a clean flat surface e.g. mat (to avoid contamination by soil). It is recommended to hand pick since there is always uneven maturity of fruits.

Nakati seed processing and storage

i. Put the fruits in a mortar and gently crush them using a pestle. Place the crushed fruit and seeds in an open plastic container.
ii. Fill the container with water and stir to allow the pieces of fruit flesh and gel to float.
iii. Gently remove the floating fruit flesh and gel and tilt the container to allow more floating seed to pour out. The quality seeds will remain at the bottom.
iv. Repeat the washing several times with fresh water until all the fruit flesh and gel are completely removed.
v. Place the washed seeds in a net and hang in the shade for about 24 hours to remove/drain excess water.
vi. Place the partially dried seeds on a clean surface like a polythene sheet, tarpaulin, cemented verandas (not in direct sunlight). Loosen any clump of seeds and stir 2 to 3 times per day so that seeds dry uniformly. Normally, drying will take 3 to 4 days.

Packaging, labeling and sealing

1. Clean and package seeds in a cool, well ventilated and dry place.
2. Selected packaging material should be durable, stainless and free from defects.
3. Well stored seeds will maintain the seed quality in size, colour, shape and a high germination capacity with vigour until it is required for use.
4. Seed may be dressed (treated) to protect it against infestation by insects and infection by seed borne and /or soil borne disease causing organisms prior to and during germination and seedling establishment.
5. Treated seeds are packaged in clean bags and containers of various sizes according to customers' demands.
6. Seeds of all classes must bear the official label on each bag or container which shows the lot number, type of crop, name of variety, class of seed, germination and purity levels and the packaging date.

Other Points To Note

As a seed grower, you must ensure the following:
a) Apply and register with an official seed certification agency e.g. National Seed Certification Services (NSCS).
b) Use seed of a known variety with well defined descriptors (unique/different characteristics from other varieties and distinguished from the rest of the varieties which can be obtained from an official agency like a research station- NARO.
c) Register the field crop for inspection within the recommended time as per seed regulations
d) All contract seed producers must be linked to registered seed companies e.g. Simlaw, Victoria and East Africa Seeds. Farmers trained in seed production qualify for registration as seed growers.



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NARO

NAKATI
(Solanum aethiopicum)

Seed Production Guide



INTRODUCTION

Nakati (Solanum aethiopicum) is one of the most important local vegetable species in Uganda and is most popular within the Central region. It is grown by both small scale and commercial farmers who usually hand pick the leaves when green and either eat or sell them as a vegetable.

To produce Nakati seed, follow these simple steps:

Use quality seed for better yields
Use quality seed of a recommended variety to ensure good production. Quality seed refers to seed that is well processed and stored.

Using quality seed leads to:

- Use of less seed at planting
- Higher seedling emergence, usually above 85%
- Vigorous seedlings
- More uniform plant stand
- Faster growth rate
- Better resistance to pests and diseases
- Uniformity in maturity
- More tolerance to drought

Quality seed is of uniform size, colour and shape. It is free from pests, diseases and foreign matter such as weed seed and chaff.

Conduct a germination test

Before sowing, test seed for viability and germination potential by conducting a quick germination test.
Follow the steps below:
* Get representative samples of seeds from the top, middle and bottom of the seed pack.
* Mix the sample seeds and count 100 seeds to use for the test (for small seed quantities, farmers can count 20 seeds)
Put the seeds in a container of water for 12 hours.
Drain off the water and wrap the seeds in a cotton cloth soaked in water.
* Keep the cloth moist for 3 to 7 days and count the number of seeds that have fully germinated (both the shoots and roots have emerged).
* If 85 of the 100 seeds or 17 of the 20 seeds or more have high both the shoot and roots emerged within 2 weeks, then it is quality seed which can be used for planting.
* If the percentage is slightly less than 85 out or 100 seeds, increase the seed rate at planting. If the percentage is less than 40% discard the seed. Do not use the seed because it will have poor yields.

Site selection

i. An open field is recommended for it will promote maximum flowering and fruiting. tree shades should be avoided since some habour pests that damage nakati plants and could lead to stunred growth. Nakati requires enough sunshine to grow.
ii. The field should be at least 100 meters away from any solanum or nakati relative crop. Isolation can be achieved by planting crops at different times to avoid an overlap of the flowering periods.
iii. Nakati seed grows well on flatland, lowland and upland if terracing and raising of beds is practiced to control soil erosion.
iv. In lowlands, dig channels to drain excess water as the crop grows well in well drained soils especially in the dry season. Loam soils are however the best soils for growing seed.

Land preparation

1. Clear or cut all the tall grasses and bushes, remove trees including stumps, remove stones and other obstacles from the field in order to ease the ploughing processes and all other farming activities. Do not burn the grass as burning exposes the soil to erosion and also reduces soil fertility due to loss of nutrients.
2. Plough the field for the first time and ensure that the soil has very small debris.
3. If the field has perennial weeds, spray with herbicides such as weed master, glyphosate or round up according to the recommended rates. Contact an extension officer for guidance if necessary.
4. Conduct 2nd ploughing, followed by harrowing to make a fine garden.

Manure application

Apply manure i.e. use Farm yard manure which is a low cost alternative to inorganic fertilizers. Farm yard manure is made from animal dung either from cows, goats or chicken droppings. It should be well decomposed. This will encourage vigorous growth, resistance to pests and diseases and eventually high yields.

6. Planting Nakati

Timely planting: Plant at the on-set of the rains. Farmers who have the capacity to irrigate can grow Nakati plants all year round.
Planting in lines: This ensures that the crop is well spaced, making it easier to weed and manage the crop. In addition, if the recommended plant population is attained – the farmer will plant adequate seed (not too much or too little) for a given area.
iii. ***Use a stick to make a 1cm deep furrow following the string*** Apply manure in the furrow first brfore planting and cover with light soil.
iv. ***Seed spacing:*** Nakati grown for seed production should be planted at a wider spacing of 45cm between rows and 30cm between plants. This planting ensures good growth and productivity. Avoid puting a lot of seeds as it could lead to over crowding and therefore low yields. To reduce that, one can mix seeds and manure in a ratio of 1to 2.

Weeding and thinning

a) Timely weeding ensures that the specific field certification standards for weeds in the field and for seed processing are achieved.
b) Weeding should be done as soon as weeds emerge and before the weeds flower to reduce the risk of the weeds spreading/contamination.
c) Timely weeding leads to increased yields and minimizes competition for food and light between weeds and the Nakati. It reduces pest and disease infestation at the early stages and generally provides better growing conditions.
d) Thinning should be done 2-3 weeks after germination. The frequency of thinning depends on whether germination is low or high. In case of low germination, gap filling should be done. Rouging/remove off types(separating one type/variety that is different from another) should be done before flowering when it's easy to identify the off types.

Pest and Disease Management

1. Monitor the field regularly to ensure that quick action is taken in case of an outbreak of pests and diseases.
2. Both organic and inorganic pesticides can be used to control pests i.e..
3. Seek advice from an agricultural extension worker on pest and disease identification and management if necessary.

Harvesting Nakati Seed

1. Harvesting nakati seed starts at 17-20 weeks after planting. The number of fruits produced per plant depends on the size of the plant.
2. Keep the fruits on the plant until they are fully mature. When mature, fruits will be bright red before turning dull or brown. Harvest only the ripe fruits for seed. Avoid fruits that are diseased, damaged or rotten. Early harvesting causes shrinkage of seed, loss in germination vigour and difficulty in harvesting and processing. Delayed harvesting causes loss in seed quality, damage by pests, rain damage and secondary disease infection.

3. Hand pick and collect mature fruits that have turned brick red in color and place them in a shade (or cool atmosphere) on