

**NIGERIA SUDAN 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 for NPK 15-15-15 and 20-10-10; and 2000/kg ZnSO4.
* **Broadcast width:** 2.5 m; **WAP** = weeks after planting, **WAT** = weeks after transplanting. Application rate is kg/ha.

**Level 1 financial ability**

* **Maize**: Broadcast 37kg Urea (1 GINO for 5 m) at 3WAP.
* **Groundnu**t: Broadcast 10kg NPK 15:15:15 (1 GINO 28m) at 2 WAP.
* **Lowland rice**: No recommendation
* **Sorghum**: Mix 31 kg of urea with 25 kg SSP and broadcast (1 GINO for 2.5 m) at 3WAP.
* **Cowpea**: Broadcast 50kg of NPK 15:15:15 (1 Gino for 6m) at 2WAP
* **Soybean**: No recommendation.
* **Pearl Millet**: No recommendation

**Level 2 financial ability.**

* **Maize**: Point apply 61kg of Urea (1 FARO for 5 plants) at 2WAP
* **Groundnut**: Broadcast 30kg of SSP (1 GINO for 10.5 m) at 2WAP
* **Lowland rice**: No recommendation
* **Sorghum**: Mix 36 kg urea with 57kg SSP and Point apply (1 FARO for 4.5 plants) at 3WAP.
* **Soybean**: No recommendation
* **Pearl Millet**: No recommendation

**Level 3 financial ability (maximizes profit per hectare)**

* **Maize**: Point apply 76 kg Urea (1 FARO for 4 plants) at 2WAP and points apply 76 kg Urea at 6WAP (1 FARO for 4 plants)
* C**owpea**: Point apply 100kg NPK 15:15:15 at 2 WAP (1 FARO 5 plants).
* **Groundnut**: Mix 100kg SSP with 75kg NPK 15:15:15 and point apply (1 FARO for 2.7 plants) at 2 WAP.
* **Lowland rice**: Broadcast 46kg of Urea at 1 WAP (1 Gino for 4 m) and broadcast 46kg urea (1 GINO for 4 m) at 6WAT
* **Sorghum**: Mix 75kg NPK 15:15:15+ 33kg urea + 150kg SSP and Point apply (1 FARO for 2 plants) at 3WAP.
* **Soybean**: Broadcast 68 kg SSP (1 GINO or 4.5 m) at 2 WAP.
* **Pearl Millet;** Broadcast 19 kg SSP (1 GINO for 4.5 m) at 2 WAP