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**NIGERIA SAHEL SAVANNA AEZ**

**Fertilizer Use Optimizer**

**The below assumes:**

Calibration measurement is with a FARO water bottle lid (FARO) that holds about 6.3 g urea, 10 g SSP and KCl, 9g NPK 15:15:15, 11g NPK 20:10:10, and 14g ZnSO4; and with a GINO tomato can (GINO) of 70 ml to hold 49 urea, 77 g SSP and KCl; 165g ZnSO4, 70 g NPK 15:15:15, and 84 g NPK 20:10:10.

* It is assumed maize, sorghum and pulses are planted on 75 cm x 25 cm; pearl millet 1 x 1 m; cassava 1 x 1 m.
* It is assumed grain prices per kg (Naira): 50 maize; 60 Sorghum; 67 Rice; 56 pearl millet; 200 shelled groundnut; 165 cowpea, 120 soybean, and 20 cassava.
* It is assumed 50 kg of fertilizer use costs (Naira): 5500 Urea; 4500 SSP; 7000 MOP, 6000 NPK 15-15-15 and 20-10-10 and 2000/kg for ZnSO4.
* **Broadcast width:** 2.5 m; **WAfsP**=weeks after planting, **WAT**=weeks after transplanting. Application rate is kg/ha.

**Level 1 financial ability**

* **Maize**: Broadcast 45kg Urea (1 GINO for 2 m) at 3WAP.
* **Groundnut**: Broadcast 50kg NPK 15:15:15 (1 GINO 5 m) at 2 WAP.
* **Lowland rice**: Broadcast 50kg urea (1 GINO for 1.7 m) at 1 WAT
* **Sorghum**: Broadcast 10kg SSP (1 GINO for 15 m) at 3WAP.
* **Cowpea**: Broadcast 50kg of NPK 15:15:15 (1 GINO for 6 m) at 2WAP
* **Pearl Millet**: Broadcast 12 kg of Urea (1 GINO for 7.5 m) at 4 WAP

**Level 2 financial ability.**

* **Maize**: Point apply 55 kg of Urea (1 FARO for 2.7 plants) at 2WAP
* **Cowpea**: Point apply 50kg of NPK 15:15:15 (1 FARO for 10 plants) at 2WAP
* **Groundnut**: Point apply 100kg of NPK 15:15:15 (1 FARO for 5 plants) at 2WAP
* **Lowland rice**: Broadcast 50kg of NPK 15:15:15 (1 GINO for 6m) at 1WAT and 50 kg urea (1 GINO for 1.7 m) at 6 WAT
* **Sorghum**: Mix 3 kg urea with 50 kg SSP and broadcast (1 GINO for 1.9 m) at 3WAP.
* **Pearl Millet**: Broadcast 50kg of urea (1 GINO for 6.2 m) at 4 WAP

**Level 3 financial ability (Maximize profit per hectare).**

* + **Maize**: Point apply 86kg Urea (1 FARO for 1.7 plants) at 2WAP
  + **Cowpea**: Broadcast 50kg NPK 15:15:15 at 2 WAP planting (1 GINO 10m).
* **Groundnu**t: Point apply 100kg of NPK 15:15:15 (1 FARO for 5 plants) at 2 WAP.
* **Lowland rice**: Broadcast 100kg of NPK 15:15:15 at 1 WAP (1 GINO for 3m) and broadcast 50 kg urea (1 GINO for 1.7 m) at 6WAT
* **Sorghum**: Mix 52 kg urea + 134kg SSP and Point apply (1 FARO for 1.3 plants) at 3WAP.
* **Pearl Millet:** Mix 100kg of NPK 15:15:15 with 67 kg SSP and point apply1 FARO for 2.2 plants at 2 WAP