

---

[Home](#) > [Vol 46 \(2008\)](#) > [Okwuagwu](#)

## Genetic variability of fresh fruit bunch yield in Deli/dura x tenera breeding populations of oil palm (*Elaeis guineensis* Jacq.) in Nigeria

*C.O. Okwuagwu, Maxwell Nkachukwu Okoye, E.C. Okolo, C.D. Ataga, M.I. Uguru*

### Abstract

A study was conducted to assess the extent of genetic variability, broad-sense heritability, and correlation between yield and yield components in three Deli/dura x tenera (DxT) breeding populations. Populations 1, 2, and 3 were made up of 14 Deli x tenera progenies, 16 dura x tenera progenies, and 21 Deli/dura x tenera progenies respectively. The combined analysis of variance for number of bunches (BN), average bunch weight (ABW), and fresh fruit bunch yield (FFB) revealed significant genotypic differences. The phenotypic coefficient of variation, however, was generally greater than the genotypic coefficient of variation, implying the influence of genotype x environment interaction in the expression of these traits. Broad-sense heritability estimates for the three traits varied considerably from population to population. Estimates of heritability were high in population 1 (78, 88.6, and 70.7 respectively for BN, ABW, and FFB yield). The corresponding figures were 27.5, 41.5, and 24.3 for population 2, and 5.3, 32.7, and 20.5 for population 3. High genotypic coefficient of variation (31.4, 27.4, and 26.5), heritability, and genetic advance as percent of mean (57.2, 52.7, and 45.9) for the three bunch yield traits in population 1 imply the potential for improvement of these traits through selection. On the whole, population 1 is an appropriate starting point for the next cycle of breeding and selection. Highly significant positive ( $p > 0.01$ ) relationships were noted between FFB and BN suggesting that BN is a major yield contributing component. Strong negative correlations between BN and ABW ( $-0.220^{**}$ ,  $-0.260^{**}$ , and  $-0.368^{**}$ ), however, denote that selection for high BN may result in lower ABW and vice-versa, which would hinder the exploitation of high heritabilities. Accordingly, any form of selection that takes into account the additive genetic variation may neglect other pathways, such as heterosis which can be identified by progeny testing only.

Full Text: [PDF](#)

---

### Reading Tools

#### Genetic variability...

*Okwuagwu, Okoye, Okolo, Ataga, Uguru*

---

[Review policy](#)  
[About the author](#)  
[How to cite item](#)  
[Indexing metadata](#)  
[Print version](#)  
[Look up terms](#)  
[Notify colleague\\*](#)  
[Email the author\\*](#)

#### RELATED ITEMS

[Author's work](#)  
[Related studies](#)  
[Government policy](#)  
[Book searches](#)  
[Relevant portals](#)  
[Databases](#)  
[Online forums](#)  
[Data sets](#)  
[Pay-per-view](#)  
[Media reports](#)  
[Web search](#)

#### SEARCH JOURNAL

  
  

[CLOSE](#)

\* Requires [registration](#)