

## **Paper 10: Developing a DNA database of Felda's critical breeding palms**

Seng, T.Y., Siti Hawa, M.S, Junaidah, J. Chin, C.W. and Sharifah, S.R.S.A.

A key long-term objective of FASSB is the development of a comprehensive DNA database of Felda's critical breeding palms and ortets. The first focus in this plan is a database of *dura* and *pisifera* palms used in elite DxP production. This part is urgent to help distinguish genuine Felda commercial DxP seeds from fraudulent ones that have recently entered the market. The information will also be useful for routine illegitimacy quality control in breeding crosses, commercial seed production and ortet selection. Such a database would also be necessary for plant variety protection of Felda elite varieties. The next phase in the development of the database will be the DNA profiles of Felda's most important breeding palms. These comprise of a large number of Deli *dura* from different sources selected over many generations, some more-recent Nigerian *dura* and *teneralpisifera* of various origins such as Yangambi, La Me, AVROS and Ekona. The final phase of the database will be the DNA information of selected *E. guineensis* and *E. Oleifera* germplasm palms. In developing this database the current methodology of choice is molecular marker systems. They are rapid, relatively cheap, mostly reliable, and have wide applications. Of the different molecular marker systems, FASSB has chosen SSR (Simple Sequence Repeats) markers as a starting system. SSR markers have the following advantages –small amount DNA required (10-100 ng) needed, high genomic abundance, random distribution throughout the genome, high level of polymorphism, co-dominance markers, highly reproducible, wide range of applications and amenable to automation. The SSR markers used by Felda are derived from the public domain, from in-house development work and through collaborative projects. The laboratory component of the DNA database development – such DNA extraction, PCR amplification, primer selection and DNA fragments analysis follows standard protocols with local modifications. The data are analysed using statistical free wares such as Powermarker, F-stat and GenePop. The development of this database is a long term project. Work on it began this year for an initial database of 25 *dura* and 37 *pisifera* elite parents from Felda seed and pollen gardens. Some details of this initial work are presented in this paper.