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Unlocking the Potential of Oil Palm *E. oleifera* × *E. guineensis* (O×G) Hybrid Material in FGV

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ABSTRACT

Palm oil is an edible vegetable oil widely consumed by people worldwide. There are two species of palm trees, namely *Elaeis guineensis* and *Elaeis oleifera*. The *E. oleifera*, possesses interesting traits such as dwarf, compact, and potential disease resistance. However, it has a low oil yield and pollination concerns as compared to *E. guineensis*. To address this, hybridisation can be used to transfer the beneficial features of *E. oleifera* to the high-yielding *E. guineensis*. FGV started working with *E. oleifera* in the 1960s and has now successfully bred to the third-generation hybrid via backcross (BC) strategy. A trial was conducted to evaluate the performance of BC3 as compared to the progeny of *E. guineensis*. The trial was laid in November 2013 at the FGVAS Plantation in Seriting Hilir, with five replications using a randomised complete block design (RCBD), consisting of seven backcross materials and two standard controls. The performance of bunch yield and bunch components were assessed and analysed using R statistics, and means were compared at a 0.05 significance level using Duncan's Multiple Range Test (DMRT). The trial means for fresh fruit bunch (FFB), bunch number (BNO), Mesocarp to Fruit (M/F) and Oil to Bunch (O/B) were 91.72 kg/p/yr (13.57 t/ha/yr), 13.22 bunches/p/yr, 91.68% and 32.72%, respectively. In comparison to other progenies, PB42 had the highest FFB (109.41 kg/p/yr) and BNO (15.24 bunches/p/yr). On the other hand, progeny PB25 attained the highest M/F (94.26%) and O/B (33.92%). The third generation of hybrid has significantly improved its yield performance and surpassed other progenies in the trial. This finding indicates interspecific hybrid material is feasible for commercialization in future and the exploitation should persist to observe more desired traits from *E. oleifera*.

Keywords: oil palm, *Elaeis oleifera*, backcross, bunch yield, bunch components

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