

# Kenya Central Fertilizer Use Optimizer: paper version (Urea) Nov. 2016

## The below assumes:

- Calibration measurement is with: i) a 3.14 ml of soda bottle with lining that holds about 3.5 g DAP, 2.2 g Urea and 3.5 g MOP ii) a 100 g blue band tin (BB) has approx. 124 ml to hold 136 g DAP; 86.8 g Urea and 136.4 g MOP. It is assumed maize (25 cm within row) and is planted with 75 cm, beans 50 cm, rice 25 cm row and wheat 25 cm row spacing.
- It is assumed grain prices per kg (Ksh): 25 maize; 60 beans, 50 rice and, 30 wheat.
- It is assumed 50 kg of fertilizer costs (Ksh): 2800 CAN; 3600 DAP and 3600 MOP.
- Application rates are in kg/ac.
- Any fertilizer rate application that is less than 10 kg/acre is not economical and should be converted to another fertilizer. WAP –weeks after planting

## Level 1 financial ability

- Maize HP >4t: Side dress with 21 kg Urea (1 top for 2 plants) at 6 WAP.
- Maize LP <4t: Side dress with 15 kg Urea as a side dress (1 top for 2 plants) at 6 WAP.
- Maize- bean intercropping: At planting, apply 18 kg DAP (1 top for 4 plants) by banding at planting. Side dress with 15 kg Urea (1 top for 2 plants) at 6 WAP.
- Lowland rice: At planting, broadcast 42 kg DAP (1 BB for 7 m @ 2 m wide) and 18 kg MOP (1 BB for 15 m @ 2 m wide). Side dress with 15 kg urea (1 BB for 12 m @ 2 m wide) at panicle initiation
- Wheat HP>3t: At planting, apply 17 kg DAP (1 top for 4 m) at planting.
- Wheat LP<3t: At planting, band 15 kg DAP (1 top for 4 m).

## Level 2 financial ability

- Maize HP >4t: At planting, apply 44 kg DAP (1 top for 2 holes) at planting. Side dress with 21 kg urea (1 top for 2 plants) at 6 WAP.
- Maize LP <4t: At planting, apply 21 kg DAP (1 top for 2 holes) at planting. Side dress with 23 kg urea (1 top for 4 plants) at 6 WAP.
- Beans: At planting, apply 15 kg DAP by banding (1 top for 1.3 m).
- Maize-Beans intercropping: At planting, apply 28 kg DAP (1 top for 1 m) by banding. Side dress with 28 kg urea (1 top for 2 plants) at 6 WAP.
- Lowland rice: At planting, broadcast 30 kg DAP (1 BB for 9 m @ 2 m wide) and 21 kg MOP (1 BB for 13 m @ 2 m wide). Side dress with 56 kg urea (1 BB for 11 m @ 3 m wide) at panicle initiation
- Wheat HP>3t: At planting, band 26 kg DAP (1 top for 2 m). Side dress with 27 kg urea (1 top for 1.5 m) at panicle initiation.
- Wheat LP<3t: At planting, band 13 kg DAP (1 top for 5 m). Side dress with 31 kg urea (1 top for 1.3 m) at panicle initiation.

## Level 3 financial ability (maximize profit per acre).

- Maize HP>4t: At planting, apply 81 kg DAP (1 top for 1 hole). Side dress with 26 kg urea (1 top for 2 plants) at 6 WAP.
- Maize LP<4t: At planting, apply 47 kg DAP (1 top for 2 holes). Side dress with 32 kg urea (1 top for 1.5 plants) at 6 WAP.
- Bean: At planting, apply 26 kg DAP by banding (1 top for 0.7 m).
- Maize- beans intercropping: At planting, apply 38 kg DAP (1 top for 2 holes) and 12 kg MOP (1 top for 6 holes). Side dress with 42 kg urea (1 top for 1 plant) at 6 WAP.
- Lowland rice: At planting, broadcast 48 kg DAP (1 BB for 6 m @ 2 m wide) and 27 kg MOP (1 BB for 10 m @ 2 m wide). Side dress with 61kg urea at panicle initiation (1 BB for 3 m @ 2 m wide).
- Wheat HP>3t: At planting, apply 53 kg DAP (1 top for 1.2 m) and 16 kg MOP (1 top for 4 m) by banding. Side dress 23 kg urea at panicle initiation (1 top for 1.7 m).
- Wheat LP<3t: At planting, apply 40 kg DAP (1 top for 1 m) and 16 kg MOP (1 top for 4 m) by banding. Side dress with 44 kg urea at panicle initiation (1 top for 0.9 m).