

Simple guidelines to pumpkin production



Pumpkins have always been a traditional favourite amongst Zimbabwean farmers regardless of the size of the farm enterprise. Pumpkins are grown for both commercial and domestic consumption. Pumpkins can be part of any meal or may be eaten as a snack. In Zimbabwe, pumpkins can be grown in any geographical location although soil fertility is always a significant determinant of yield output. This guideline is designed to give a simplified description of how best to grow pumpkins.

Cultivars

Below is a list of some cultivars commonly grown in Zimbabwe:

Cultivar/ Type	Duration to maturity (days)
Curving: Autumn Gold, Ghost Rider	90 d
Small/Pie : Amish Pie, Small sugar	90 d
Giant: Big Max, Big Moon	120 d

One of the major differences in pumpkin varieties is fruit size. The above categories are based on this characteristic. Varieties include a genetic trait that allows pumpkins to develop colour while they are still maturing. Common examples of this type are the Autumn Gold and Big Autumn varieties. One drawback is that their stems are often weak and brown in colour,

lacking the characteristic large and dark green stems that many markets prefer. Growers should keep track of the many new varieties of pumpkins available each year, consider the market, and plant varieties that are best suited to their management systems. Grey-skin pumpkins are a clear favourite on the markets because of consumer preference for their improved flavour, texture and shelf life.

Climatic requirements

- **Temperature**

Pumpkins are warm weather crops that are damaged easily by light frosts. They require a temperature range of 18 °C to 27 °C for growth, the ideal being 18 °C to 20.5 °C. Therefore, a prolonged warm season is essential to obtain quality pumpkins. At temperatures above 35 °C, male flowers sometimes predominate resulting in poor fruiting.

- **Rainfall**

Pumpkins prefer a generous water supply. Overwatering is often harmful. Every effort should be made to maintain a uniform moisture supply during the growing season. During the seedling stage, the top 5 cm of soil should be moist. Later on, the top 5 cm layer should be dry but the lower 25 cm should be kept moist.



Soil requirements

Pumpkins grow well and produce excellent quality fruit in rich, light-textured soils. Sandy loam or well-drained loamy fertile soils, deeper than 1 000 mm, are ideal for pumpkins. However, heavier soils can also be used as long as drainage is adequate. The optimum soil pH is between 6 and 7.5.

Land preparation

Prepare a planting station by digging a round hole at least 45 cm in diameter and 25 cm to 30 cm deep. Mix a forkful or two of manure, compost or manure and a handful of 5:15:12 thoroughly with the soil removed from the hole; replace this material in the hole; tread it down slightly, and fashion the surface into a dish-like depression. During wet seasons the planting stations can be in the form of hills of similar diameter to ensure adequate drainage. On larger open fields, the soil should be ploughed to a depth of 15 cm, especially if it contains sods or clay, at least one month before planting. Special care should be taken to remove from the land any portion of diseased plants which might affect the new plants. About two weeks before planting, the soil should be harrowed, and rolled until it is smooth and mellow. It is then ready to mark rows properly spaced to accommodate the pumpkin crop.

Propagation

Pumpkins are propagated by seed sown directly in the field where the plant will mature. Seed can also be sown early in small pots under protection and set out later when the weather and soil have warmed up.

Planting

Planting on raised beds promotes drainage. The roots should not be subjected to constant wetness which leads to disease problems. The seeds can be planted directly in the site where they will mature. Pumpkins are usually planted in hills. Plant two to three seeds per hill, about 2.5 cm deep and later thin to one plant per hill. Spacing varies with variety and vine size. Plant bush or short-vined varieties about 0.5 m to 1 m apart in the row and 1 m to 1.5 m between rows. The seeds can also be grown occasionally in seed trays. Sowing can begin outdoors in August, although September to November is the most favourable period countrywide. In the Lowveld, seed is sown in late summer and winter.

Fertilisation

basal fertiliser compound C (5:12:12 11S 0.1B) is recommended at 500 kg per hectare. As soon as the plant reaches the first fruiting stage, it is recommended that one applies Ammonium Nitrate (34.5% N) top dressing fertiliser.

Irrigation

Aphid

The first irrigation should be given immediately after planting, with the second and subsequent irrigations applied at weekly intervals or more frequently depending upon need. However, waterlogging should be avoided at all times. In the absence of rains, the plant should be watered generously. Pumpkins prefer their water applied under the foliage.

Weed control

Pumpkins require frequent weeding. The first weeding may be performed 15 days to 20 days after seed sowing. A total of three weeding operations will be required. Herbicides can also be used for this purpose. For annual and perennial grasses on pumpkins, apply 1,5 l/ha of haloxyfop-R methyl ester. Dosage depends on grass species. Apply when annual grass species are in the 2 leaf to 6 leaf stage.

Pest control

Cutworm

Cutworms damage or reduce plant stands. Spray over rows at germination to control cutworms using the following insecticides: Fenveralate 20 EC, Lambda-Cyhalothrin 5 EC, or Decis tabs.

Pumpkin fly

Adults sting young fruit to lay eggs and cause sunken brown spots. White maggots develop inside the fruit.

As the adult flies neither suck nor chew the foliage, they are controlled by baiting. The bait mixture is splashed onto the leaves in coarse droplets. To obtain satisfactory control, it is most important to begin baiting when the first flowers appear and to do it consistently each week and after heavy rain. The following bait is effective:

Chemical control can be achieved with Lebaycid 50 EC, Dimethoate 40 EC, or Malathion 25 WP.

Proper crop rotation is essential in pumpkins to reduce potential pest problems. Never grow pumpkins on land that has been planted with any other cucurbit crops such as watermelons, squash, etc., within the last three years. Proper rotation with no-cucurbit crops will help prevent potential problems from carryover of disease organisms on plant material.

Aphids

Aphids cause curling of leaves. Apply either one of the following sprays when aphids are noticed, and repeat as necessary: Malathion 25 WP, or Dimethoate 40 EC. Proper crop rotation is essential in pumpkins to reduce pest problems.



Disease control

Powdery mildew

The first sign of disease appears as whitish leaf spots on the lower leaf surface, increasing in number and size. The spots eventually merge and progress to upper surfaces, finally covering the entire leaf with white powdery growth. This condition is severe in dry, warm weather.

Apply Copper Oxychloride 85% WP, or Wettable Sulphur. Benomyl 50 WP/Bavistin can also be applied but it may not be applied more than three times per season.

Downy mildew

Symptoms appear as small yellow, often angular spots on the upper surface of the leaves. On the underside of these spots a greyish mildew will eventually form. This condition usually develops on cucurbits during wet conditions such as heavy dew or rains.

Spray with Bravo, Dithane M 45 , Copper Oxychloride 85% WP, or Ridomil Gold as soon as the disease is noticed.

Anthracnose

This disease appears as small, yellowish or water spots appear on the leaves and which rapidly enlarge and turn brown. Long lesions may occur on the stems, and black sunken areas may develop on the fruit.

Chlorothalonil 50 SC, and Dithane M 45 are recommended. Apply full cover sprays at 7-10 day intervals.

Harvesting and Storage

- **Harvest maturity**

Most pumpkins reach maturity at 3 to 4 months after sowing. The fruit is harvested when the skin becomes hard and loses its shiny appearance. Pumpkins should not be left on the ground too long after the foliage has died down, because wet soils and sun scald can cause damage and reduce storage quality. However, harvesting the pumpkins should be delayed until the vines have completely dried off. Several methods can be used to identify if the pumpkins have matured and are ready for harvesting:

The stems develop cork-like cracks, which are the clearest signs of harvesting maturity. The skin colour changes from dark, glossy green to a dull grey. You can press the pumpkin fruit with your thumb and if a dark bruise appears then it is not yet ready for harvest. But if you pierce the skin with your thumbnail, and if it is tough and makes a cracking sound, then the fruit is ready for picking.

- **Harvesting methods**

Harvesting is done by hand, using secateurs or a sharp knife, and the fruit is removed with 5 cm of stalk attached.

- **Storage**

Ideally pumpkins can be stored for a period of 1 to 3 months when mature. Winter varieties can be best kept at relatively higher temperatures, 10 to 13 °C. For the best results under storage, the relative humidity should be 50 to 70%, and the temperature 6 to 13 °C. Pumpkins can be stacked on their sides in a single layer next to each other under a tree with a fairly dense leaf canopy but which is open at the sides. Air movement under a tree must be free. Transport the pumpkins to markets in crates or secured boxes.