

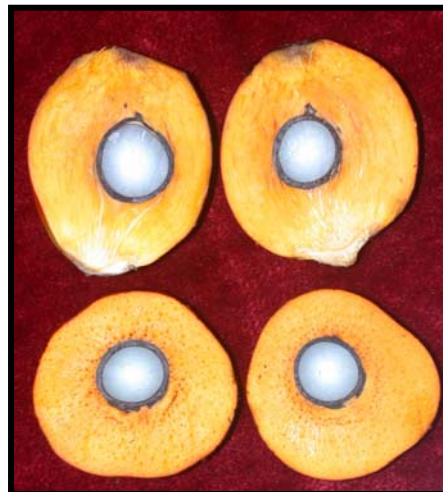
UNITED PLANTATIONS BERHAD

OIL PALM CLONAL SEEDS

*Elite Planting Materials Produced from
Breeding, Selection And Tissue Culture
Technology*

FEATURES

- ✧ Broad and proven genetic base
- ✧ Tested over a broad range of environments & soil types including coastal clays and peat
- ✧ Produced under stringent quality control protocols
- ✧ Vigorous and uniform growth characteristics
- ✧ High precocity and high sustained oil yields
- ✧ High oil extraction rate



Genetic Base of Our Parental Population

Dura Mother Palms

UPB has a well-diversified germplasm of *E. guineensis* dura populations which can be traced back to the Marihat Baris 1926-1929 plantings which have a direct lineage to the famous Bogor palms. Clonal Deli used as mother palms for Clonal DxP seed production are the result of selections from Marihat introgressed with Daboue, Johor Labis, Klanang Baru and Ulu Remis duras and have been extensively progeny tested.

Currently, the dura clones have been selected as mother palms allow for about 1 million clonal DxP seeds to be produced per year.



| Parameter for Dura Mother Palms | SIRIM Specification | UPB Mean Clonal Dura |
|----------------------------------|---------------------|----------------------|
| FFB (kg/palm/year) | 170 (min) | 245 |
| Oil/Bunch % | 18.0 (min) | 22.1 |
| Shell/Fruit % | 35 (max) | 27.1 |
| Mesocarp/Fruit % | 55 (min) | 65.1 |
| Oil/Dry Mesocarp % | 76 (min) | 77.0 |
| Mean Fruit Wt (g) | No specs. | 12.0 |
| FFB (tons/ha) | 23.5 (min) | 33.8 |
| CPO (tons/ha) | 3.75 (min) | 7.36 |
| Palm Kernel (tons/ha) | No specs. | 1.79 |
| Total Economic Product (Kg/palm) | No specs. | 61.9 |

Note: The above data is based on 6 years of yield recording starting 30 months from field planting

Clonal Pisifera Father Palms

Breeding and selection of pisiferas at United Plantations Berhad commenced in the late 1950's. UPB's pisifera population is derived from the top selections from *WAIFOR*, *IRHO*, *INEAC* and *DOA* (BM series) as well as BM119 from *OPRS*.

The Clonal pisiferas used in the Clonal DXP seed production were derived from Calabar x AVROS and Yangambi lineages.

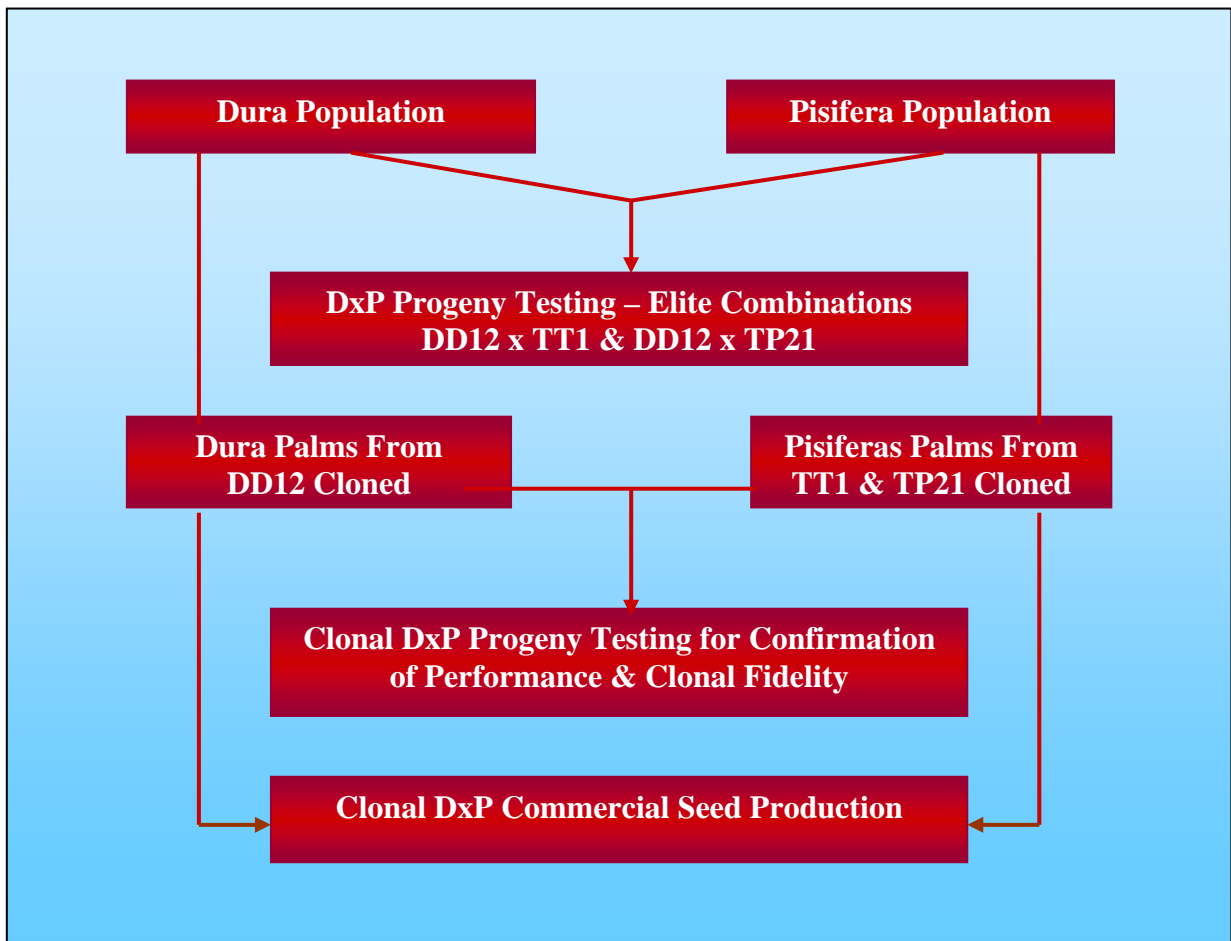


Clonal DXP Progeny Performance

Summary of the performance of UPB's Clonal DXP progenies in trials is presented below:

| | | |
|----------------------------|------|------|
| Year planted | 1997 | 1998 |
| Area (ha) | 8.32 | 7.77 |
| No. of families | 12 | 18 |
| Planting density | 148 | 138 |
| <u>FFB yield (tons/ha)</u> | | |
| <u>Year of harvest</u> | | |
| 1 st | 20.4 | 19.5 |
| 2 nd | 29.8 | 27.9 |
| 3 rd | 30.0 | 32.4 |
| 4 th | 30.7 | 32.0 |
| 5 th | 34.6 | 29.7 |
| 6 th | 28.8 | - |
| 7 th | 28.8 | - |
| <u>Bunch analysis :</u> | | |
| Oil/bunch (%) | 28.4 | 28.6 |
| Kernel/bunch (%) | 5.3 | 5.0 |

Scheme of Clonal DxP Seed Production



Clonal Dura mother palms in the seedgarden

UPB's Biclonal (UPBS) DxP Palms in the Field



A uniform stand of UPB's 9 year old Biclonal DxP palms



BiClonal DxP - UPBS
Cross 552
Oil to Bunch 29.6%



BiClonal DxP - UPBS
Cross 663
Oil to Bunch 29.9%



BiClonal DxP - UPBS
Cross 556
Oil to Bunch 29.0%



Our Company

United Plantations Berhad is one of the major Plantation Groups in Malaysia listed on the Main Board of the Bursa Malaysia Securities Berhad and the NASDAQ OMX Copenhagen A/S. The Company's core business is in the cultivation and processing of oil palms and coconuts. The group comprises of 12 estates located in and around the lower Perak District.



Our Research Department

United Plantations Berhad's Research Department (U.P.R.D.), located in Jendarata Estate, is an integral component of the group with a fully equipped commercial Tissue Culture laboratory. The Department's activities are applied research, advisory services and the production of quality planting materials of oil palms, coconuts and bananas.

Future Planting Materials



PSI & PSII

For low height increment and higher unsaturated oil



Virescens Palms

Distinct colour change of fruits from green to bright orange for more efficient harvesting



DxP Seeds

For higher oil yield and better oil extraction rates



Long Stalk Bunches
For easier harvesting



Tenera Clones
For high FFB and oil yield

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