Maize Production in Uganda

Farmers have improved maize yields from 1,000Kg/ha to 3,000 - 5,000 Kg/ha using the recommended technologies

- Maize is a major cereal grown and consumed in Uganda and in the countries of Kenya, Sudan, Democratic Republic of Congo and Rwanda

- Commercially, it is one of the five major foreign income earners and there is always a market for maize both in the Uganda and beyond

- Maize can be planted in most parts of Uganda, except in the most arid areas, and some varieties do not do well in the highlands.

- Maize is very nutritious especially Quality Protein Maize (QPM) locally known as Nalongo which has higher levels of essential amino acids and therefore is very good for children.

- Maize is also good for animal feed
- Maize has less labour requirements(not labour intensive) compared to millet, sorghum and rice
- It is a good crop for intercropping, but the yield is better as a sole crop - good management is important either way.

### Table 1: Agronomic data on some common maize varieties grown in Uganda

<table>
<thead>
<tr>
<th>Variety</th>
<th>Yield kg / acre</th>
<th>Maturity period Days</th>
<th>Where it can be Grown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longe 4</td>
<td>1 600-2400</td>
<td>100</td>
<td>All areas except highlands</td>
</tr>
<tr>
<td>Longe 5 (Nalongo) (QPM Maize)</td>
<td>1600-2400</td>
<td>115</td>
<td>All areas except highlands</td>
</tr>
<tr>
<td>Salongo (QPM hybrid)</td>
<td>2800-3200</td>
<td>120</td>
<td>All areas except highlands</td>
</tr>
<tr>
<td>Longo 6H</td>
<td>3200-3600</td>
<td>120</td>
<td>All areas except Highlands</td>
</tr>
<tr>
<td>Longe 2H</td>
<td>2800-3200</td>
<td>125</td>
<td>All areas except highlands and arid areas like Karamoja region</td>
</tr>
</tbody>
</table>
Field management practices

Site selection

• Maize can be grown on most Ugandan soils but does best on soils that are well drained
• Maize does not do well in swampy areas that are waterlogged
• Maize does not do well in sandy soils
• Maize needs soil that has good levels of organic matter and nutrients: manure and other residues are very good for maize.
• Fertilizer application is highly recommended to greatly improve maize yields

Land preparation for Maize growing

• It is important to dig or plough the land enough times to kill the weeds. It is recommended to clear land, then do the first and second ploughing
• Land preparation should begin at the end of the last rains so that crop residues will be broken down during the dry season. Early preparations ensure that you will have the best yields through timely planting.
• Maize does not need a very fine/smooth seedbed; a rough seedbed allows better water infiltration and control of erosion

Preparing land using a hand hoe or animal traction

Soil Nutrient Management

Among the more important and common methods of maintaining and/or improving soil fertility are the following:
• Improvement of nutrient-retaining ability of soil by adding organic manures to the soil.
• Improve drainage by breaking down surface capping and hard pans.
• Maize plots should be demarcated with bunds of one meter to protect water/retain moisture in the soil and improve on soil fertility, this must be made before planting commences.
• Crop rotation, to enable maximum use of the soil by growing a variety of crops, which have significantly different growth habits, nutrient requirements, pests and
diseases. Good rotation includes good leguminous crops for improving the nitrogen level of the soil.

- Soil pH control e.g. by liming or using acidic fertilizer as may be appropriate,
- Timely weed control.
- Use of both organic and inorganic fertilizers. Moisture conservation by use of mulches. Soil Erosion control

When to Plant Maize

- In general in Uganda, there are two rainy seasons: the first season rains are from Mid-February or March to June, and second rains from Mid-August to December.

However these rainy seasons may differ due to climate change.

- Rainy seasons have changed a lot over the last years, and it is not easy any more to tell when rain is expected. However, farmers should plant at the onset of rains, and dry planting can be done, when rains are expected.

Depth of Planting

- Maize seed should be planted according to how wet/ moist the soil is.
- If the soil is wet/ moist, plant 2-3 cm below the ground
- If the soil is dry, dig 5-10 cm deep to plant the seed so that it does not dry up i.e, dry planting: when the ground is dry, the seed should be planted deep so that it only germinates when there is enough rain.
- The depth of planting should be uniform to allow uniform plant germination and growth.

Spacing for Maize

- Maize should be planted in lines/ rows so that the land is better used i.e. there will be more plants per area and therefore a better harvest than if the seed is broadcast i.e. not planted in lines/ rows
- Planting in lines/ rows makes it easier to weed, spray and harvest the maize

When planting maize alone (sole cropping) use either of the spacing recommended below. When this spacing is used the amount of seed required is 25 kg per hectare or 10 kg per acre.

Spacing option 1: 75 cm x 30 cm ( 2½ ft x 1 ft) for one seed per hole, after germination and thinning

Spacing option 2: 75 cm x 60 cm (2½ ft x 2 ft) for 2 seeds per hole. See Figures below:
Option 1: planting maize seed per hole at a distance of 75cm (2½ ft) between lines, and 30cm (1 ft) between the holes in the same line.

Option 2: planting two seeds per hole, at a distance of 75cm (2½ ft) between lines, and 60cm (2 ft) between holes in the same line.

- When maize is planted with another crop (intercropping), use a wider spacing so that you can plant another crop like beans or cassava in between rows of maize. The recommended spacing is 90cm x 30cm ((3 ft x 1 ft) for one seed per hole or 90cm x 60cm (3 ft x 2 ft) plant two seeds per hole

Spacing for an intercrop of maize and beans

**Fertilizer recommendation for maize**
- Not many farmers in Uganda use fertilizer, but the benefit of increased yields as a result of fertilizer application out-weighs the cost of buying fertilizer.
- Using Fertilizer means that a farmer can get more maize per acre of land planted
- Fertilizer also ensures that the soil is healthy
- Apply the fertilizer in weed free fields.

**Two types of fertilizers are recommended for maize:**
- At planting use DAP (Diammonium Phosphate) which should be applied to the soil at the time of planting. A farmer will need 50kg per acre
- Urea is applied by top dressing when the maize is about 3-4 weeks after planting.
Planting procedure and application of DAP fertilizer

- Mark the field according to recommended spacing either for planting maize alone or for maize with another crop.

- Dig the holes to at least 2-3 cm for wet/moist soil and 10 cm for dry planting (see Figure below).

- Apply starter fertilizer DAP (Diammonium Phosphate) at a rate of one teaspoon or one bottle top of Fanta/Coca cola) per hole.

- Cover the fertilizer completely with soil so that it does not come into contact with the seed.

- Put the seed in the hole and cover it completely.

How to apply DAP fertilizer:

**Step 1** Dig a hole. **Step 2** Use a coke bottle top to apply fertilizer **Step 3** Use the foot to cover the fertilizer with some soil **Step 4** Put the seed in the hole. **Step 5** Use your foot to cover the seed with some soil.

Weed control

- Weeds result in poor crop harvest and should be removed.
- Weeds compete with the maize plant for water, nutrients, space and Sun light
- Weeds may be controlled by hand weeding or using herbicides (chemicals which kill weeds).
- If a hand hoe is used, maize should be weeded at least twice.
• First weeding should be done at 3 weeks after planting and the second weeding at 8 weeks after planting.

**Controlling weeds using herbicides**

• Alternatively: weeds can also be controlled using herbicides like lasso-atrazine, or primagram or Alazine.
• Apply the herbicide by spraying in between the rows within two days of planting maize
• It is important to use protective clothing while spraying the herbicide, and the spraying must be done by 10 am in the morning, so that it is more effective

**Urea Application**

• When the maize is at knee high which is about 3-4 weeks after planting a fertilizer called Urea is recommended. It is applied around the plant i.e. Top dressing. Repeat application at tussling stage for best results.

• It is important to note that Urea can burn the plant if it touches the plant, so apply it at least 5-6 cm around the plant. If you place it too far, it will not be of benefit to the plant.

![Application of urea around the maize](image)

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