ADOPTING THE PFUMVUDZA CONCEPT ON MAIZE AND TRADITIONAL GRAINS.

PFUMVUDZA
Farming

for sustainable crop production

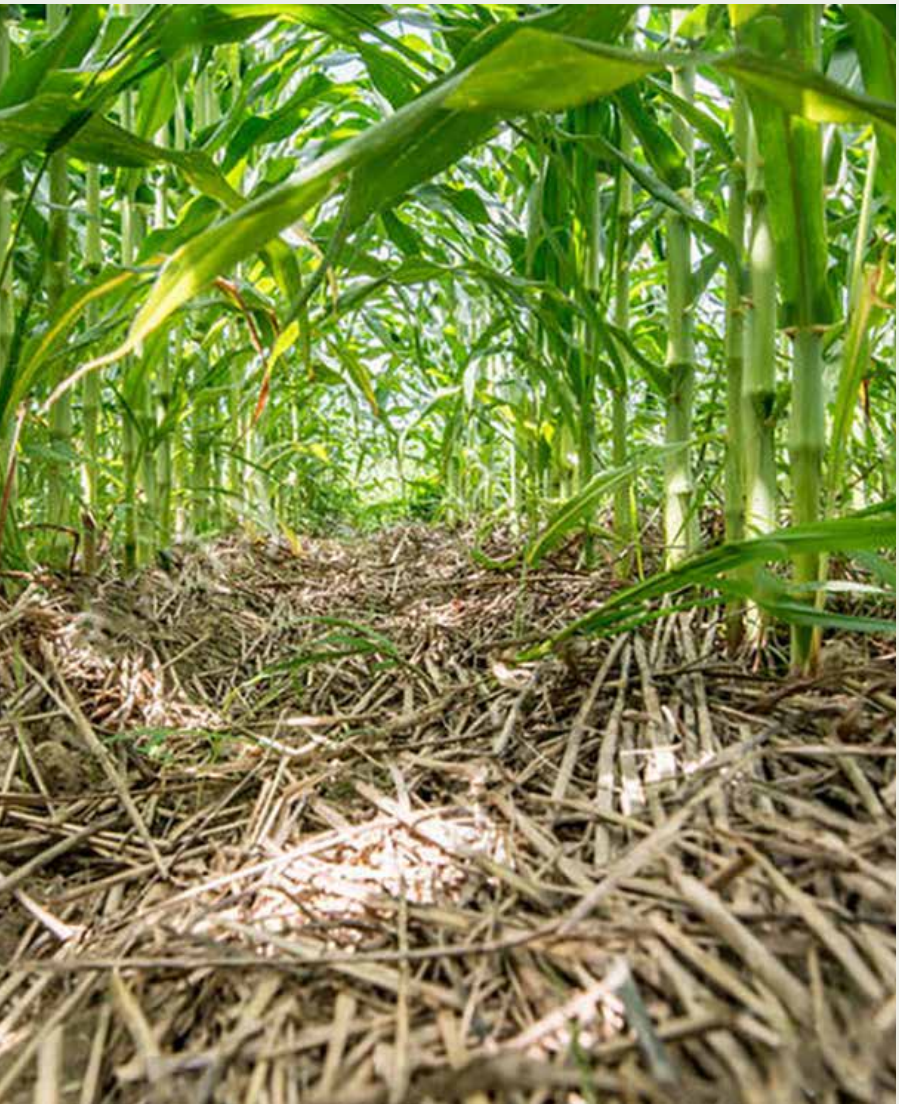
agritex
Department of Agricultural Technical and Extension Services

BACKGROUND

Pfumvudza is an approach from Foundations for Farming that is based on key principles of conservation agriculture. To achieve high yields all operations must be done to a high standard, without wastage (precision farming). Using the Pfumvudza input pack; it is possible to feed a family for a year from a minimum investment. 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.

BENEFITS OF PFUMVUDZA

- Allows concentration of resources on small land units thereby optimizing resources (inputs, resources)
- Facilitates high levels of management.
- Can facilitate water-planting or sup.



PFUMVUDZA -WHAT IS IT

A small food security plot for the household

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

GUIDING PRINCIPLES OF PFUMVUDZA

- Timeliness- for all operation (planting, weeding, fertilizer application…)
- High standards- equal fertilizer mounts for all plants, correct spacing, optimum plant population.
- Without wastage and precision –Nutrient amendments placed close to the roots- used efficiently, and benefits from residual fertility. Increased satisfaction, Joy and confidence levels for farmers.

PLANTING MAIZE UNDER PFUMVUDZA

PLOT SIZE

The demonstrated plot size should be 16m x 39m (624m2 which is approximately 0.06ha)

Inter-row spacing of 75cm
In-row spacing of 60cm
Row length of 16m
Hole dimensions should be
15cm by 15cm by 15cm.

Hence digging 28 holes per row, with two maize plants per each plating hole, making a total of 56 plants per row.
Therefore 1456 planting holes with a total of 2912 plants.

A total of 52 rows, with each row producing a 20L tin of maize grain(one 20L per week for 52 weeks =1 year),with the assumption that each plant produces one cob.

The plot should give approximately 1 tonne translating to a yield of 15t/ha.

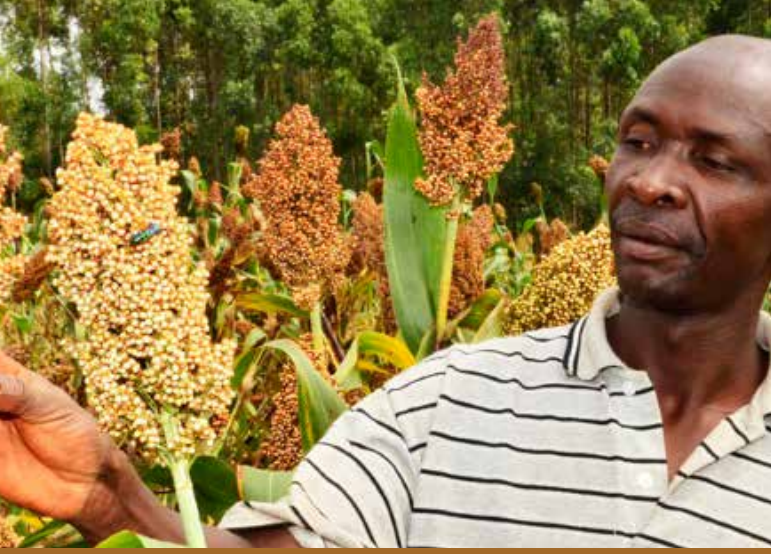
PRECISION AND TIMING

The precision and attention to detail results in an optimum plant population. The removal of weeds at short intervals when they are still small, greatly reduces weed pressure. Placing three seeds in each planting hole, and later thinning to two, ensures the plants has the required two plants per planting hole. The small land size ensures that the farmer is able to provide supplementary irrigation (water by hand) where water is available during dry spells, thus enhancing the resilience of the production.

Mulching is key

INPUT PACK

2kg seed, 12kg lime, 16kg basal fertilizer, 16kg top dressing, insecticide for fall armyworm.



PLANTING SORGHUM

SORGHUM PRODUCTION GUIDELINES 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 Principles

- 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.
- Use of crop rotation and mixing: varying the crops that are planted each year on the same piece of land.

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.

Input Package

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

Key Steps

Step1: In high potential areas, prepare basins 75cm x 30cm. Plant 5 seeds per station. Thin after 3 weeks of establishment, leaving 3 plants per station (making in-row spacing 10cm).
Expected plant population is 75cm x 10cm (133 333 plants/ha)In low potential areas, prepare basins 75cm x 45cm. Plant 5 seeds per station …thin to leave 3 plants/station. Expected plant population is 75cm x 15cm (88 888plants/ha)

Step2: Apply 5grams lime or cup no.5 per planting station. Use coke bottle-top.

Step3: Basal Fertiliser: apply 8 grams (cup no 8). Compound D/ or use a level pet bottle cap (Cup 8) per station.
Apply 350 grams manure or compost.

Step 4: Top dressing use 5grams first application at 3-4 weeks and second top dressing at 8.

PLANTING SOYABEANS

Soyabean production guidelines under Pfumvudza

'PFUMVUDZA' is a Conservation agriculture way of farming that conserves natural resources such as soil and water, resulting in improved and sustainable production.

Key principles

- 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.
- Use of crop rotation and mixing: vary - Use of high management techniques:

Timely implementation of all operations:

- Carrying out all operations at the best time of the year(land 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.

Input package

- 5kg Seed
- 16kg Compound D fertilizer
- 16kg Ammonium Nitrate

Planting Soyabeans under Pfumvudza

Step 1: Mark the field at the standard 39m by 16m and prepare planting furrows spaced at 0.75m x 0.6m.

Step 2: Leave the furrows open until you receive the first effective rains.
Compound D: use a level bottle cap (Cup 8) per 60cm furrow row length and spread it uniformly.

Step 3: Plant immediately after receiving a good planting rain that fills the furrow.

Apply rhizobium to seed soon before planting.
Plant soyabeans in the furrows at a spacing of 3cm between seeds.

Apply ammonium nitrate at 7 weeks using CUP 8 along the 60cm furrow length.

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

PLANTING SUNFLOWER

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.

Input Package

- 2kg Seed
- 16 kg Compound D
- 16kg Ammonium Nitrate

Planting of Sunflower

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 (Compound D) at land preparation-either manure or compound fertilizer.
- Leave the basins open until you receive the first effective rains.
- Manure: Apply a handful of manure per planting basin. Cover the manure with a thin layer of soil.
- Compound D: The fertiliser should be scattered in the bottom of the hole. One No.8 cup should be adequate.

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.

Important Points To Consider In Site Selection:

1. Reliable water source :
   - Farmers are encouraged to plant in 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. Near homesteads for easy management.

3. Best arable land that are inherently fertilized inorder to improve yields.

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

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

Timelines and steps

1. Creating baseline marking out the plot – 31 July.

2. Digging planting holes-dimensions and orientation-31 July.

3.Liming-31 July

Remember these important points

1. Orientation for the rows and correct mulch placement.

2. When holing out it is important to ensure the soil from the planting hole is heaped down slope to facilitate water capture.

ADOPTING THE PFUMVUDZA CONCEPT ON MAIZE AND TRADITIONAL GRAINS

agritex
Department of Agricultural Technical and Extension Services

Head office: No 1 Borrowdale Road, Ngungunyana Building, Harare, Zimbabwe
Tel: +263 47 91355

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

VALLEY SEEDS
where farming meets the farmer

PANNAR®
Together we farm for the future®