ADOPTING THE CONSERVATION AGRICULTURE CONCEPT ON MAIZE AND TRADITIONAL GRAINS

PFUMVUDZA/INTWASA for sustainable crop production
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.

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 inorder 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.

Step 2: 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
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
Step 1:
- In high potential areas, prepare basins 75cm by 30cm spacing. Target plant population 133 000 plants/ha
- In low potential areas prepare basins 75cm by 45cm. Target plant populations 88 000 plants per hectare

Step 2: 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

Step 1: Prepare basins 75cm x 45cm. Plant 5 seeds per station. Thin 3 plants per station. Aim at 8,888 plants/ha.

Step 2: 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 8,888 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

Equivalent to 8g
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).
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

Equivalent to 350g manure

INPUT PACKAGE
- 500g Seed
- 12kg Lime
- 16 kg Compound D
- 10kg Ammonium Nitrate
ADOPTING THE PFUMVUDZA CONCEPT ON MAIZE AND TRADITIONAL GRAINS

Acknowledgment
Agritex acknowledges the support given by the following farming partners to print this information pamphlet for the benefit of farmers across Zimbabwe.

Head office: No 1 Borrowdale Road, Ngungunyana Building, Harare, Zimbabwe
Tel: +263 242 791355

Acknowledgment
Agritex acknowledges the support given by the following farming partners to print this information pamphlet for the benefit of farmers across Zimbabwe.

Valley Seeds
Fertilizers. Seed. Grain.
Pannar.
Together we farm for the future
Pioneer.