



Setting up a Passion Fruit Orchard



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What to consider when selecting a site

Accessibility and Security

- The orchard set up should allow for farm workers and farm equipment to move around easily.
- It should be fenced well to keep out unwanted people and livestock.

Suitability of the Soils

- Passion fruit will do well in deep and well drained soils of pH range of 6.5 to 7.5.
- Add organic matter to the soil. Organic matter will improve drainage of the soil, add nutrients and help the roots to grow strong.
- The roots of passion fruit grow near the surface so ensure soils are well drained.
- Water logging can lead to rotting of roots and loss of nutrients from the soil.

Land Topography (Lay of your land)

- Land should be flat or gently sloping.
- It should be free of rocks and big soil lumps.
- In steep slopes make terraces to help stop soil erosion and allow for water to get into the soil.

Sunlight

- Choose a spot that gets a lot of sunlight.
- This will lead to an increase in the plants' growth, size and quality of fruits.
- Light is needed by the plant to make its food.
- Face the trellises in an East - West direction to ensure your passion fruit orchard gets sunlight all day.

Wind

- The orchard should be protected from strong winds.
- Winds cause flowers and new fruits to fall and delays plant growth.
- Make a temporary fence OR plant fast growing trees around your orchard to protect from strong winds.

Water sources

- You will need a good supply of water for your fruit to grow well.
- When there is little rain, you must irrigate.
- To get good high yields, your crop needs plenty of water during flowering and fruiting.

Land history

- What crop was planted in the previous season?
- To reduce attacks by pests and disease, do not plant passion fruit where they have been planted before.

The overall farm layout

- A layout helps you know where to grow crops, which crops will do well and those that will not. It will also help you decide which crops to grow close to each other for effective pest and disease control.
- Plan your farm layout well so that you can irrigate, easily move in the farm and practice crop rotation.
- Keep a record of crops planted in each field to help with crop rotation.



It is a good idea to do a soil test. That way, you will be able to know the health of the soil and the best fertilizer to use for planting and topdressing.



Preparing the Orchard Site

Clearing the Existing Vegetation

Clear the land to remove weeds, tree stumps and all the unwanted materials to allow easy digging.

Soil Testing

A soil test will tell you how fertile your soil is and advice what nutrients your soil needs for the passion fruit crop to do well.

Ensure you pick samples that represent the whole field. Pick soil from 20 different parts of the farm following a zigzag pattern.

Sampling tools

- Jembe (hoe) for taking samples
- Clean bucket for collecting and mixing soil samples
- A spoon or a trowel
- Sample bags
- Marker pen

Selection of a sampling unit

- Look at the field and note the different zones.
- Note the difference in slope, soil color and texture and previous crops planted.
- Divide the field into same size portions and collect samples from each portion. If the conditions are similar, the field can be treated as a single sample.



Sampling procedure

To do take a soil sample that will be sent to the lab:

1. Dig a hole, 1 foot (30cm) deep.
2. Take a handful of soil from the side of the hole and put it in a bucket.
3. Repeat this process and get soil from 20 different points of your field. Collect sample in a zigzag pattern and put all soil samples in to the same bucket.
4. Mix the soil well. Take a handful of soil (about 1/2 kg) from the bucket and put it into a container or sample bag (you can get this for free from the lab).
5. Label the container well with your name, date and which field you took the soil from (if you have different farms).
6. Take it to a known soil testing laboratory such as Croprnuts or give it to a field officer to help you take it to the laboratory.

Ploughing/Ripping and Harrowing

Plough or rip the farm using a hand hoe, a tractor or an ox-drawn plough or ripper, then follow it up with harrowing.

It's a good idea to rip the soil instead of ploughing it all up. This means only disturbing the soil where you will plant and helps keep moisture in the soil.

Harrowing helps to:

- Break soil hard pans (the top hard layer of soil).
- Mix up organic matter with the soil.
- Allow free flow of air within the soil.
- Allow water to get into the soil easily.
- Expose pests that may cause disease to natural enemies and sunlight.



Tractor ripping



Passion fruit planting hole preparation

Making Planting Holes

- The size of the planting holes should be 60 cm, by 60 cm, and 60 cm deep. That's 2 ft by 2 ft by 2 ft deep.
- Rows should be 2 m apart and the plants 3 m apart in the rows.
- Separate the top soil (the first 30 cm) from the subsoil.
- Leave the holes to aerate for at least two weeks before you plant.

Crop Establishment

Preparation of planting media in pits

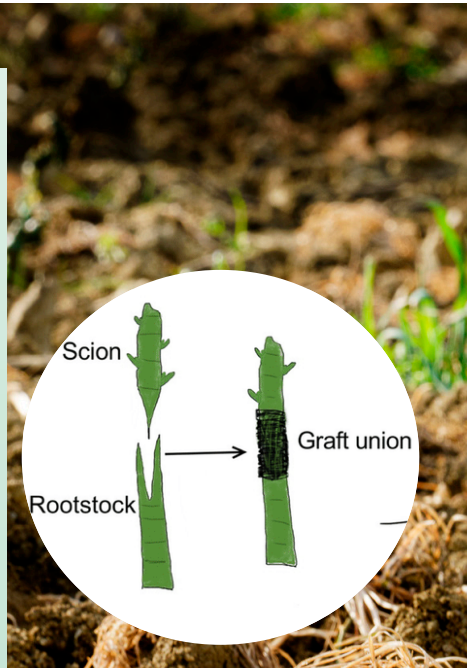
- Mix one debe (15 kg) of well decomposed manure with the topsoil.
- Put the mixture back in the hole and fill up to the ground level.
- Add a handful (100 g) of recommended fertiliser (DAP/NPK/TSP) with the soil, 2 days before transplanting.
- If you wish, you can drench the mixture with recommended fungicides, pesticides that help to further decompose the manure in the pits.

Transplanting

Translate at the start and during the rainy season. Do this early in the morning or late in the evening when it is cool.

How to transplant

1. Water the seedlings and the hole before planting.
2. Remove your seedling from the polythene paper carefully to keep the root ball intact.
3. Cut any long roots to avoid folding of the root system.
4. Make a hole, wide enough to hold the root ball.
5. Place the seedling into the hole taking care not to destroy the roots.
6. Firm the soils around the planting hole to ensure contact between roots and the soil.
7. Water the transplanted seedling and mulch if it is dry.



Note: When planting grafted vines be sure that the union between rootstock and scion is well above ground and not covered by soil or mulch. Otherwise, the scar will rot and the plant may die.

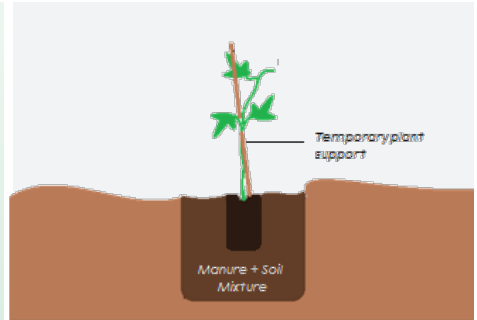
Post-Transplant Care

It is important to take care of the seedlings to make sure they survive and grow well:

- Spray with the right insecticide and pesticides.
- Water the new plants often when there is no rain.
- After 1 month, remove the grafting tapes to prevent choking of the vines.
- Train and support the growing shoot with the help of a stick.

Stress or post-transplant shock is rare with passion fruit seedlings as the seedling sleeves hold enough soil that supports the plant and the seedlings have been hardened off.

Hardening means letting the seedling stay in an unshaded place at the nursery so they get used to harsher environments. This is usually done 2 weeks before seedlings are transplanted.



Seedling after transplanting



Grafted seedling with grafting tape



Stick supporting the seedling

Land Preparation and Crop Establishment for 1 ACRE

LAND PREPARATION		
STAGES	REQUIRED	AMOUNT PER ACRE
Plough/till your land to help expose the grasses and other weeds. Harrow soon after, ideally before the rains.	Tractor	
You can also use zero or minimum tillage. Here you only dig holes where you will plant. This way, you conserve water in the soil and when it rains the topsoil will not easily be washed away. zero tillage is where no tillage is applied between harvest and sowing.	Jembe/ auger	
Ensure your planting rows are facing in an east to west direction. Leave a space of 2 m from row to row and plant the fruits at a distance of 3 m from plant to plant.	Manure	12 tonnes 70 kg
Dig holes of 60 cm x 60 cm x 60 cm dee (2 ft x 2 ft x 2 ft deep) for each plant.	DAP/TSP/NPK (100g per hole)	50 kg
Separate the top soil (the first 30 cm) from the subsoil.		1 litre 1 Man Day
Mix (i) Well-rotted organic manure; (ii) Planting fertilizer with the topsoil, refill the hole above ground level at least a month before transplanting.		
Level the orchard and spray with non-selective herbicide just before transplanting (optional).	Labour (spraying)	

CROP ESTABLISHMENT

STAGES	REQUIRED	AMOUNT PER ACRE
A day before transplanting water the pits well if there is no rain. Transplant in the morning or late evening.		720 litres
Remove seedling tubes, taking care not to destroy plant roots and transplant. Firm the soil around the plant to ensure good contact between plant roots and the soil for ease in getting water and nutrients.		720 pcs
Water immediately to avoid the plants for being stressed. Apply the right, fungicides & pesticides to stop diseases, nematodes and insect pests.	Water Fungicide: Fosphite Pesticide: Glyphosate Nemacitide: Spirotetramat	720 litres 100 g 100 ml 100 ml
Peg the young crops to provide support for the young vines.	1 m plant pegs	720 pcs
Apply an anti-stress agent one week after transplanting.	Optimizer ¹ foliar feed	100 ml
The graft union should not come in contact with the soil (it should be 20 cm above soil surface).	Labour (planting, drenching)	2 man days

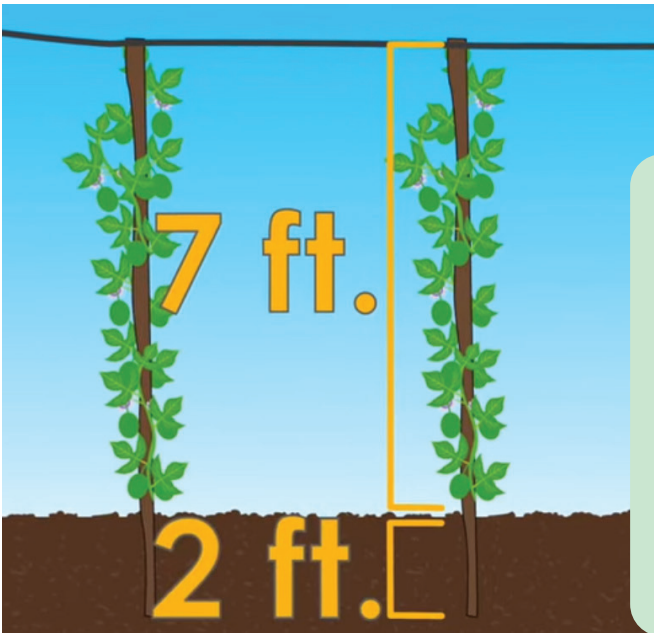


Vines on trellis

Trellising

The passion fruit vines need to grow up straight and have good support in order to grow well and give high yields.

You will need a strong and well secured trellis. A trellis is a structure made up of wooden or metal posts that supports fruit trees grow.



Remember: If the fruit gets too heavy, the wires may end up sagging and you will have to add more poles to keep up the wire.

How to set up trellises

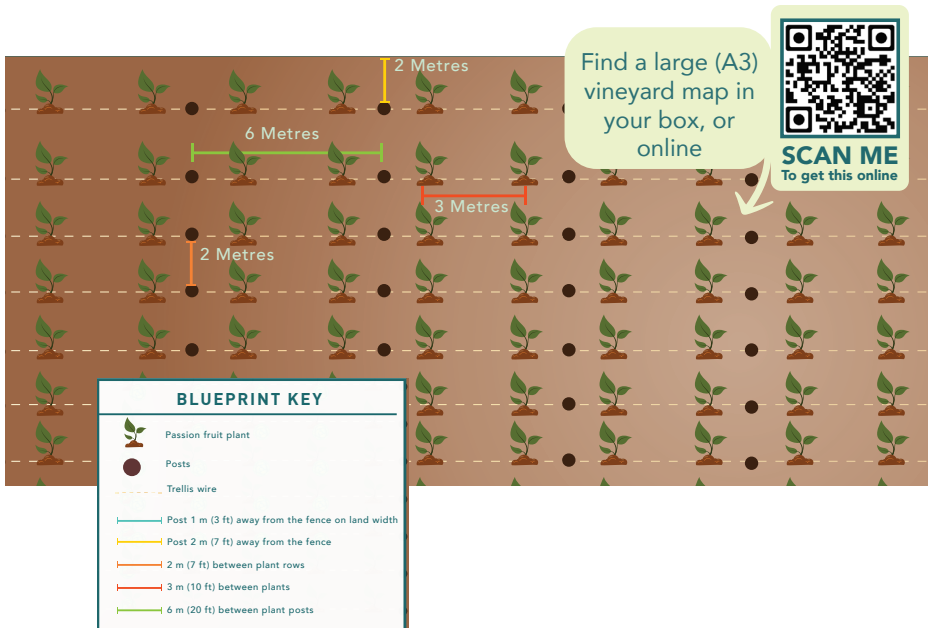
Here's what's needed for an 1 acre plot

No. of plants: 640 | No. of plant posts: 360 | Length of wire: 2000 m

The goal is to get the vine to the trellis wires in the simplest, quickest and least expensive way.

- Trellises are made of 2.6 m poles (9 ft) 60 cm (2 ft) into the ground and 2 m (7 ft) above ground. Anchor the posts to the ground using rope.
- Place the first row of posts 1m (3 ft) away from the fence. The other posts should be placed at 6m (20 ft) from post to post.
- Stretch trellis or barbed wire across the posts and nail them at the top of each post. Anchor the wire at both ends of the row to prevent sagging.
- When planting your seedlings provide support (stake or pole) for each plant so it can grow up and hold on to the trellis wire easily.

Make sure the young vines are standing up right and can easily grow on the trellis wire. This way they will not branch off to the sides.

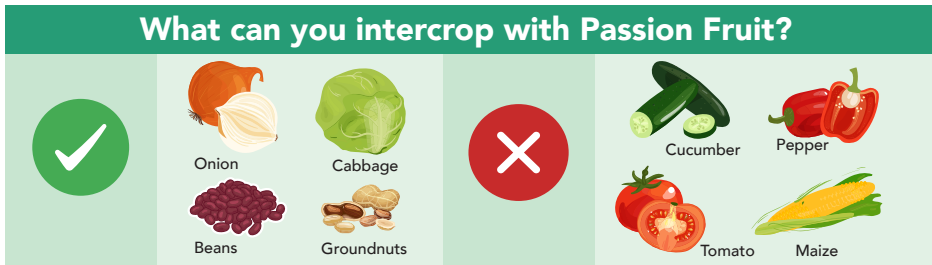


Crop Rotation

You shouldn't plant the same crop on the piece of land year after year. Instead rotate between different crop families each season. Passion fruit can be planted on the same land for five years.

Crop rotation stops pests and diseases building up in your soil and allows nutrients to build in the soil.

Select a part of land that hasn't grown passion fruit for the past 5 years. See below for crops that go well with passion fruit.



Intercropping

To make better use of the farm when the passion fruit is still young, you can intercrop with short-term crops such as cabbages or spinach.

Other crops that are good for intercropping include Irish potatoes, beetroots, Swiss chard/spinach, carrots, strawberries, eggplants, onions, leeks and head lettuce.

Avoid intercropping with:

- Known hosts of Cucumber mosaic virus, e.g., banana, capsicum, chilli, cucurbits (pumpkin, and squashes).
- Crops very prone to aphid and whitefly colonisation such as beans, brassicas, peppers, tomatoes. These two pests are very good vectors of viral.
- Beans can host pests like nematodes and attract aphids and whiteflies, while peppers and tomatoes can spread viral diseases, including passion fruit Woodiness Virus.

Intercropping also prevents soil erosion especially when you add good compost to your crops.

Frequently Asked Questions



▶ **Why should the spacing be 3 m by 2 m and not any less?**

Enough spacing allows the plant to grow well as it ensures good air flow within plants, makes pest and disease control easier. It also prevents overcrowding of the vines.

▶ **Do you need male and female passion fruit plants to get fruit?**

No. Passion fruit are self-fertile, so there is no need to have two vines.

▶ **What conditions do passion fruit need to grow?**

- Full sun, especially in cooler climates
- Protection from strong and cold winds
- Enough space to grow and good plant support (trellis)
- Fertile and well drained soils
- Minimal root disturbance

▶ **How much sun do passion fruits need?**

Passion fruit needs at least five hours of direct sunshine a day. They should be planted in a sunny spot with no trees or competitive roots.

▶ **Does passion fruit need a lot of water?**

These vines grow fast and produce juicy fruit, and therefore need lots of water. Water them consistently so the soil doesn't dry out. You may need to give extra water when the plants are fruiting and less during the rainy season. However, be careful not to overwater, as this can cause root fungal diseases.

Watch



Saturdays 1:30pm (English)

Sundays 1:30pm (Kiswahili)



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