

Empty fruit bunch application and oil palm root proliferation.

ABSTRACT

The benefits derived from the application of empty fruit bunches (EFB) included better yields and improved palm nutrient status. These benefits were the result of better soil conditions after applying EFB. Root proliferation resulting from EFB application was observed to be an important factor that led to the better yields and palm nutrient status. The study was conducted on three-year-old DxP palms. Treatments followed an arrangement for the paired t-test with one side of the palm receiving EFB (treatment) at 100 kg per palm while no EFB was applied to the other side of the same palm (which acted as the control). Root samples were collected at three and six months after EFB application. The root masses from both treatment and control were then analysed as a total of all root orders, and also according to each root order, i.e. primary, secondary and tertiary. Comparison of quaternary roots was made using density/unit tertiary root length. Results showed that there was a proliferation of roots at a depth of 30-45 cm three months after EFB were applied. This proliferation occurred in a soil environment which was significantly improved ($p < 0.05$) in terms of total and exchangeable K and total Ca at 15-45 cm soil depth. Significant ($p < 0.05$) improvements in soil pH, soil moisture and P at 0-15 cm soil depth may also have influenced this proliferation of roots. It is postulated that the increased root mass under improved soil conditions implies an enhanced nutrient uptake process which explains the increased yields and better nutrient status.

Keyword: Empty fruit bunches; Oil palm roots; Plant nutrients.