



DEVELOPMENT INITIATIVE FOR NORTHERN UGANDA (DINU)



EUROPEAN UNION

Building Resilience to Enhance Food & Nutrition Security, Incomes and Health in Northern Uganda (BRENU)

PUMPKIN PRODUCTION GUIDE



Implemented by:



This training manual was produced with the financial support of the European Union. Its contents are the sole responsibility of IITA and do not necessarily reflect the views of the European Union

BACKGROUND: Pumpkin, considered a vegetable, is actually a fruit, with the nutrition of a vegetable. Farming pumpkins is common in many countries, with China being the number one producer, followed by India.

The leaves of the pumpkin are cooked as a vegetable in many cultures, with the seeds being considered as a super food, due to their high nutritious properties. The Pumpkin itself is used as a breakfast snack and can be cooked with other ingredients and consumed with any meal.

Farming pumpkins can be profitable, since there is a lot of demand as consumers become more health conscious, preferring natural food to processed breakfast items like bread. The mighty pumpkin, if harvested and stored well, can last for up to 3 months and in some cases 7 months. This gives the farmer ample time to sell their produce, without the fear that it will go bad.

The market for Pumpkins: Pumpkins have a vast market, both locally and internationally. In fact, there are various companies buying pumpkins for the export market. However, you have to meet specific set standards to qualify to sell to that market.

Value addition is a great way to improve your income from the crops. For example, you can use the seeds for planting or sell them as roasted pumpkin seeds. You can also mill pumpkin pulp which can be sold as baby food.

Health benefits of Pumpkins: Pumpkins have a multitude of nutrients ranging from vitamins and minerals found the pulp, seeds and the leaves. The benefits include:

- It has a low-calorie count with no saturated fats or cholesterol, thus suitable for cardiac health.
- It contains antioxidants such as vitamins C, A, and E that helps maintain the integrity of the skin and the mucous membranes. Vitamin A is also good to maintain good vision.
- In addition to the vitamins, pumpkins also contain minerals such as copper, calcium, potassium and phosphorus, which is essential for bone formation and cardiovascular integrity.

When do you start growing a pumpkin (*Cucurbita maxima*) is a question that many gardeners have in their mind. Pumpkin growing isn't hard and is even a popular garden activity for a child in the garden.

Any pumpkin-growing foray should start with the same thing: space and plenty of it. Choose a location for growing pumpkins with a minimum of six to eight hours of full sun and a lot of room; vines can grow to more than 20 feet long.

Pumpkins prefer well-drained soils high in organic matter with a pH of 6 to 6.5. (Testing your soil early allows you to adjust the pH accordingly before planting time arrives.) Pumpkins can be planted from seed when the soil temperature has reached 21 Celsius.

AGRO-CLIMATIC CONDITION

Basically, Pumpkins are the very warm vegetable, which can also resist in cold temp. Because of plentiful uses and benefits of Pumpkins fruits, are cultivated all over the world. There are many types of Pumpkins, that can grow in various types of climatic conditions.

However, a temp. ranging between 20°C to 30°C is considered as the ideal temperature. for growing pumpkins for its best vegetative growth.

Note: Growing pumpkins in too hot and in the too cool region is not beneficial because pumpkins plants at higher atmospheric temperature sometimes male flowers predominant on the female flowers, resulting as lower fruits production in that season.

SOIL REQUIREMENT

This commercial crop can thrive well on a wide variety of soils. Whatever, a soil with sandy loam along with good drainage power and all essential organic matter is supposed to be the best soil for pumpkins. Soil pH ranging between 5.5 to 7.5 is considered as the best pH for growing pumpkins.

Pumpkins do well in places where medium to heavy applications of compost or well decomposed manure is done. Pumpkins are drought-tolerant and are sensitive to water logging since it encourages the development of leaf diseases.



Pumpkin Yield per acre: When you not only maintain your pumpkins but also fertilize the soil well, you can get up to five tons per acre. However, it will depend on the spacing during planting and the variety of the pumpkins. A single fruit of the giant Israel pumpkin can weigh up to 20-30kg if you apply good farming practices, adequate water and manure.

WHEN TO PLANT PUMPKINS

Preparing soil for Pumpkins

You should ensure that no members of the pumpkin family (cucurbit family) have been planted on the land before. This will minimize the risk of the spread of diseases from the previous crop. The ground should be finely tilled to ensure proper penetration of roots.

To obtain a higher amount of production, your soil should be prepared a well for pumpkins cultivation. So, for preparing the soil for pumpkins, bring your soil in fine tilth form. Also, it should be leveled as well.

Note that if your soil has any fertility deficiency, then, they should be supplemented at the time of land preparation, as have better results in production. Also, adding all essential organic matter along with a proper dose of ordinary manure to your selected site will always give benefits to you. Make sure that your selected field must have an assured source of water.

PLANTING SEASON

When to Plant Pumpkin Seeds

Pumpkins can grow all around the year, where there is a good source of water is available. However, generally two crops of this vegetable can be obtained; in the time period of March to December.

If you are planting pumpkins as rain fed crop, then it should be planted in the beginning of the rains always.

In Uganda, the best time to plant pumpkin seeds is at the end of March for the first season & for cultivation in the second, this should be planted in August

GROWING AND PLANTING PUMPKINS

Method of Propagation

Pumpkins are mainly propagated with the help of pumpkins seed.

How to Plant Pumpkin Seeds

During planting, it is vital to prepare mounds of soil to help improve drainage. It will also be easier for the sun's heat to penetrate the soil in order to encourage germination.

Pumpkins seeds do not germinate in too cold temperature. For planting Pumpkins, seeds should be sown directly on the main field. Planting on the raised bed encourages drainage to avoid the problem of constant wetness of pumpkins roots which invites numbers of pest, insects, and diseases.

Generally, this crop is cultivated mainly on hills and surrounding area. So, for planting pumpkins in such area, plant about 2 to 4 seeds per hill. Seed should be sown at about 2.5 depth for best growth. The seed should be placed 1-2 inches deep just enough to cover it from the birds and allow for easier germination. Also, after seedling pumpkins, they should be thin to 1 plant per each hill lately.

SPACING

In planting Pumpkins, spacing varies in accordance with cultivar & vine size. For obtaining more production, grow a short-vined or bush pumpkin variety.

Planting them by keeping spacing about three meter, between the plants along with spacing rows about 1.5 to 2 meters (2.5x2.5m) is considered as best for growing pumpkins commercially.

SEED RATE

Generally, about 0.8 kg of pumpkins seeds is sufficient enough for farming on one-acre land to earn huge production. Close to 2000 seedlings can be planted in an acre if well-spaced. Fertilizer application should be made according to soil tests results. Ensure that you use organic fertilizers such as well rotten cow dung and chicken droppings. They are not only a cheaper alternative but also produce better results.

IRRIGATION IN PUMPKIN FARMING

Timely irrigation with a proper irrigation system is the main cause of good plant growth and better production. Irrigation of the plant should be done regularly as it promotes nutrient uptake and proper fruit formation. However, it should be done in a way that it reduces the chances of waterlogging and directs water to the roots and vines rather than the leaves.

First Irrigation should be done just after the sowing seeds on the field. Then after, give water at an interval of 3 to 4 days in the initial stage of growth. Take care while flowering & fruiting stage. At this, give water on alternate days. It would be best if you avoid logging the soil with water since it enables diseases like the powdery mildew to thrive and spread to other plants.

If you have the facility of good irrigation, then giving water with furrow method is best for pumpkins cultivation. But, if you are cultivating pumpkins in such area, where there is a shortage of water, drip irrigation for pumpkins farming is the ideal one. Note that good drainage capacity of the soil is an essential thing during heavy rains and floods.

APPLICATION OF MANURES AND FERTILIZERS IN PUMPKIN FARMING

Timely application of suitable manure and fertilizers directly enhance the production. In pumpkin farming, apply manure and fertilizers in balance doses to obtain higher yield. For this, about 50 tons of ordinary manure is to be applied while soil preparation, generally in the last plow to the topmost soil.

Application of Nitrogen and Potassium is beneficial in increasing yield. So, apply about 50 to 60 kg of Nitrogen along with 30 kg of Potash at land preparation. Take care during application of Nitrogen. It should be applied in two equal doses; 1/2 at land preparation, and another one at about one-month of the plantation.

PEST AND DISEASES IN PUMPKIN FARMING

Pumpkins are very prone to pests and diseases, and numbers of pest and diseases attacks on its crop. It is essential to prevent them to obtain a good quality and high yield from pumpkin cultivation. Crop rotation is the best way to minimize pests and diseases. Also, avoid growing pumpkins on a field, used for planting any cucurbit crops earlier.



PUMPKIN PESTS

The following are the common pest of the pumpkin crops along with their symptoms and also controlling measures. Learn them.

Pumpkin Pest	Symptoms	Controlling Measures
Pumpkin flies	causes sunken brown spots & develop white maggots inside fruits	Adult flies can be controlled by baiting
Aphids	causes leaves curling	application of suitable chemical fertilizer like mercaptothion and mevinphos in proper dose
Thrips	causes newly appearing plants become injured	Control this by spraying or wetting leaf sides by using endosulfan, mercaptothion, etc. Crop rotation is the best way

PUMPKINS DISEASES

Pumpkin Disease	Symptoms	Control Measures
Powdery mildew	causes white leaf spots on lower surface, merging on the upper surface	Make use of 4 to 8 kg of copper oxychloride or sulfur per acre
Downy mildew	Small yellow, angular spots observed on upper surface of leaves	Controlled by spraying Cupravit, bravo, or dithiane, as symptoms observed
Anthracnose	small, yellow leaf spot or water spot observed, enlarging rapidly and turns brown	Spray dithiane or bravo, once a week
Cucumber wilt	Plants wilts because of root rots....	this can be controlled by application of dichlorophen (pre-plant application)

The above are the common Diseases of the pumpkin crops along with their symptoms and also controlling measures.

Note: Whatever is this, please contact your's Horticulture department for the pests and disease; symptoms & their controlling measures because they are the best source of farming information.

WEED CONTROL WHEN PLANTING PUMPKINS

You can control weeds by carefully uprooting them or by using a hoe to carefully dig them out in order to prevent damage to the pumpkin vines. You can also use herbicides; either chemical or organic, to control weeds in the farm.

This should be done with care as the use of herbicides on the farm may lock out farmers from specific markets, especially the export market, which is very strict on the use of chemicals.

INTERCROPPING PUMPKINS

Intercropping is an excellent way of maximizing the use of land and available water. It can also be used to contain the growth of weeds and improving soil fertility without the use of synthetic fertilizers and chemicals.

Crops that can be intercropped with pumpkins include okra, sunflower, Moringa and pawpaw. These crops complement each other as pumpkin leaves act as cover crops to control the growth of weeds. Sunflowers aid in attracting pollinators.

Pawpaw, Moringa and okra leaves can be used to make extracts for organic disease and pest control.

PUMPKIN HARVESTING AND POST-HARVEST CARE

Pumpkin harvesting season starts when the stem of the plant begins to shrivel. However, harvesting may vary from cultivar to cultivar and also the market demand. It is better to operate harvesting on the basis of market demand in their tender age. Pumpkin fruit or vegetable should be harvested, when they attain deep solid woody color and hard. Harvesting at this stage will also help in collecting some seeds for further cultivation.

Usually, collect those fruits or vegetable manually by hand. For this, you can make use of a knife for collecting them. Try to cut them keeping about 5cm stock with fruit. Also, any unhealthy fruits should be destroyed.

When the pumpkin skin reaches full color and hardens, then the fruit is ready to harvest. Depending on variety, the fruit is usually ready about 90 to 120 days after planting.

Pumpkin is harvested by plucking it from the vine leaving the stalk on the fruit to enhance the fruit shelf life. You can store your Pumpkins for 30 to 90 days.

Pumpkin should be washed to remove any dirt or bacteria that may cause the fruit to rot. Before storage, the fruit should be allowed to completely dry and should be stored in a cool, dry place, preferably a dark place.

Yield

Production of your pumpkin farming or cultivation depends on numbers of factors like cultivar, climate condition, proper care, and management of your farm, application of manure and fertilizer....

However, all these factors are discussed above very well. Learn them deeply and earn a huge fruit production from it. Since Pumpkins have great market demand all around the year. Normally, about 20 to 40 tons of fruit can be easily obtained from this commercial farming.