

Assumptions:

Measurement is with a: 500ml Highland water bottle CAP that holds 6.7 ml, 4.7 g urea, and 7.4 g DAP, TSP, and KCl; 500ml Highland water (2-cm bottle) to hold 47 ml, 33 g urea and 52 g DAP, TSP, or KCl.

Planting is with row spacing of: 75 cm for maize, sorghum, Irish potato; 20 cm for rice, wheat, barley, finger millet; 50 cm for bean, faba bean, soybean; and teff is broadcast.

Grain prices per kg(in Birr): maize 5.5; sorghum 6; rice 12; tef 18; faba bean 12; barley 8; wheat 9; irish potato 6; finger millet 9; soybean 11; haricot bean 12; soybean 12.

Cost of using 50 kg of fertilizer (Birr): 750 urea; 900 TSP; 850 DAP; 750 KCl.

Level 1 financial ability need BC >4; Level BC 2-4; Level BC 0.1-2.

Fertilizer rates>20 kg/ha. **Broadcast width** is 2 m. **WAP** = weeks after planting.

Level 1 financial ability

Maize: point apply 32 kg/ha DAP at planting bottle (CAP for 12 plants) and point apply 28 kg/ha urea at panicle initiation (CAP for 8 plants).

Sorghum: point apply 28 kg/ha DAP at planting (CAP for 19 plants)

Rice, lowland: broadcast 38 kg/ha DAP after planting (2-cm bottle for 6.6 m); broadcast 59 kg/ha urea at panicle initiation (2-cm bottle for 2.7 m).

Teff: band apply 21 kg/ha DAP at planting (2-cm bottle for 12 m); broadcast 59 kg/ha urea at 2nd weeding (2-cm bottle for 2.7 m)

Level 2 financial ability

Maize: point apply 76 kg/ha DAP at planting (CAP for 5 plants) and broadcast 58 kg/ha urea at panicle initiation bottle (CAP for 4 plants).

Sorghum: point apply 50 kg/ha DAP at planting (CAP for 10 plants)

Rice, lowland: broadcast 113 kg/ha DAP after planting (2-cm bottle 2.2 m); broadcast 71 kg/ha urea at panicle initiation (2-cm bottle for 5.9 m).

Teff: band apply 39 kg/ha DAP at planting (2-cm bottle for 6.6 m); broadcast 86 kg/ha urea at second weeding (2-cm bottle for 1.8 m).

Fingermillet: broadcast apply 39 kg/ha DAP at planting (2-cm bottle for 6.6 m)

Soybeans: band apply 32 kg/ha TSP at planting (CAP for 4.6 m)

Level 3 financial ability (maximizes profit per acre).

Maize: point apply 117 kg/ha DAP at planting (CAP for 3.4 plants) and broadcast 87 kg/ha urea at panicle initiation (CAP for 2.7 plants).

Sorghum: point 70 kg/ha DAP at planting (CAP for 8 plants).

Rice, lowland: broadcast 184 kg/ha DAP after planting (2-cm bottle for 1.4 m); broadcast 83 kg/ha urea at panicle initiation (2-cm bottle for 1.8 m).

Teff: band apply 56 kg/ha DAP at planting (2-cm bottle for 4.6 m); broadcast 111 kg/ha urea at second weeding (2-cm bottle for 1.4 m).

Fingermillet: band apply 99 kg/ha DAP at planting (2-cm bottle for 2.6 m)

Soybeans: band apply 45 kg/ha TSP at planting (CAP for 3.3 m)