

## CROP NUTRIENT MANAGEMENT

## Closing yield gap of cassava for food security in West Africa

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Cassava (*Manihot esculenta* Crantz) is an important food crop in Africa, Asia, Latin America and the Caribbean. Its storage roots are rich in carbohydrates and can be harvested throughout the year. Although cassava is cultivated in 40 of the 53 countries in sub-Saharan Africa, which accounts for half of the total world cassava production, the current average root yield in sub-Saharan Africa is still low (about one-third of that in Asia). On-station and on-farm trials in the region have indicated that cassava yield can be improved substantially with optimized growth conditions and management practices, but there is limited information on the role of nutrient management on cassava yield potential in sub-Saharan Africa.

Joy Geraldine Adiele from Wageningen University and colleagues have evaluated cassava yield potential and nutrient use efficiency in a two-year, on-farm study at six locations across three major cassava-growing agro-ecologies of West Africa. They found that yields of about 35 tonnes dry matter per hectare are possible in West Africa with varying amounts and type of crop nutrients, which is comparable

to the simulated ideal yield, and also to the historically recorded high yield. They found that cassava has a better recovery of applied nutrients and larger energy yields per kilogram of applied nitrogen than grains. Cassava, therefore, may well have previously unknown potential to address future energy needs with lower environmental risks than cereal crops.

This study points out that cassava yield gaps in sub-Saharan Africa may be larger than previously thought, and agronomic and internal utilization efficiency of nutrients by cassava are large. This highlights that cassava has a major role in the future food security of sub-Saharan Africa. Although the agronomic practices and optimized fertilizer applications that are needed to achieve high yields require further definition, this study identified the urgent need to develop suitable agriculture practices and to develop accompanied value chains that can support sustainable crop intensification in Africa.

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