Selection Criteria (15-15-15) to Develop Sustainable Oil Palm Planting Materials[1]

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Abstract

Oil palm is a perennial crop with 25 years of economic life. The oil palm yields and extraction rate are stagnant for the past 20 years. It is a challenge to produce new generation of oil palm planting materials with high FFB yields, oil to bunch and shorter stature. The Deli dura female parents and pisiferas with specific attributes are selected to develop DxP planting materials to give high FFB yields and oil to bunch for an extended period.

Deli duras with a bunch number of 15 and average bunch weight of 15 kg with 15g single fruit were selected. The bunches weighing 15-20kg have lower percentage of inner fruits compared to bunches weighing more than 30kg. The medium size bunches maintained their oil to bunch compared to big bunches(>30kg). The Deli duras used to produce the DxP had a narrow petiole cross-section so that the harvesting will be easier.

The pisiferas were selected from MPOB-Nigerian population 12. This population is characterized by high bunch number and low bunch weight. The population 12 was short; 25-30 cm annual height increment. The population 12 had extremely low abortion rate with high sex ratio and compressed inter nodal length between fronds. The pisiferas from this population 12 also had narrow petiole cross-section.

A number of DxP progenies derived from the above Deli dura and pisifera combinations yielded 225 kg FFB yield in the second year of harvesting with a bunch number of 23.8; bunch weight of 9.4kg; and mean fruit weight of 10.1g. The progeny mean for mesocarp to fruit is 84.9%; oil to dry mesocarp 81.5%; oil to wet mesocarp 58.3; and oil to bunch was 33.1%. It is expected that the progeny will stabilize with a bunch number of 15; bunch weight of 15kg and single fruit weight 15g at fourth year of harvesting.

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