



Malawi Fertilizer Use Optimizer: <1300 m

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The below assumes:

- **Calibration measurement unit:** a water bottle cap (CAP, 8 mL) for 6.1 g urea, 8 g for NPKSZn, 8.8 g for DAP and TSP.
- **Row spacing:** maize, pigeon pea, sweet potato 75 cm; bean, soybean, cowpea all 50 cm; cassava, 1m.
- **Apply point spacing:** maize 25 cm; sweet potato 50 cm; pigeonpea 75 cm; cassava 1 m.
- **Grain prices MK/kg:** 625 maize; 500 sorghum; rice, unhulled, 600; 875 bean; 700 pigeonpea; 800 cowpea; 300 cassava; 350 sweet potato.
- **Fertilizer use costs MK/50kg:** 82500 urea; 90000 NPKSZn & DAP; 93000 TSP.
- **Weeks after planting (WAP) or after transplanting (WAT)**

Level 1 financial ability (<43,000 MK/ha available)

- Maize: at 8 WAP, point apply 25 kg urea (CAP 14 plants or 7 points)
- Soybean: band apply 32 kg NPKSZn at planting (CAP 5.5 m)
- Cassava: point apply 34 kg NPKSZn at 2 WAP (CAP 2.6 plants);); point apply 20 kg urea at 8 WAP (CAP 16 plants or 8 points).
- Maize-bean intercrop: band apply 45 kg DAP at 2 WAP (CAP 2.6 m); point apply 45 kg urea at 8 WAP (CAP 7 plants or 3.5 points).
- Sweet potato: point apply 69 kg DAP at 2 WAP (CAP 3.4 plants); 37 kg urea at 8 WAP (CAP 4 plants)
- Lowland rice: broadcast 64 kg urea at 6 WAT (CAP per 0.4 m with 2 m wide band)

Level 2 financial ability (43,000 to 85,000 MK/ha available; some may be applied at level 1)

- Maize: at 2 WAP, apply 36 kg DAP (CAP 13 plants or 7 points); point apply 70 kg urea 8 WAP (CAP 4.6 plants or 2.3 points).
- Cowpea: band apply 13 kg NPKSZn at planting (CAP 13 m)
- Bean: band apply 24 kg urea at planting (CAP 5 m).
- Soybean: band apply 15 kg urea at planting (CAP 3.6 m).
- Cassava: 70 kg NPKSZn at 3 WAP (CAP 1.3 plants); point apply 20 kg urea at 8 WAP (CAP 3 plants).
- Maize-bean intercrop: band apply 65 kg DAP at 2 WAP (CAP 1.8 m); point apply 50 kg urea at 8 WAP (CAP 6 plants or 3 points).
- Maize-pigeonpea intercrop: 42 kg urea at 8 WAP (CAP 7.5 plants)
- Sweet potato: point apply 81 kg DAP at 2 WAP (CAP 2.9 plants); 60 kg urea at 8 WAP (CAP 2.5 plants)
- Lowland rice: broadcast 100 kg urea at 6 WAT (CAP per 0.3 m with 2 m wide band)

Level 3 financial ability (>85,000 MK/ha available; some may applied at level 2)

- Maize: 210 kg DAP at 2 WAP (CAP 2.2 plants and 1.1 points); point apply 180 kg urea at 8 WAP (CAP 2 plants)
- Sorghum: at 2 WAP, point apply 19 kg DAP at 0 WAT (CAP 20 plants or 10 points) and ; point apply 15 kg urea 8 WAP (CAP 14 plants and 7 points)

- Cowpea: band apply 35 kg NPKSZn at planting (CAP 5 m)
- Bean: band apply 32 kg urea at planting (CAP 3.6 m)
- Soybean: band apply 84 kg DAP at planting (CAP 2.1 m).
- Pigeon pea: point apply 42 kg DAP at planting (CAP 3.7 plants).
- Cassava: 120 kg DAP at 2 WAP (CAP 0.7 plants) and 45 NPKSZn 2 WAP (CAP 2 plants); point apply 45 kg urea at 8 WAP (CAP 1.5 plants).
- Maize-bean intercrop: 126 kg DAP at 2 WAP (CAP 0.9 m); point apply 90 kg urea at 8 WAP (CAP 3.3 plants).
- Maize-pigeonpea intercrop: 150 kg NPKSZn at 3 WAP (CAP 3 plant or 1.5 points); point apply 190 kg urea at 8 WAP (CAP 2 plants).
- Sweet potato: point apply 96 kg DAP at 2 WAP (CAP 2.4 plants); 71 kg urea at 8 WAP (CAP 1.9 plants)
- Lowland rice: broadcast 27 kg DAP at 0 WAT (CAP per 1.6 m with 2 m wide band), and 100 kg urea at 6 WAT (CAP per 0.3 m with 2 m wide band)