

Kenya Lower Rift Valley Fertilizer Use Optimizer: paper version, Jan 2018

The below assumes:

- Calibration measurement is with i) a 3.14 ml of soda bottle top with lining that holds about 2.2 g urea and 3.5 g DAP and Mavuno, ii) a 100 g blue band tin (BB) has approx. 124 ml to hold 86.8 g urea, and 136 g DAP and Urea.
- It is assumed maize (25 cm within row) and Irish potatoes are planted at 75 cm row spacing, beans, soybean at 50 cm row spacing, wheat at 22.5 cm row spacing and Banana 3m row by 3m within row spacing.
- It is assumed grain prices per kg (Ksh): 25 maize, 20 Irish potato, 50 beans, 30 Banana and wheat.
- It is assumed 50 kg of fertilizer used costs (Ksh): 2850 urea; 3600 DAP; 3000 Mavuno, 2600 CAN.
- Application rates are in kg/ac. If any fertilizer rate application is less than 10 kg/acre it is not economical and should be converted to another fertilizer. WAP = weeks after planting;

Level 1 financial ability

(KSh <2,000 per acre available)

- For **maize**, at planting apply 13 kg Mavuno (1 top for 7 holes). *No CAN*
- For **Irish potato**, at planting band 41 kg DAP (2 tops for 1 m). Side dress with 23 kg urea (2 tops for 1 m) *or 28 kg CAN (2 tops for 1.5 m)* at flowering.
- **Banana**: At planting and annually, apply 74 kg Mavuno (1 BB for 1 hole) at the start of the rainy season.
- For **maize –bean intercrop**, at planting apply 20 kg Mavuno (1 top for 4 holes).

Level 2 financial ability

(KSh 2,000 to 4,000 per acre available; some at Level 1 and some at Level 2)

- For **maize**, at planting apply 46 kg Mavuno (1 top for 2 holes). Side dress with 14 kg urea (2 tops for 7 plants) at 6 WAP.
- For **Irish potato**, at planting band 66 kg DAP (5 tops for 1.5 m). Side dress with 28 kg urea (5 tops for 2 m) *or 41 kg CAN (2 tops for 1 hole)* at flowering.
- For **beans**, at planting band 10 kg DAP (1 top for 3 m).
- For **wheat**, band at planting 14 kg DAP (1 top for 4.5 m) and side dress by banding 13 kg urea (1 top for 5 m) *or 10 kg CAN (1 top for 6 m)* at panicle initiation.
- For **maize-bean intercrop**, at planting apply 56 kg Mavuno (5 tops for 6 holes). Side dress with 25 kg urea (1 top for 2 plants) *or 18 kg CAN (1 top for 4 holes)* at 6 WAP.
- **Banana**: At planting and annually, apply 81 kg Mavuno (5 BB for 4 holes), 17 kg Urea (2 BB for 5 holes) *or 23 kg CAN (2 tops for 5 holes)* at the start of the rainy season.

Level 3 financial ability (maximize profit per acre).

(KSh 4,000 to 6,000 per acre available; some at Level 2 and some at Level 3; KSh > 6,000 per acre, all at Level 3)

- For **maize HP**, at planting apply 79 kg Mavuno (1 top for 1 hole) and side dress with 36 kg urea (5 tops for 6 holes) *or side dress with 43 kg CAN (2 tops for 3 holes)* at 6 WAP.
- For **Irish potato**, at planting band 101 kg DAP (1 BB for 7 m) and side dress with 39 kg urea (3 tops for 1 m) *or 51 kg CAN (1 top for 0.4 m)* at flowering.
- For **beans**, at planting band 21 kg DAP (1 top for 1 m).
- For **wheat**, band at planting 27 kg DAP (1 top for 2 m) and side dress by banding 27 kg urea (1 top for 1.3 m) *or 36 kg CAN* at panicle initiation (1 top for 2.5 m).
- For **maize-bean intercrop**, at planting apply 81 kg Mavuno (1 top for 1 hole); side dress with 26 kg urea (1 top for 2 holes) *or 40 kg CAN (5 tops for 4 holes)* at 6 WAP.
- **Banana**: At planting and annually, apply 81 kg Mavuno (5 BB for 4 holes), 23 kg Urea (2 BB for 3 holes) *or 40 kg CAN (2 BB for 3 holes)* at the start of the rainy season.