

# Tailored Fertilizer Application Recommendations for Cassava



**STEP 1:** Good Agro-Practices

**STEP 2:** Choose the Best Fertilizer

**STEP 3:** Fertilizer Application Rate

**STEP 4:** Calculate Cost and Benefits

**STEP 5:** Fertilizer Application Time

**STEP 6:** Fertilizer Application Method

## STEP 1: Apply Good Agronomic Practices

Fertilizer use is only recommended if some minimal good agronomic practices are upheld:

- Always use improved varieties that are disease-tolerant, for example TME 419, TMS 30572 or TMS 98-0581.
- We advise obtaining disease-free cuttings from a certified source.
- Plant in lines of 1 m between rows and 80 cm within row (12,500 plants per hectare).
- Practice good land preparation and weed control. See our recommendations on “Six Steps to Cassava Weed Management and Planting Practices”.

## STEP 2: Choose the Best Fertilizer

Cassava requires different nutrients to grow. The 3 most important nutrients are:



**Nitrogen** is required for the growth of stems and leaves.



**Phosphorus** provides the crop with the energy needed for growth.



**Potassium** is required for the bulking of the storage roots.

Some fertilizers supply all 3 of these nutrients (e.g. NPK 15:15:15, NPK 17:17:17 or NPK 20:10:10) while other fertilizers only supply 1 or 2 of these nutrients (e.g. urea 46:0:0, DAP 18:46:0 and MOP 0:0:60).

Cassava requires all 3 of these nutrients, but the amounts depend on the fertility of the soil and the planting date. For this reason, a combination of fertilizers is preferred over a single complex fertilizer. In this tool, we will focus on the use of commonly available fertilizers: Urea and NPK 15:15:15.

## STEP 3: Decide the Fertilizer Application Rate

What cassava yield did you obtain in your field in the past (without fertilizer applied)? Compare the size of root stocks obtained with the picture. Is your yield commonly...

lower (less than 15 tonnes per hectare)?  
**(Most common yield)**



about the same (between 15 and 20 tonnes per hectare)?

higher (more than 20 tonnes per hectare)?  
**(Very high yield)**

**Apply fertilizer**

Yes

Are you willing to accept some risk?

No

**Do not apply fertilizer**

Use the flyer with maps to obtain the fertilizer rate for your LGA. Recommendations are provided in kilograms of urea and NPK fertilizer per hectare (100 m x 100 m). Convert these to the rates required for your field using the rule of three.

$$\frac{\text{Area of your field (m}^2\text{)} \times \text{Fertilizer needed for 1 ha (kg)}}{10,000 \text{ (m}^2\text{)}} = \text{Fertilizer needed for your field (kg)}$$

**1 bag (of 50 kg) per hectare is about 1 full crown cap per plant**



## STEP 4: Calculate Cost and Benefits

Using fertilizer only makes sense if the value gained from the increase in root yield is larger than the cost of the fertilizer. The recommended rates are calculated using the common prices of roots and cost\* of fertilizer in your area.

**You must confirm the profitability of fertilizer use.** Calculate the cost and expected benefit.

### Expected Gross Value Increase

$$\text{Price of 1 tonne of cassava roots (NGN)} \times \text{Expected extra yield (tonnes/ha)}$$

\*Your trusted agrodealer can provide you with fertilizer prices

### Total Cost of Fertilizer

$$\frac{\text{Price of 1 bag of Urea (NGN)}}{\text{Weight of 1 bag of urea (kg)}} \times \text{Urea needed for 1 ha (kg)}$$
$$+ \frac{\text{Price of 1 bag of NPK (NGN)}}{\text{Weight of 1 bag of NPK (kg)}} \times \text{NPK needed for 1 ha (kg)}$$

Urea and NPK 15:15:15 needed for 1 ha and the expected extra yield are obtained from the flyers with maps

Is the **Expected Gross Value Increase** larger than the **Total Cost of Fertilizer** ?

No.

**Fertilizer is not profitable.  
Do not apply.**

Yes, but less than twice the total cost of fertilizer.

**Only apply fertilizer if you can accept some risk.**

Yes, it is more than twice the total cost of fertilizer.

**Fertilizer is profitable.  
Apply fertilizer.**

## STEP 5: Apply Fertilizer at the right time

- Fertilizer must always be applied when the soil is moist, after 1 or 2 rain showers.
- Urea and NPK 15:15:15 are best split-applied in 2 to 4 equal doses. Apply the first split 1 month after planting. Spread subsequent splits, as rains permit, over the next 2 to 3 months. Apply NPK during the first 1-2 splits, and urea during later splits.

## STEP 6: Apply Fertilizer in the right way

- Make a 5 cm deep half-moon, or full ring furrow about 20 cm away from each cassava plant.
- Spread the required amount of fertilizer in the furrow and cover with soil.
- Distributing the fertilizer dose equally to all plants is tricky and requires some practice. Using bottle cap measures can assist to get the dosage right (see front page).