MAIZE PPRODUCTION

Importance of maize

Maize is the most important cereal crop in Uganda providing over 40% of the calories consumed in both rural and urban areas. The crop has increasingly become a staple food in many parts of the country due to changes in peoples eating habits. Small scale farmers, who constitute the bulk (80%) of the rural poor, also account for the largest share of maize production. It is grown in every part of the country and a direct source of livelihood to over two million households, over 1000 traders/merchants and 600 millers. Increasingly, maize has become a major non-traditional export cash crop particularly benefitting smallholder farmers.

Ecological requirements

a) Soils

Maize requires well drained soils with a good supply of nutrients and moisture. It cannot withstand even a slight degree of water logging and therefore can be killed if it stands in water for a day.

b) Rainfall

Maize grows in both cool and warm areas. A good supply of moisture is critical at establishment and tasseling stages. For good yields therefore, maize requires more moisture/rain during these two stages. Optimum rainfall during the first 5 weeks after planting is 200mm below which irrigation should be applied. The most critical period is at *silking* stage whereby a small degree of wilting can cause

incomplete pollination while a severe drought may lead to a complete crop loss. To avoid this needs a supply of moisture 3000mm on average through irrigation for about 2 months after *silking*. There is need to use early maturing varieties where rains are short.

Altitude

Maize grows well at all attitudes but particular varieties are more suitable for the different altitudes ranging from 0 to 2,900 m above sea level (a.s.l.). Optimum temperature for maize growth is 30^0C.

Recommended Maize Varieties and their Characteristics

i) Longe 1

a. Early maturing and drought tolerant
b. Fairly resistant to maize streak virus
c. Matures in 110 – 120 days (for dry harvesting)
d. Gives average yield of between 4,000 kg/ha. Can yield between 5000 – 6000 kg/ha with good management including fertilizer application.

ii) Hybrids

Hybrids B and c are recommended.

iii) Kenya hybrids

a. Hybrids 511, 622, 632 are suitable for low attitude and 612, 613, 614 for high altitude but are late maturing.
b. Hybrids 511, 622, 632 mature in 120 – 160 days
c. Hybrids 612, 613 & 614 take 5 – 6 months to mature
d. Potential yields for hybrids are between 7,000 – 9,000 kg/ha.

Propagation

Maize is grown by using clean, well mature selected or certified seed

Agronomic practices

a) Land preparation: Plough early to a fairly rough seed-bed.

b) Planting

i) Plant early and best at the beginning of the rains

ii) Planting can be by hand or machine

iii) Can plant seeds behind the plough if animal traction is used

iv) Spacing:

Hand planting – 75cm x 50 or 60cm ($2^1/_2$ ft x 2 ft) leaving two (2) plants per hole at a seed rate 20 – 25 kg/ha.

Machine planting – 75cm x 30cm ($2^1/_2$ ft x 1 ft) leaving one (1) plant per hole at a seed rate of 14-16 kh/ha.

v) Thinning

Leave 1-2 plants (depending on stand) at about 10 cm height.

vi) Weeding/weed control

Wed early in the first few weeks and again as necessary. Herbicides especially, atrazine and lasso (alachlos) are effective.

vii) Fertilizers

Maize responds well to fertilizers/manure. Apply Diammonium phosphate (DAP) at planting time at a rate of 125 kg/ha or single super phosphate (SSP) at more or less the same rate. Top dress at knee height with nitrogen a fertilizer such as urea applying 250 kg/ha. Farm yard manure (FYM) is highly recommended because it gives highest yields and does not destroy the soil structure and/or pollute the environment. FYM also has residual effect in the soil that benefits next season's crops.

c) Pests and diseases

Common insect pests of maize are stalk borers and army worms. Stalk borers damage the stalks while army worms damage the leaves.

Maize Stalk borer

Army worm

Control

Use insecticides like actellic and salut as dust or spray.

Striga weed

Maize diseases include

- Maize streak virus

- White leaf blight and rust caused by virus and fungi, respectively.

Control

- Grow resistant varieties
- Plant early
- Use appropriate insecticides to control white flies that spread viruses and appropriate fungicides to control the fungal diseases.

d) Harvesting and postharvest handling

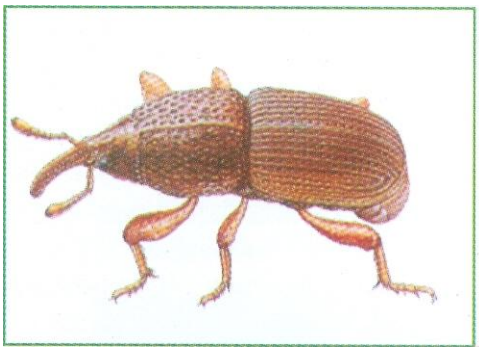
Harvesting maize is usually done by hand by removing the cobs from the stalks and dried before storing in silos or cribs
(see fig…).

Sometimes stalks can be cut, the maize tied up in bundles and left to dry standing up. Drying should target the dry season and when completely dry, remove the cobs and store.

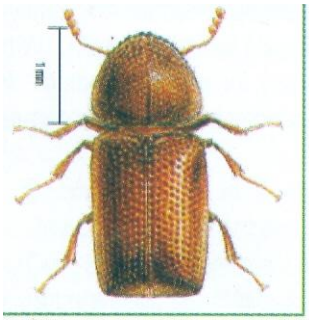
Stored maize

Alternatively, the maize is left in the field to dry and stored safely on the cob after husks have been removed.

Storage pests



Maize weevil



Larger grain borer