



# NAPIER GRASS SEED PRODUCTION GUIDELINES

## Recommended levels of inspection before harvest

A minimum of 3 inspections is required.

**Stage 1:** 45 days after planting to verify isolation, detect volunteer plants and check for diseases

**Stage 2:** 100 days after planting to verify off-types, and detect diseases and pests.

**Stage 3:** 15 days before harvesting of seed canes to verify off-types and detect diseases and pests.

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## TO MANAGE STUNT AND HEAD SMUT DISEASES



### Maximum permissible limits at various stages

Factor	Stage of field inspection	Max. permissible limits (%)	
		Foundation	Certified
Off-types	I, II & III	None	None
Smut	I	0.02	0.1
Napier stunt	II	0.05	0.5
Top borer	II & III	5	5
Stalk borer	III	20	20

## Introduction

For many years Napier grass has been grown from canes and root splits without serious challenges from pests. However, the emergence of Napier stunt and head smut diseases which are spread through planting materials has reduced its production on smallholder farms.

Although the spread is extremely fast through exchange of planting materials, there are no clear seed production and distribution guidelines to manage the diseases.

### Importance of seed production guidelines

- To maintain and make available to farmers high quality seed material
- To distribute to farmers genetically pure disease and insect pest free seed material

Stages of producing genetically pure seed material free from diseases and pests to minimise disease occurrence/spread are as follows:

## Primary seed production

- This is breeders or foundation seed on scientifically supervised farms usually on research station or seed from well maintained nurseries
- Main issues addressed are purity of the variety, plant vigour and elimination of diseases and insect pests

### Steps to follow in primary seed production

#### Step 1

- Get breeders seed from a known clean source (tissue cultured plantlets)
- If not sure of the cleanliness of the breeders seed, treat with hot water.
  - (i) Boil water to 52°C (the melting point of a candle.
  - (ii) Put off the fire and immerse the planting material into the water until it cools to room temperature

(iii) Avoid overheating as this kills the potential growing buds. (It is advisable to contact your nearest Extension Officer if doing it for the 1st time)

- To eliminate minor fungal infestation/insect pests including stem borer, soak planting material in fungicide solutions (0.1% MBC Benomyl/thiophanate-methyl) for 5-10 minutes

#### Step 2

- Plant in a well prepared field where Napier grass has not been planted for at least 3 seasons, free from volunteer Napier grass period and away from old fields

#### Step 3

- Keep the field clean by regularly weeding

#### Step 4

- Inspect the field regularly during growing season-checking for diseases, pests and off-types
- Uproot (rogue) all diseased plants/infested with insects and those that are less vigorous
- Recommended seed fields should have less than 0.1% infection of Napier head smut, stunt and other diseases and off-types

#### Step 5

- Harvest at 16-28 weeks old for good Napier seed
- Avoid using planting material from very old crop

#### Step 6

- Maintain the 1st ratoon crop by weeding regularly
- Apply fertiliser and manure regularly
- Continue inspecting and uprooting any infected material or off-types

#### Step 7

- Stop using re-growth from the 1st ratoon if seed is infected

## Secondary seed production

- Is usually sourced from the primary seed multiplication
- Mainly produced on selected farms with advice from frontline extension officers
- Main issues addressed are purity of crop varieties and elimination/avoidance of pests

### Steps to be followed in secondary seed production

#### Step 1

Get breeders seed from primary multiplication farms. Materials may be soaked in fungicides solution (0.1% MBC-Benomyl/thiophanate-methyl) for 5-10 minutes to eliminate minor fungal infestations and insect pests where necessary.

Follow steps 2-7 in primary seed multiplication.

Secondary seed field can be used up to the 3rd ratoon depending on disease level in the field.

Seek guidance from an expert if seed is for distribution to other regions

## Tertiary seed production

- Mainly produced on farms for seed and animal feed
- Seed sourced from secondary seed multiplication sites
- Planting is done in well prepared fields where Napier grass has not been planted for at least 3 seasons and away from old Napier grass
- Inspect the fields regularly during the growing season and remove all diseased plants, those infested with insects and those that are less vigorous
- Always involve an expert if seed is for distribution to other regions