

Growing Vegetables

Vegetables growing is a short season venture with high returns especially during the dry season. The good thing is that you can even grow under a small plot. Generally, vegetables are good for a healthy family. The edible parts are the leaves. They are rich in vitamins like C and A plus minerals like Iron, Calcium to help your body stop diseases. Therefore, a healthy family starts with a family that eat vegetables!

Vegetables have a demand in all seasons both in the local and export markets. Due to its perishable nature, they cannot store for long and production needs to be all through.



Vegetables is an incredible source of vitamins

Ecological Requirements for Vegetables

Generally, brassicas family crops i.e Kales, spinach and cabbages can do well under wide climatic conditions so long as water is available. The best conditions are:

- a. **Temperatures** - Performs best in cool conditions 16-20 degrees Celsius
- b. **Rainfall** - Well distributed rainfall of 1500mm per annum under rainfed vegetable farming. In dry areas, you can grow under irrigation. Ensure to water well under such cases
- c. **Altitude** - Can grow almost in all altitudes with the best altitude being 800-2200m a.s.l
- d. **Soils** - Well drained fertile soils rich in organic matter and with a pH range of 6-6.5

Varieties

The following are some of the best varieties:

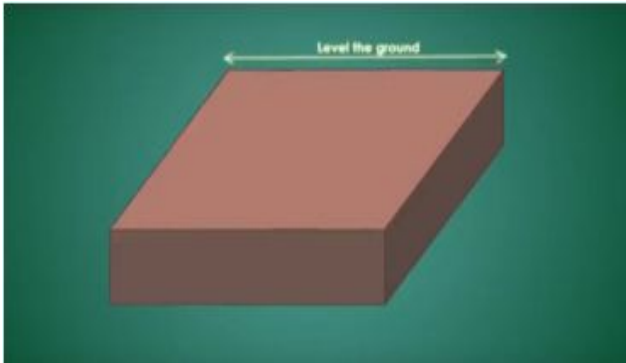
- ❑ **Kales (Sukuma wiki)** - The main varieties are Thousand headed, Marrow stem and dwarf siberian.
- ❑ **Spinach** - Fordhook Giant from Royal Seed is the best variety. Others include: Early hybrid No.7, Bloomsdale long standing, Giant noble, King of Denmark and New Zealand spinach.

- ❑ **Cabbages** - Cabbage varieties do vary most based on the size head, market taste & requirements. Common varieties include: Pretoria F1, Blue Jays F1, Copenhagen Market, Pruktor F1, Gloria F1, Quisor F1 and Queen F1

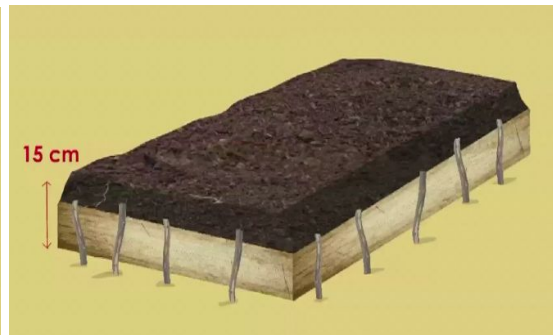
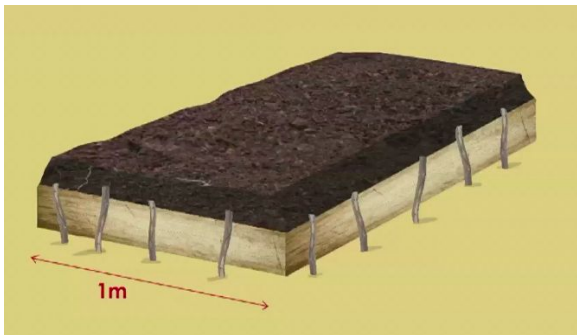
Raising in a nursery

For a good start, raise them first in a nursery. To prepare a nursery:

1. Prepare a nursery site by clearing vegetation and digging in then level the ground well



2. Apply 1 debe of well rotten manure per square metre of nursery then dig in well
3. Raised the bed 15-20cm high and 1M wide then level well



4. Make small drills 3cm deep and 20cm apart by hand



5. Mix seeds with some soil then thinly spread along the drills- you need 30g of seed for ¼ acre



6. Water with care then cover the seeds lightly with soil then mulch with dry grass



7. After 7 days remove the mulch then make a raised shade 1M high. Also drench the seedlings with PEARL 50EC - mix 20 ml in 20 litres of water for $\frac{1}{4}$ acre. This will help control early pests . Also spray with MISTRESS to protect seedlings in the nursery against damping off

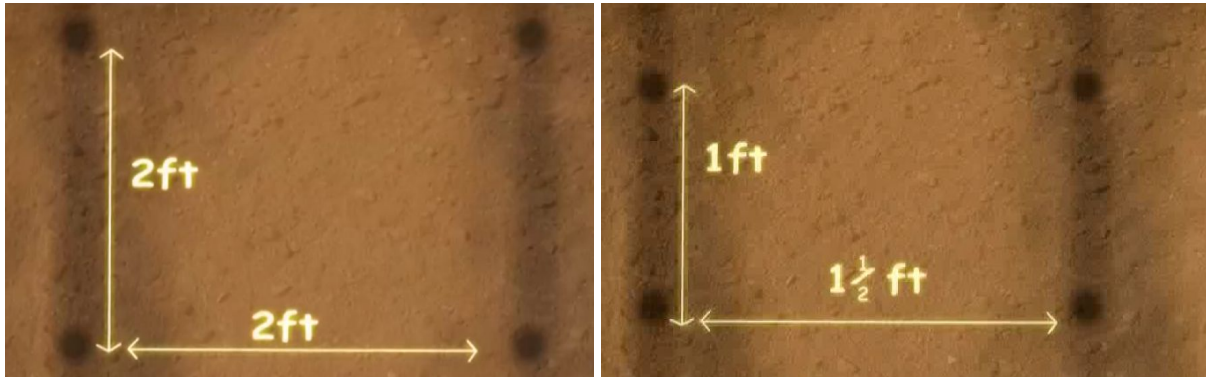


Transplanting

Make the field ready to receive seedlings. Remove weeds and stumps to make the field ready for transplanting

After 21 – 28 days, the seedlings will be ready to be moved to a well prepared seed bed.
Take out the seedlings with a ball of soil to minimize.
To plant out in a ready seedbed:

1. Dig planting holes as follows:
 - **2 feet (60cm) by 2 feet (60cm) for cabbages**
 - **1 foot (30 cm apart) from one hole to the other and 1.5 feet (45cm) from one line (row) to the other for kales and Spinach.**



Dig holes at 2 ft x 2 ft for cabbage and 1 ½ apart in rows and 1 foot apart in a rows for kales

2. Put 5 g (bottle top cap) of planting fertilizer like MAVO VEGETABLES N.P.K 20.10.18, MAVUNO PLANTING N.P.K 10.26.10 or MEA Mazao 23:23:0 in each hole. You need 50 kg per acre.
3. Add a handful of well rotten manure per hole and mix fertilizer, manure and soil well
4. Plant a seedling in each hole and firm the base



When planting, firm soil near the plant

5. Water well
6. Drench soil with a mixture of 10ml MIDA & 20ml PEARL in 20lt water. This will help stop early pests and diseases.

Crop Management in the Field

Control weeds - Weed your field 2-3 weeks after transplanting. Weed with care using a jembe to avoid damage to the roots. Weeds compete for nutrients with your crop and also hide pests which carry diseases.

Top-dressing - After weeding, top-dress with nitrogen fertilizer. This will encourage formation of more leaves. Apply fertilizers like MAVUNO Topdressing N.P.K 26.0.0 or C.A.N. You need 50kg per acre.

Foliar Feeds - Based on what is lacking in your soil and various crop demands, you may need to apply foliar feed for a bigger harvest. The type of foliar feed depend on the stage of the crop and crop needs. For example:

- Easygro Stater (N.P.K 18:20:21 + T.E): Well balanced foliar feed with high phosphorous and potassium contents hence enables seedlings develop strong rooting system.
- Easygro Vegetative (N.P.K 27:10:16 + T.E): Fertilizer with high N is recommended during the vegetative phase. Spray after every harvest at an interval 2 weeks.

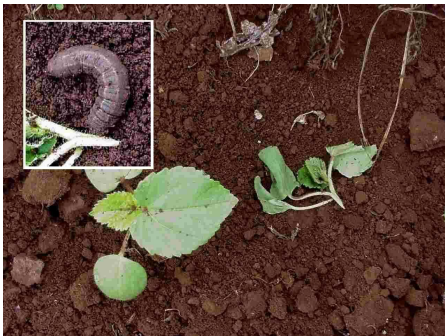
Control pests and diseases

If not well managed, vegetables like cabbage, spinach and kales can be attacked by a number of pests and diseases.

Pests

The common pests in vegetable field include:

- **Cutworms** - Are black caterpillars common at early stages of plant growth. They cut stems at the ground level causing plant fall. Spray plants with UMEME after transplanting to control cutworms



- **Aphids** - Aphids are small green or yellow like insects found on the leaves of vegetables. They suck the sap from plants and also carry diseases.



- **Whiteflies** - These are small white insects found below the leaf surface. They suck sap from crops



- **Sawflies, Caterpillars and Black diamond moths** - They are come black, pale green colours. Their larvae stage is very destructive. They feed on leaves causing heavy defoliation. If not controlled, they can cause 100% loss of the crop. Spray with CYCLONE when you see first signs of attack.



Control Whiteflies, Aphids, Sawflies, Caterpillars and Black diamond moths with effective insecticides like ATOM, HALT, CYCLONE or ASATAF

Diseases

Some of the economical diseases to note in your vegetables farming include:

Damping off- It is a early soil borne disease which causes seedlings to dry while still even in the nursery. The diseases is managed by drenching with PEARL while in the nursery and after transplanting. You can also do preventative sprays using MISTRESS or OSHOTANE



Black rot - It is a bacteria in the soil which can cause total loss of the crop if not managed. It is common when the temperatures are high and soils are humid. The signs include yellow-brown dry leaf margins at early stages of attack. Later, the heads turn black, soft and start to rot with a characteristic of bad smell. To manage, remove and destroy infected crop residues, use clean seeds/healthy seedlings and tolerant varieties. Spray to spray SULCOP DF early then repeat after every 10 days.



Leaf Spot - It is also a soil-borne fungi which is common in humid conditions. It is spread by wind, water or affected implements. The symptoms include dark to brown spots and eventually form holes and the leaves dry up. To control, plant certified seeds/ healthy seedlings, rotate your field. Spray SULCOP, CONTROL 70DF or ENRICH.



Downy mildew - It is characterized by fungal growth below the leaves which later produce black or brown spots on the upper side of leaves. It starts as early as in the nursery and extends to all stages of the crop if not well managed. To control, rotate your field, practise good nursery hygiene. Also, spray MASTER or VALETE to control.



Ringspot - It is a fungi carried by wind manure or infected crop remains. The signs are circular ring-like brown grey spots on leaves. To control, plant certified seeds/ healthy seedlings, rotate your field. Spray SULCOP or ENRICH.



Harvesting

Depending on the variety, kales, spinach and cabbages will be ready for harvesting after 2-3 months. At this stage, kales and spinach will have developed large, fresh and mature leaves.

For Kales and Spinach, harvest the leaves twice a week and consume or take to the market as soon as possible. You can continue harvesting for the next 2-3 months

Harvest cabbage when the heads are well-formed, firm big enough for the market. Under good management, you can harvest 40-60 tons per acre.

Since they are perishable, ensure there is a ready market before you harvest.