

**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**

- **Barley:** point application 60 kg/ha DAP at planting (2-cm bottle for 4.2 m)
- **Faba bean:** band 112 kg/ha DAP at planting (CAP for 1.2 m)
- **Maize:** point application 63 kg/ha DAP at planting (CAP for 6.2 plants); point apply 26 kg/ha urea at panicle initiation (CAP for 9 plants).
- **Teff:** broadcast 79 kg/ha urea at second weeding (2-cm bottle for 2 m).
- **Wheat LP (<3t):** broadcast 33 kg/ha urea at panicle initiation (2-cm bottle for 4.7 m).
- **Wheat HP (>3t):** broadcast 66 kg/ha DAP at planting initiation (2-cm bottle for 3.9 m).

**Level 2 financial ability**

- **Barley:** broadcast 94 kg/ha DAP at planting (2-cm bottle for 2.8 m)
- **Faba bean:** broadcast 153 kg/ha DAP at planting (CAP for 1 m)
- **Maize:** point application 97 kg/ha DAP at planting (CAP for 16 plants); and broadcast 59 kg/ha urea at silking stage bottle CAP for 1.6 points. point apply 26 kg/ha urea at panicle initiation (CAP for 2.6 plants).
- **Teff:** broadcast 53 kg/ha DAP at planting (2-cm bottle for 4.8 m) and broadcast 163 kg/ha urea at panicle initiation (2-cm bottle for 0.8 m)
- **Wheat LP (<3t):** broadcast 25 kg/ha DAP at planting (CAP for 2-cm bottle for 10 m) and broadcast 54 kg/ha urea at panicle initiation (2-cm bottle for 2.9 m).
- **Wheat HP (>3t):** broadcast 116 kg/ha DAP at planting initiation (2-cm bottle for 2.2 m) and broadcast 53 kg/ha urea at panicle initiation (2-cm bottle for 3 m).

**Level 3 financial ability (maximizes profit per acre).**

- **Barley:** broadcast 128 kg/ha DAP at planting bottle cut 2 cm for 2 m /container
- **Faba bean:** broadcast 186 kg/ha DAP at planting (CAP for 0.8 m).
- **Maize:** point application 128 kg/ha DAP at planting (CAP for 3 plants); point apply 89 kg/ha urea at panicle initiation (CAP for 2.7 plants).
- **Teff:** broadcast 110 kg/ha DAP at planting (2-cm bottle for 2.4 m) and broadcast 236 kg/ha urea at panicle initiation (2-cm bottle for 0.7 m)
- **Wheat LP (<3t):** broadcast 67 kg/ha DAP at planting (2-cm bottle for 3.8 m); broadcast 65 kg/ha urea at panicle initiation (2-cm bottle for 2.4 m).
- **Wheat HP (>3t):** broadcast 159 kg/ha DAP at planting initiation (2-cm bottle for 1.6 m) and broadcast 112 kg/ha urea at panicle initiation (2-cm bottle for 1.4 m).