

PS10: BREEDING POPULATIONS SELECTED FOR LONG STALK

by: NOH, A; KUSHAIRI, A; MOHD DIN, A; MAIZURA, I; ISA, Z A and RAJANAIDU, N

267

MPOB INFORMATION SERIES • ISSN 1511-7871 • JUNE 2005

MPOB TT No. 263

Harvesting of fresh fruit bunches (FFB) is a tedious and time-consuming process. It needs experience and skill for harvesting FFB. The harvesting process involves identifying the ripe bunch, removing subtending fronds, locating the stalk and finally cutting the bunch. This is carried out traditionally using a chisel attached to a short steel pole for short palms and sickle attached to aluminium or bamboo pole for tall palms. In view of the labour shortage in Malaysia, the harvesting process should be simplified and mechanized. The current planting material has short stalk length of 10-15 cm, embedded between frond axil and the trunk. This poses difficulty in reaching and cutting the stalk either manually or mechanical. For ease of harvesting, it has been recommended that the minimum stalk length for

harvesting with a mechanical cutter is 20 cm (Ahmad Hitam and Solah Deraman, 2001).

SELECTION

The MPOB oil palm germplasm collection has been screened for long stalks. The stalk length is measured from the *stalk ring* to the lowest spikelet (*Figure 1*). A total of 40 palms with stalk length of more than 20-36 cm were identified. However, only 10 palms (eight *duras* and two *teneras*) (*Figure 2*) are currently being used in the breeding programme (*Table 1*). Biparental Crossing Programme was used for progeny testing and production of long stalk breeding material. Besides selecting for the trait, these palms were also evaluated and selected for bunch yield, oil yield, growth and physiological parameters.

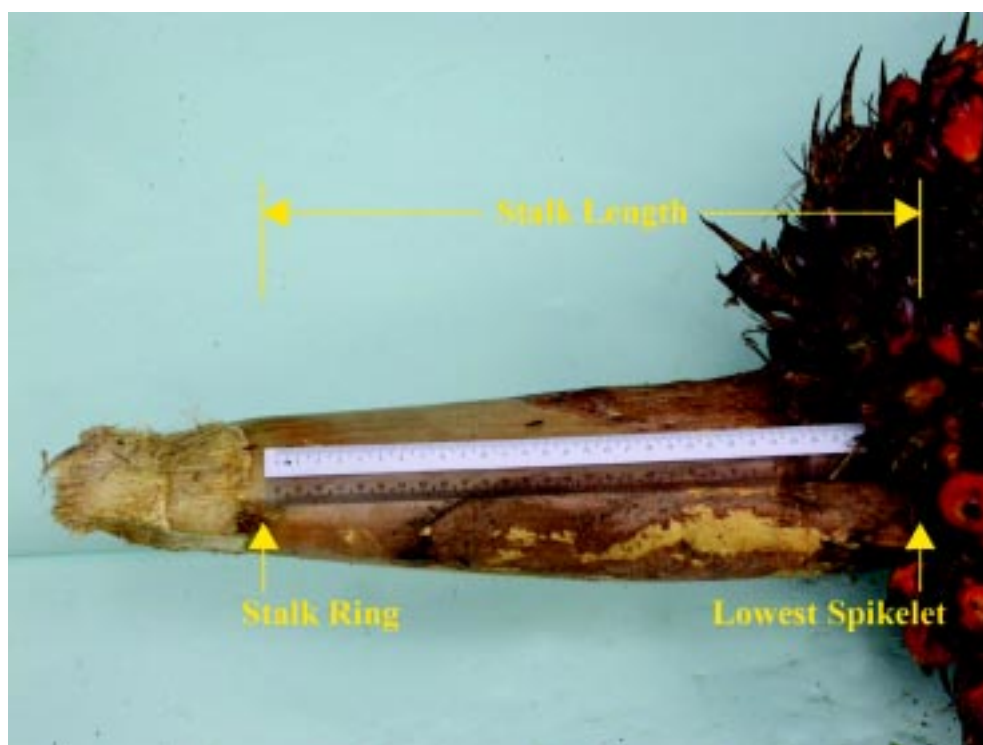


Figure 1. Measurement of stalk length.

ISSN 1511-7871



9 771511 787001

Malaysian Palm Oil Board, Ministry of Plantation Industries and Commodities, Malaysia
P. O. Box 10620, 50720 Kuala Lumpur, Malaysia. Tel: 03-89259155, 89259775, Website: <http://mpob.gov.my> Telefax: 03-89259446





Figure 2. Characteristics of palm with long stalk bunch.

TABLE 1. PS10 PALMS SELECTED FOR LONG STALK

No.	Palm No.	Fruit type	Stalk length (cm)	Country	POP	MFFB (kg palm ⁻¹ yr ⁻¹)	MBNO (No. palm ⁻¹ yr ⁻¹)	MABW (kg palm ⁻¹ yr ⁻¹)	NBA	MFW (g)	M/F (%)	K/F (%)	S/F (%)	O/DM (%)	F/B (%)	O/B (%)	K/B (%)	O/Y (t ha ⁻¹ yr ⁻¹)	TEP (kg palm ⁻¹ yr ⁻¹)	HT (m)
1	0.312/416	D	36.3	AGO	(05-01)	171.9	13.0	13.2	3	16.4	51.2	11.9	36.9	79.8	66.6	16.4	7.9	28.2	36.4	2.4
2	0.312/894	T	35.5	AGO	(05-01)	205.8	18.3	11.3	3	11.3	75.0	11.4	13.6	78.8	61.1	21.9	6.9	45.1	53.7	3.2
3	0.312/1074	D	35.5	AGO	(06-01)	169.1	12.6	13.5	3	15.4	54.7	10.4	34.8	80.0	71.4	20.2	7.4	34.2	41.7	2.2
4	0.312/1263	T(V)	30.3	AGO	(05-01)	221.3	15.0	14.8	3	13.7	72.3	13.8	13.9	79.5	68.2	23.9	9.4	52.9	65.3	4.0
5	0.311/331	D	27.0	AGO	(08-10)	203.2	14.7	13.8	3	16.3	53.6	11.2	35.2	82.9	59.7	16.8	6.7	34.1	42.2	2.2
6	0.311/612	D	33.7	AGO	(04-08)	186.2	13.6	13.7	3	16.7	53.3	12.6	34.1	80.5	68.1	19.5	8.6	36.3	46.0	3.4
7	0.311/627	D	31.0	AGO	(06-05)	180.4	13.4	13.4	2	12.5	53.7	8.6	37.7	82.7	62.3	19.8	5.3	35.8	41.6	2.8
8	0.311/645	D	30.0	AGO	(06-05)	181.0	12.4	14.6	2	16.6	58.0	10.4	31.5	77.9	59.5	16.9	6.1	30.6	37.2	3.8
9	0.312/359	D	30.0	AGO	(06-01)	189.1	16.0	11.8	3	13.0	59.0	10.6	30.4	78.4	68.8	19.5	7.3	36.9	45.2	2.7
10	0.312/682	D	28.8	AGO	(04-06)	194.7	18.0	10.8	3	15.0	57.2	7.3	35.5	79.8	72.4	23.0	5.3	44.9	51.1	3.0

Notes: MFFB = mean fresh fruit bunch, MBNO = mean bunch number, MABW = mean average bunch weight, NBA = No. of bunch analysis, MFW = mean fruit weight, M/F = mesocarp to fruit, S/F = shell to fruit, O/DM = oil to dry mesocarp, F/B = fruit to bunch, O/B = oil to bunch, K/B = kernel to bunch, O/Y = oil yield, TEP = total economic product, HT = height.

BENEFIT

- Increased ease of FFB harvesting;
- Improved productivity and quality of harvested FFB; and
- Reduced cost of FFB harvesting.

TECHNOLOGY ADOPTERS

- FELDA Agricultural Services Sdn Bhd (FSSB);
- Advanced Agroecological Research Sdn Bhd (AARSB); and
- United Plantations Bhd (UPB).

CONCLUSION

The *duras* from the population will be progeny tested with *AVROS Pisiferas* and *pisiferas* derived from the TxT crosses of the long stalk population. The production of long stalk breeding material will ease of the harvesting of FFB. This will help

to improve the workers productivity and income especially for tall palms. Coupled with the use of mechanized cutter, this material will definitely improve the harvesting efficiency and quality of harvested bunches.

ACKNOWLEDGEMENT

We would like to thank the Director-General of MPOB for his encouragement. We also thank Assoc Prof Dr Mohd Rafii Yusop (UPM) and Mrs Junaidah Judin (FELDA) and all the staff of Breeding and Genetics Group at MPOB Kluang, Johor for their contribution to the project.

REFERENCE

AHMAD HITAM and SOLAH DERAMAN (2001). Long stalk requirement. Internal circulation. Unpublished.

For more information kindly contact:

Director-General
MPOB
P. O. Box 10620
50720 Kuala Lumpur, Malaysia.
Tel: 03-89259155, 89259775
Website: <http://mpob.gov.my>
Telefax: 03-89259446