.42	5.50	2.50	3.35	46.67	41.00	3.63	4.35	137	286
C.11163	4.77	5.16	2.13	2.67	37.00	29.33	4.00	3.77	1254	1001
C.11187	3.90	4.13	1.83	2.13	35.67	31.00	3.20	2.87	137	429
C.11235	6.10	6.20	2.53	2.67	48.33	34.33	5.10	3.07	2360	2360
C.11248	4.53	6.00	2.07	2.23	36.67	33.00	4.03	3.97	-	429
C.11225	4.57	5.80	2.33	2.40	40.00	28.00	4.00	3.50	413	286
C.11189	4.97	5.80	2.13	2.23	35.67	32.33	3.30	3.50	-	1144
C.11263	5.61	5.80	2.33	2.37	40.67	34.33	4.36	3.77	825	1287
C.11176	5.53	5.73	2.38	2.43	40.67	36.33	4.40	4.07	-	1287
C.11108	4.00	5.97	2.17	2.42	36.33	27.33	3.20	3.63	1485	429
C.11043	5.80	5.83	2.13	2.32	38.33	31.00	4.43	3.37	578	1931
C.11162	4.17	5.70	2.00	2.10	35.67	25.67	3.73	4.27	297	2646
C.11097	4.53	5.80	2.17	2.37	39.33	44.33	4.10	2.97	1073	1573
C.11265	5.17	5.73	2.03	2.53	42.67	28.33	4.73	3.30	330	286
C.11146	5.13	5.73	2.23	2.40	35.33	29.33	4.37	4.37	1040	2860
C.11075	4.38	5.40	2.20	2.30	35.00	21.33	3.26	4.27	934	1430
C.11136	5.43	5.90	2.11	2.37	40.67	35.67	4.26	3.70	-	2288
C.11167	5.43	5.60	2.40	2.43	42.00	38.67	4.83	3.50	-	286
C.11092	5.17	5.50	2.03	2.13	33.00	35.33	4.23	3.67	274	2860
C.65893	4.86	5.93	1.99	2.38	34.33	36.67	3.86	3.30	-	577
C.11107	5.00	5.42	2.18	2.37	22.33	38.00	3.93	3.53	-	286
C.11040	4.67	4.73	1.97	2.48	30.33	42.00	3.33	3.63	-	286
Avros	4.00	4.20	2.07	2.13	37.33	23.67	3.00	3.32	83	1001
Thana	3.70	4.76	1.70	2.17	38.00	23.67	3.23	3.40	192	1859
Ikona	4.43	4.73	1.78	2.43	33.67	24.00	3.40	3.47	380	1573
Ed	0.41	0.46	0.17	0.18	3.99	4.97	0.42	0.23	NA	NA
D	0.81	0.93	0.35	0.36	8.03	9.98	0.85	0.46	NA	NA

P=0.05)

The highest palm height of 6.1 m, number of leaves of 48.3 per palm and leaf length of 5.1 m among the oil palm genotypes tested. The highest FFB yield of 3795 kg per ha was recorded in C.11084, followed by C.11235 with 2360 kg per ha during 1998-99. The highest palm height of 6.2 m was recorded in C.11235 which was comparable with C.65893, C.11136, C.11043 and C.11263. The genotype C.11235 recorded higher palm basal girth of 2.67 m. The genotype C.11097 recorded 44.3 number of leaves. The leaf length was the highest in C.11084 with 4.9 m. Among the genotypes tested, C.11092, C.11146, C.11262, C.11084 and C.11235 recorded 2860, 2860,

2646, 2574 and 2360 kg of fresh fruit bunches per hectare per year respectively during 1999-2000.

The growth parameters of oil palm genotypes during 2000-2001 are presented in Table 3. There existed difference in palm height, palm basal girth, number of leaves per palm, leaf length and middle leaflet width. The oil palm genotype C.11235 recorded the highest palm height of 6.4 m, which was comparable with C.11143, C.11146, C.11265 and C.11167. The genotype C.11084 recorded maximum palm basal girth of 2.9 m, which was on par with C.11265, C.11167, C.11107 and C.11235. The

Table 3. Growth parameters of oil palm genotypes during 2000-2001

Genotype	Palm height (m)	Palm basal girth (m)	No. of leaves per palm	Leaf length (m)	Middle leaflet width (cm)
C.11084	5.4	2.9	40.0	4.9	2.9
C.11200	5.3	2.3	43.7	4.4	2.2
C.11163	5.5	2.4	34.3	3.9	2.7
C.11187	4.0	2.2	37.3	3.0	2.6
C.11235	6.4	2.6	32.7	4.0	3.3
C.11248	4.6	2.3	31.0	3.7	3.1
C.11225	5.6	2.4	34.7	3.3	3.0
C.11189	5.1	2.2	35.7	3.7	2.9
C.11263	5.6	2.5	41.7	4.0	3.1
C.11176	5.8	2.6	37.3	3.8	2.7
C.11108	4.5	2.1	36.0	3.7	2.4
C.11043	6.2	2.5	33.7	4.3	2.9
C.11162	5.1	2.3	43.0	3.1	2.4
C.11097	4.7	2.4	39.0	3.5	2.9
C.11265	6.1	2.7	33.7	4.2	2.5
C.11146	6.2	2.4	34.3	4.1	2.6
C.11075	4.5	2.2	33.3	3.6	2.6
C.11136	5.9	2.4	35.3	3.7	2.7
C.11167	6.1	2.7	38.7	3.7	2.7
C.11092	5.5	2.7	32.7	3.5	2.6
C.65893	5.0	2.5	33.7	3.6	2.8
C.11107	5.3	2.7	30.7	3.7	2.7
C.11040	5.7	2.5	30.0	3.6	2.6
Avros	5.0	2.1	46.7	4.0	2.1
Ghana	4.2	2.2	30.0	3.4	2.9
Ekona	5.3	2.4	35.8	3.8	2.7
Mean	5.3	2.4	35.8	3.8	2.7
SEd	0.40	0.16	3.41	0.16	0.13
CD	0.81	0.32	6.85	0.31	0.26
(P=0.05)					

genotype Avros recorded the highest number of leaves of 46.7 per palm which was on par with C.11200, C.11162, C.11263 and C.11084. The genotype C.11084 had the highest leaf length of 4.9 m. The maximum middle leaflet width of 3.3 cm was recorded in genotype C.11235 which was on par with C.11263. Generally, the genotypes C.11235, C.11084, C.11263, C.11043, and C.11265 had relatively higher values in most of the growth parameters. The yield parameters of different oil palm genotypes are presented in Table 4. The genotype Avros recorded the highest number of 5.7 male inflorescence per palm per year which was followed by C.11248, C.11040 and C.11162. The genotype C.11265 recorded the highest number of female inflorescence of 12.3 per palm per year which was followed by C.11176,

C.11043 and C.11097. The genotype C.11176 recorded the highest number of fresh fruit bunches of 8.9, followed by C.11162, C.11235 and C.11084. The genotype C.11176 recorded the maximum fresh fruit bunch yield of 5178 kg per ha⁻¹ per year⁻¹, followed by C.11162, C.11146, C.11084 and C.11235 with 4603, 4431, 3934 and 3560 kg per ha⁻¹ per year⁻¹ respectively during 2000-2001. The oil palm genotypes with better growth parameters had not registered highest values of yield parameters and vice-versa. The fresh fruit bunch yield of six years old oil palm plantation is lower than the normal expected yield. This may be due to high soil pH of 9.0 and water stagnation due to poor drainage during monsoon rains.

Maximum FFB yield of 3795 kg per ha was recorded in C.11084, followed by C.11235

Table 4. Yield parameters of oil palm genotypes during 2000-2001

Genotype	No. of male inflorescence (palm/year)	No. of female inflorescence (palm/year)	No. of FFB (palm/year)	Yield of FFB (kg/ha/yr)
C.11084	1.3	7.0	5.2	3934
C.11200	.3	7.3	3.4	2200
C.11163	.0	8.0	4.3	3089
C.11187	.3	4.0	0.7	194
C.11235	.0	7.3	5.3	3560
C.11248	.7	6.7	1.8	1017
C.11225	.3	7.0	1.3	1033
C.11189	.3	6.3	4.1	2287
C.11263	.7	9.3	3.7	2518
C.11176	.0	1.0	8.9	5178
C.11108	.0	8.0	4.9	2715
C.11043	.0	0.7	2.9	1887
C.11162	.3	6.3	5.4	4603
C.11097	.3	0.0	2.7	2203
C.11265	.0	2.3	2.0	1360
C.11146	.3	7.7	4.5	4431
C.11075	.7	7.7	3.2	1917
C.11136	.7	4.3	4.7	3118
C.11167	.0	5.3	4.2	2758
C.11092	.3	4.7	4.1	3260
C.65893	.0	4.3	1.8	1057
C.11107	.7	4.3	1.3	997
C.11040	.7	3.3	1.7	1163
Avros	.7	5.7	3.5	1801
Ghana	.0	5.3	1.7	1517
Ekona	.7	5.7	1.3	1133
Mean	.3	7.0	3.4	2344
SEd	.87	.37	1.00	667.1
CD (P=0.05)	1.75	4.76	2.02	1340.2

with 2360 kg ha⁻¹ during 1998-99. Among the genotypes tested, C.11092, C.11146, C.11162, C.11084 and C.11235 recorded 2860, 2860, 2646, 2574 and 2360 kg of fresh fruit bunches per hectare respectively during 1999-2000. The genotype C.11176 recorded the maximum fresh fruit bunch yield of 5178 kg ha⁻¹ year⁻¹ followed by C.11162, C.11146, C.11084 and C.11235 with 4603, 4431, 3934 and 3560 kg ha⁻¹ year⁻¹ respectively during 2000-2001. The oil palm genotypes with better growth parameters had not registered higher values of yield parameters and vice-versa.

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