

Kenya Upper Rift Valley Fertilizer Use Optimizer: paper version, (Urea) Feb 2018

The below assumes:

- Calibration measurement is with: a 3.14 ml of soda bottle with lining that holds about 3.5 g DAP and 2.2 g Urea. It is assumed maize (25 cm within rows) and Irish potatoes are planted at 75 cm row spacing, green gram and beans at 50 cm row spacing, wheat at 22.5 cm row spacing.
- It is assumed grain prices per kg (Ksh): 25 maize, 90 green gram, 30 wheat, 30 Irish potato and 60 beans
- It is assumed 50 kg of fertilizer used costs (Ksh): 2850 urea and 3600 DAP
- 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; WAE – weeks after emergence

Level 1 financial ability.

(KSh <1300 per acre available)

- For maize HP (>5T): at planting, band 10 kg DAP (1 top for 9 m). Side dress 17 kg urea (1 top for 3 plants) *or 21 kg CAN (1 top for 4 plants)* at 6 WAP.
- For Irish potato: at planting, band 20 kg DAP (1 top for 0.9 m). Side dress by banding 22 kg Urea (1 top for 0.5 m) *or 12 kg CAN (1 top for 1.6 m)* at 4 WAE.
- For wheat: at planting, band 16 kg DAP (1 top for 3.9 m). Side dress by banding 13 kg urea (1 top for 3 m) at panicle initiation.
- For maize-bean intercropping: at planting, band 17 kg DAP (1 top for 1.1 m).
- For green gram: at planting, band 15 kg DAP (1 top for 1.9 m).

Level 2 financial ability

(KSh 1300 to 2500 per acre available; some at Level 1 and some at Level 2)

- For maize HP (>5T): at planting, band 24 kg DAP (1 top for 0.8 m). Side dress 18 kg urea (2 tops for 5 plants) *or 21 kg CAN (1 top for 4 plants)* at 6 WAP.
- For Irish potato: at planting, band 30 kg DAP (1 top for 0.6 m). Side dress by banding 61 kg Urea (1 top for 0.2 m) *or 12 kg CAN (1 top for 1.6 m)* at 4 WAE.
- For wheat: at planting, band 22 kg DAP (1 top for 2.8 m). Side dress by banding 36 kg urea (1 top for 1.1 m) at panicle initiation.
- For maize-bean intercropping: at planting, band 30 kg DAP at planting (1 top for 0.6 m). Side dress 29 kg urea (2 tops for 3 plants) at 6 WAP.
- For green gram: at planting, band 19 kg DAP (1 top for 1.5 m).

Level 3 financial ability (maximize profit per acre).

(KSh 2500 to 3800 per acre available; some at Level 2 and some at Level 3; KSh > 3800 per acre, all at Level 3)

- For maize HP (>5T): at planting, band 40 kg DAP at planting (1 top for 0.5 m). Side dress 19 kg urea (2 tops for 5 plants) *or 23 kg CAN (1 top for 3 plants)* at 6 WAP.
- For maize LP (<5T): side dress by banding 12 kg urea (1 top for 4 plants) at 6 WAP.
- For Irish potato: at planting, band 43 kg DAP *or 121 kg Urea (1 BB for 6 m)* (1 top for 0.4 m).
- For bean: at planting, band 11 kg DAP at planting (1 top for 2.5 m).
- For wheat: at planting, band 30 kg DAP (1 top for 2.1 m). Side dress by banding 61 kg urea (1 top for 0.6 m) *or 80 kg CAN (1 top for 0.8 m)* at panicle initiation.
- For maize-bean intercropping: at planting, band 43 kg DAP (1 top for 0.4 m). Side dress 27 kg urea (1 top for 2 plants) *or 45 kg CAN (1 top for 2 plants)* at 6 WAP.
- For green gram: at planting, band 24 kg DAP (1 top for 1.0 m) and 11 kg urea (1 top for 1.6 m) *or 15 kg CAN (1 top for 1.9 m)*.