

**ADOPTING THE  
CONSERVATION  
AGRICULTURE  
CONCEPT ON  
MAIZE AND  
TRADITIONAL  
GRAINS**

**PFUMVUDZA/  
INTWASA**

— for sustainable crop production —



**Department of Agricultural  
Technical and Extension Services**



## BACKGROUND

Pfumvudza is an approach from Foundations for Farming that is based on key principles of conservation agriculture. The concept is a sustainable way of crop production intensification, whereby farmers concentrate resources on a smaller piece of land, resulting in higher productivity from lower investment, hence higher profit margin.

Using the Pfumvudza input pack, it is possible to feed a family for a year from a minimum investment.

## BENEFITS OF PFUMVUDZA

- Allows concentration of resources on small land units thereby optimizing both natural and external resources (soil, water, inputs, labour)
- Facilitates high levels of management.
- Can facilitate water-planting or supplementation.



**Mulching is key**

## CONSERVATION AGRICULTURE PRINCIPLES UNDERLYING CONCEPT OF PFUMVUDZA

- **Minimum soil disturbance:** digging planting stations or making rip lines instead of ploughing.
- **Mulching:** covering the soil with crop residues ('stover') or other dry organic material, and controlling grazing. Improves water Infiltration and reduces evaporation from soil surface.
- **Use of crop rotation and mixing:** varying the crops that are planted each year on the same piece of land. Improves soil management and Increases crop diversity.
- **Timely Implementation Of All Operations:** Carrying out all operations at the best time of the year (preparation, planting, manuring and fertilisation, controlling weeds and pests)
- **Precise Operations:** Paying attention to detail and doing all tasks carefully and completely.
- **Efficient Use Of Inputs:** Not wasting any resources including labour, time, seeds, stover, manure.

## IMPORTANT SITE SELECTION POINTS TO CONSIDER

### 1. Reliable water source

- Farmers are encouraged to plant during the first week of November before the rains and put 2 litres or more of water in the basin.
- In the event of mid-season dry spells, farmers will need to supplement water.

### 2. Crop access

A crop planted near homesteads provides for easy management.

### 3. Best arable land

Best arable land that are inherently fertilized in order to improve yields.

### 4. Crop fencing

Fenced enclosure (live fencing preferably) that offer security (destruction from animals)

### 5. Mulch fire protection

Mulch must be well protected from veld fires . Ensure fire guards.

# MAIZE PRODUCTION UNDER PFUMVUDZA

## KEY STEPS

**Step 1:** Prepare basins with a spacing of 75cm x 60cm. The basins dimensions should be 15cm by 15cm by 15cm.

**Step2:** Apply 5 grams lime or cup number 5 per planting station.

NB: The first two steps should be completed by 31 July each year.

**Step 3:** Apply 350g (Use Peanut Butter Bottle) manure per planting station just before planting.

**Step 4:** Apply Basal fertilizer at the rate of 8 grams (cup no 8) per planting station just before planting.

**Step 5:** Plant 3 seeds per station. Thin to 2 plants per station 4 weeks after planting.

**NB: Where rains have not yet come, the farmer needs to supplement water for planting with 2 – 6 litres of water. Dry planting is not recommended.**

**Step 6:** Top dressing: Split apply Ammonium Nitrate, first application of 5 grams at 3-4 weeks and second application of 5 grams at flowering per planting station.

**Step 7.** Scout for pests especially fall armyworm twice a week and apply pesticide at the first signs of infestation

## INPUT PACK

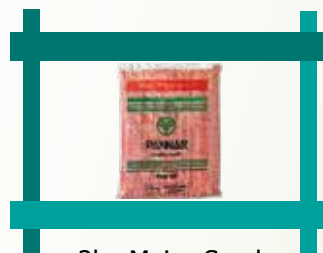
- 2kg seed
- 12kg lime
- 16kg Compound D
- 16kg Ammonium Nitrate
- Insecticide for fall armyworm.

## Input Measuring Tips

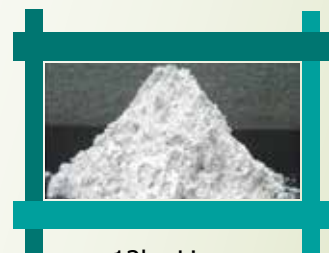


Equivalent to **5g**

## MAIZE



2kg Maize Seed



12kg Lime



16kg Compound D  
fertilizer



16kg Ammonium  
Nitrate







## SORGHUM



## SORGHUM PRODUCTION UNDER PFUMVUDZA

- Sorghum is a drought tolerant crop.
- Sorghum adapts well under low rainfall areas normally associated with high temperatures.
- The drought tolerance, short season characteristics and adaptability to various soils are its main advantages.

### KEY STEPS

#### Using basins

##### Step1:

- In high potential areas, prepare basins 75cm by 30cm spacing. Target plant population 133 000plants/ ha
- In low potential areas prepare basins 75cm by 45cm. Target plant populations 88 000 plants per hectare

**Step2:** Apply 5 grams lime cup or cup no 5 per planting station.

**Step 3:** Apply 350g (Use Peanut Butter Bottle) manure per planting station just before planting.

**Step 4:** Apply Basal fertilizer at the rate of 5 grams (cup no 5) per planting station just before planting.

**Step 5:** Plant 5 pips per station. Thin to 3 plants per station 3 weeks after emergence.

NB: The first steps should be completed by 31 July each year.

**Step 6:** Top dressing: Apply 2 grams Ammonium Nitrate per planting station, at 3-4 weeks.

**Step 7.** Scout for pests especially fall armyworm twice a week and apply pesticide at the first signs of infestation

### Using furrows

**Step 1.** Prepare furrows about 10cm deep

**Step 2.** Apply lime abt 5g along the 45cm length

**Step 3.** Apply manure about 350g (1 cup) per 45cm length. Apply basal fertiliser 5g per 45cm length. Cover with 5cm soil

**Step 4.** Broadcast seed along the furrow

**Step 5.** Thin the seed using 30cm spacing for high potential areas and 45cm for low potential areas 3 weeks after emergency

**Step 6.** Top dress. Split application at 3 and 8 weeks. Apply cup number 2 per planting station

**Step 7.** Scout for pests especially fall armyworm twice a week and apply pesticide at the first signs of infestation

### INPUT PACKAGE

- 2kg seed
- 12kg lime
- 10kg Compound D fertilizer
- 5kg Ammonium Nitrate
- Insecticide for stalk borer and FAW



2kg seed



12kg lime



10kg Compound D Fertilizer



5kg Ammonium Nitrate



Insecticide for stalk borer and FAW

# PEARL MILLET PRODUCTION UNDER PFUMVUDZA

## KEY STEPS

**Step1:** Prepare basins 75cm x 45cm. Plant 5 seeds per station. Thin 3 plants per station. Aim at 88 888 plants/ha.

**Step2:** Apply 5 grams lime cup or cup no 5 per planting station.

NB: *The first steps should be completed by 31 July each year.*

**Step 3:** Apply 350g (Use Peanut Butter Bottle) manure per planting station just before planting.

**Step 4:** Apply Basal fertilizer at the rate of 5 grams (cup no 5) per planting station just before planting.

**Step 5:** Plant 5 seeds per station. Thin to 3 plants per station 4 weeks after planting. Aim at 88 888 plants/ha.

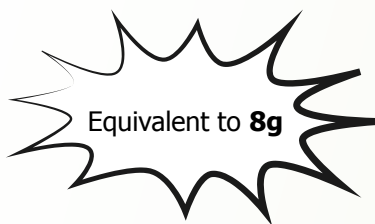
**Step 6:** Top dressing: Apply 2 grams Ammonium Nitrate per planting station, at 3-4 weeks.

**Step 7.** Scout for pests especially fall armyworm twice a week and apply pesticide at the first signs of infestation

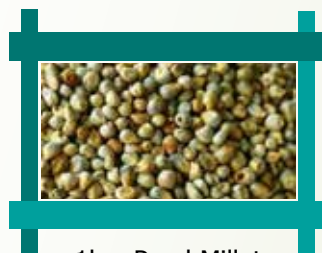
## INPUT PACK

- 500g or 1kg Seed
- 10kg Compound D fertilizer
- 12kg Lime
- 5kg Ammonium Nitrate

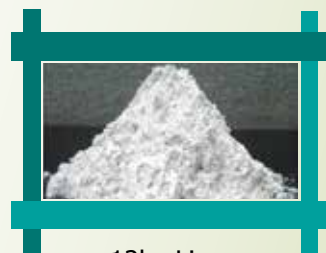
## Input Measuring Tips



## PEARL MILLET



1kg Pearl Millet  
Seed



12kg Lime



10kg Compound D  
Fertilizer



5kg Ammonium  
Nitrate





## SOYABEANS



### SOYABEAN PRODUCTION UNDER PFUMVUDZA

#### KEY STEPS

**Step 1:** Mark the field at the standard 39m by 16m and prepare planting furrows spaced at 0.75m x 0.6m. Leave the furrows open until you receive the first effective rains.

**Step 2:** Basal Fertilizer : Apply 8g (Cup 8) per 60cm furrow row length and spread it uniformly.

**NB : Apply Rhizobium to seed just before planting.**

**Step 3:** After receiving effective rains that fills the furrow, plant soyabeans in the furrows at a spacing of 3cm between seeds.

**Step 4:** Apply Ammonium Nitrate at 7 weeks using 5g (Cup 5) along the 120cm furrow length.

Keep plots weed free, at least 2 hand weeding at 2 and 6 weeks suffice.

#### INPUT PACKAGE

- 5kg Seed
- 5g Rhizobium satchet
- 12kg Lime
- 16kg Basal fertilizer
- 8kg Ammonium Nitrate (If seed is not dressed with Rhizobium at planting).



5kg Soya Bean Seed



16kg Basal Fertilizer



8kg Ammonium Nitrate



5g Rhizobium



12kg lime

# SUNFLOWER PRODUCTION UNDER PFUMVUDZA

- Sunflower is a crop which performs well under drought conditions.
- The drought tolerance, adaptability to various soils and low input cost of the crop are its major advantages.
- The short growth season of the crop, renders it extremely suitable for producers who make use of adaptable crop rotation and/or fallow systems.

## KEY STEPS

### Step 1:

- Prepare planting basins spaced at 0.75m x 0.60m.
- Apply 5g or a bottle cap of lime and mix well with soil.

### Step 2:

- Apply basal fertilizer at land preparation-either manure or compound fertilizer.
- Leave the basins open until you receive the first effective rains.
- Manure: Apply 350g (Use Peanut Butter Bottle) of manure per planting basin. Cover the manure with a thin layer of soil.
- Basal Fertilizer: Apply 8g ( Cup 8) per planting station.

### Step 3:

- Plant immediately after receiving a good planting rain that fills the basin.
- Sow 2 to 3 seeds of sunflower at each end of the basin.
- Sunflower seeds should not be planted deeper than 2cms. Sunflowers will not emerge if planted too deep.

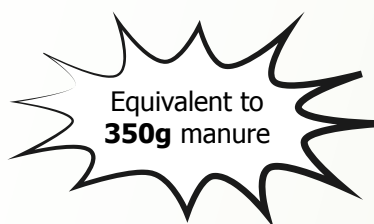
### Step 4:

- Thin plants 14-21 days after emergence down to an average of two plants per basin.

### Step 5:

- Apply 5g (cup 5) of ammonium nitrate which is equivalent to a level bottle cap per planting basin.

## Input Measuring Tips

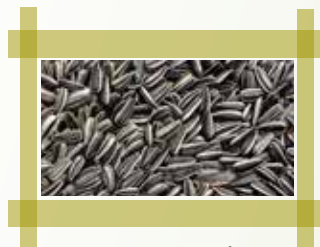


## SUNFLOWER

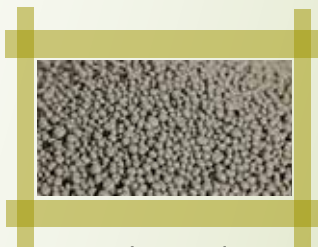


## INPUT PACKAGE

- 500g Seed
- 12kg Lime
- 16 kg Compound D
- 10kg Ammonium Nitrate



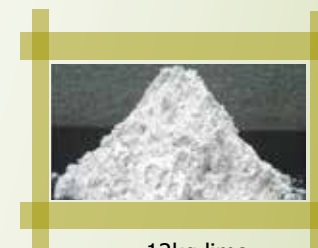
500g Seed



16kg Basal Fertilizer



10kg Ammonium Nitrate



12kg lime



## ADOPTING THE PFUMVUDZA CONCEPT ON MAIZE AND TRADITIONAL GRAINS



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