****

**NIGERIAN DERIVED SAVANNA AEZ**

**Fertilizer Use Optimizer**

**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.
* **Planting:** Maize, sorghum and pulses are planted at 75 cm x 25 cm; pearl millet 1 x 1 m; cassava 1 x 1 m.
* **Crop values:** Naira/kg 50 maize; 60 Sorghum; 67 Rice; 56 pearl millet; 120 unshelled groundnut; 165 cowpea, 120 soybean, and 20 cassava.
* **Fertilizer use costs for Naira for 50 kg:** 5500 Urea; 4500 SSP; 7000 MOP, 6000 for NPK 15-15-15 and 20-10-10; and 2000/kg for ZnSO4.
* **Broadcast width:** 2.5 m; **WAP** = weeks after planting, **WAT** = weeks after transplanting. Application rate is kg/ha.

**Level 1 financial ability.**

* **Groundnut:** Broadcast 25kg NPK (1 GINO for 11m) at land preparation.
* **Lowland rice:** Broadcast 75 kg NPK 15:15:15 1 WAT (1 GINO for 4m)
* **Upland rice:** Broadcast 75 kg NPK 15:15:15 2 WAP (1 GINO for 4m)
* **Sorghum:** Point apply 28 kg of Urea (1 FARO for 12 plants) at 4 WAP.
* **Soybean:** Broadcast 25kg NPK (1 GINO for 11m) at land preparation.

**Level 2 financial ability.**

* **Maize HP >3 t/ha**: Point apply 50 kg NPK 15:15:15 (1 FARO for 10 plants) at 3WAP.
* **Maize LP < 3t/ha:** Point apply 50 kg NPK 15:15:15 (1 FARO for 10 plants) at 3WAP.
* **Groundnut:** Point apply 25kg NPK 15:15:15 (1 FARO for 20 plants) at 2 WAP.
* **Upland land Rice:** Broadcast 100kg NPK 15:15:15 at 1 WAT (1 GINO for 3 m) and broadcast 25kg Urea at 5 WAT (1 GINO 7.5 m).
* **Lowland rice:** Broadcast 100kg NPK 15:15:15 at 1 WAT (1 GINO for 3 m) and broadcast 25kg Urea at 5 WAT (1 GINO 7.5 m).
* **Sorghum:** Point apply 25 kg of Urea (1 FARO for 12 plants) at 2WAP.
* **Soybean:** Broadcast 25 kg SSP (1 GINO 12 m) at land preparation.
* **Level 3financial ability (maximizes profit per hectare).**
* **Maize HP >3 t/ha**: Mix 50 kg NPK 15:15:15 with 35kg urea and point apply (1 FARO for 5.5 plants) at 3WAP. Also point apply 150 kg Urea at 6WAP (1 FARO for 2 plants).
* **Maize LP < 3t/ha:** Mix 50 kg NPK 15:15:15 with 32kg urea and point apply (1 FARO for 5 plants) at 3WAP Also point apply 100 kg Urea at 6WAP (1 FARO for 2.5 plants).
* **Groundnut:** Point apply 50kg NPK 15:15:15 (1 FARO 10 plants) at 2 WAP.
* **Upland land Rice:** Broadcast 100kg NPK 15:15:15 at 1 WAT (1 GINO for 3 m) and broadcast 75kg Urea at 5 WAT (1 GINO for 2.5m).
* **Lowland rice:** Broadcast 50 kg NPK 15:15:15 at 2 WAP (1 GINO for 6m) and also broadcast 72 kg Urea at 6 WAP (1 GINO for 2.5m)
* **Sorghum:** Point apply 160 kg of NPK 15:15:15 (1 FARO for 3 plants) at 2WAP.
* **Soybean:** Point apply 150 kg SSP (1 FARO for 3.5 plants) at 2 WAP.