



Tropentag, September 20-22, 2017, Bonn

“Future Agriculture:
Socio-ecological transitions and bio-cultural shifts”

Fertilisation of Young Oil Palms in Nigeria: Effects on Growth, Production and Profitability of Plantations

REINOUT IMPENS¹, OLIVIER DASSOU², XAVIER BONNEAU³, PATRICK VAN DAMME⁴

¹University of Ghent, Dept. of Plant Production - Lab. for Tropical Agronomy, Nigeria

²Inrab (National Agronomic Research Institute of Benin), Cra-pp (Center for Agronomic Research - Perennial Plants),

³Cirad, Persyst - Upr,

⁴Ghent University, Dept. of Plant Production - Lab. for Tropical Agronomy, Belgium

Abstract

Nigeria is at the core of the oil palm belt, the African oil palm's centre of origin, where its products have been used since thousands of years. Once the largest palm oil producer it is now the 5th in the world and is importing palm oil to supply the demand from its population. This is surprising considering that Nigeria has over 3 million hectares under oil palm and that the crop can yield over 4 tons of oil per hectare per year in the region. Average yields are less than a fifth of the world average (FAOSTAT, 2014) and reflect the low input and extensive way of cultivation of many plantations and producers. Oil palm plantations are usually not or inadequately fertilised, especially at the young age when investment costs are still high and production is yet to start. In any suitable environment and with high yielding planting material fertilisation represents the main yield gap for oil palm. Using the data from a 7-year trial field on a large commercial plantation in Edo state Nigeria this paper presents the effects that applications of inorganic and organic fertilisers have on the growth, production and profitability of young oil palm plantations. The treatments consist of an unfertilised control (T), company standard inorganic fertilisation regime (C1), half the standard fertilisation regime (C0.5) and exclusive organic fertilisation using Empty Fruit Bunches (E). The growth variables Collar Girth and Palm Height are consistently and significantly lower for T. The production data indicate a difference in bunch Oil Extraction Rate in favour of T but due to the stronger positive effect of fertilisation on bunch production, any application leads to significant increase in oil yield within the first 4 years of production (4th to 7th year after planting) with E giving the highest yield. When costs and benefits are added to the analysis inorganic fertilisers are more profitable because of the high application costs of organic fertiliser and their limited availability. Just 7 years after planting, applying the standard fertiliser regime already gives 15 % higher profit from the oil produced.

Keywords: Fertilisation, Nigeria, oil palm, profitability