



Maize Production



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Introduction

Women Who farm Africa seek to develop, improve and impact African women partaking in the agricultural sector. The mission of the organization is met through a series of insightful educational workshops. These workshops entail the entire cultivation of a short crop cycle. The organization has done one successful workshop of training 50 women in rural communities on planting maize from sowing seeds to the final process of harvesting. Upon completion of the workshop the women who successfully follow through with the workshop are awarded with an informative manual that entails the knowledge of planting that crop. The organization also seeks to create impact through storytelling, where it utilizes its online platforms to tell moving stories about women partaking in agricultural ventures. A single story has the power to inspire and encourage people and, in this case, African women who are building their farming initiatives, to practice agriculture and take the first step of starting a venture in the agricultural sector.

Land preparation

1. Pfumvudza



The Pfumvudza concept guarantees food security to households. The concepts utilizes

- A plot of land that measures 1/16 (39m*16m)
- 1456 holes per plot
- 52 rows with 28 holes per row
- Each planting station/ hole will have 2 plants
- Spacing 60*75cm.



A guide to planting maize

2.1. Pfumvudza Principles



- Ensure the field is prepared and weed free by 25th October.
- Place lime (cup 5 by 1st November) and 1x 350ml tin of compost if available.
- Place basal Fertilizer (cup 8 by 1st November).



• Cover lime and fertilizer leaving planting depth of 5cm by 1st November.



• Plant 3 seeds per hole, with 2 liters of water per station or wait for first effective planting rain, by 25th November:

Cover the soil after to minimize water loss and aid with weed control



• Three weeks after emergence thin 2 plants per planting station to remove weaker plants.



- Top dress with AN topdressing fertilizer (cup 5), immediately after thinning, 1m from plant upside of plant and cover.
- After topdressing, do first weeding. Continue weeding!
- Topdressing (cup 5) when fist tassels appear 10 cm from plant upside of plant and cover.
- Harvest the maize.
- Do final weeding and lay the stalks down to provide mulch for the next season.



3. Maize crop nutrients deficiency and recommendations.



Fertilization

4.1. Fertilization of maize

It is highly important to analyze your soil in order to understand what nutrients the soil requires before you incorporate fertilizers to your soil.



After understanding the soil analysis, the following principles of nutrient management are advisable;

- Ensure use of the correct product
- Efficient use of fertilizer
- Right time (weather, and crop nutrient uptake)
- Correct method of application

5. Fall armyworm larvae and crop protection

Identify common pests (Fall army larvae) that attack the maize crop throughout the growth stages. Explore Integrated pest management systems. This includes various strategies used to protect crops by suppressing the insect population and limiting damage. These management practices incorporate all practical methods of pest control in a pest management system. These measures may include chemical control, biological control, plant resistance and cultivation control.

5.1. Fall armyworm larvae attack on the maize crop.

Fall armyworm larvae attack maize at all growth stages. Vegetative crops can recover from defoliation, particularly if the crop is growing rapidly; however, larvae can defoliate and/or sever seedling maize plants at the base.



5.2. Why is Fall Armyworm difficult to control?

• The larvae may do the damage, but the adult moths ensure the rapid spread of the pest. Moths are proficient flyers, covering vast distances every week. If pushed by winds, they can fly up to 100 km a day.

• The pest, as devastating as it may be, isn't always easy to detect. The larvae penetrate crops and feed from the inside making it harder to detect them.

• The ability for the FAW to survive winter depends on the severity of the temperature. Since African countries do not really have cold winters, severe infestation is present all year round ("green bridge" effect)

• The pest reproduces rapidly; an adult female can lay up to 1844 eggs/female (Barros et al. 2010), and several and overlapping generations occur every year.

5.3. Integrated Pest Management Systems

Biological control

Many of the natural enemies of Helicoverpa also attack fall armyworm, and over time may impact FAW populations. Maintaining clean fields (particularly preventing the establishment of maize volunteers in following crops) is also important. The natural enemy complex can be protected to a certain extent by using insecticides which are more environmentally friendly, and which are not very toxic to nontarget organisms.

Cultivation control

This implies that pest populations are suppressed by cultivation practices, which are detrimental to the pest. These practices include soil cultivation during winter, eradicating volunteer plants, cultivar choice and adapting planting times.

• Chemical control

Controlling Fall Armyworm requires an integrated approach – there is not one product that will eradicate the pest indefinitely. Foliar pesticide applications, seed traits, good agronomic practices and seed treatment products are all part of the solution.

6. Harvesting the maize crop

The period of harvest can be usually classified according to the variety of seed and the climatic condition. Extra-early seeds (80-90 days), early season seeds (90- 100 days) and late season seeds (110- 120 days). There are 10 growth stages of the maize plant. These last 3 are mostly involved in the maturity of the plant:

6.1. Growth stage: hard dough stage

Sugars in the kernel disappear rapidly. Starch accumulates in the crown of the kernel and extends downwards.

6.2. Growth stage: physiological maturity

When the kernel has reached its maximum dry mass, a layer of black cells develops at the kernel base. Grains are physiologically mature and only the moisture content must be reduced.

6.3. Growth stage: drying of kernels

(Biological maturity)

Although grains have reached physiological maturity, they must dry out before reaching biological maturity. Under favorable conditions, drying takes place at approximately 5 % per week up to the 20 % level, after which there is a slowdown.

6.4. Maize Picking.

1. At harvest time the silk turns brown, but the husk is still green.



2. Ensure it is in the "milk stage". Puncture the kernel and look for a milky liquid inside, clear liquid indicates that the kernel is not ready and if it is dry you have waited for too long



6.5. Method of Harvesting

There are two mostly used maize harvesting practices. These are:

Plucking of Cobs

The ears are removed from the stalks, and they are piled to open for approximately twenty-four hours, and they are spread for drying in the sun. In this method stalks may be used as fodder.

Stalk cutting

The plants are cut and piled up in the shade and the cobs are removed after two or three days of harvesting. The dried plants can be used as hay. Maize grown for fodder is harvested at the milk to early dough stage. The earlier harvested crop usually yields less and is poor in protein content. For silage making, a late dough stage is preferred.



Mechanical Harvesting

Combine harvesters mostly used commercially can perform many tasks concurrently. Cutting stalks, picking, shelling; de-husking, winnowing: cleaning the grain, loading bins/trailers, measuring grain moisture, and test density.



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