



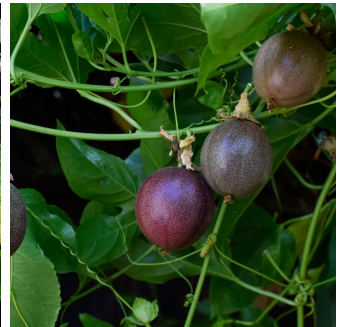
# Managing a Passion Fruit Orchard



# Crop Milestones and Management Practices

How to care for your passion depends on the its growth stage, what nutrients it needs and how it is growing. For every stage, it is important to:

- Have a nutrition routine that ensures healthy and strong root, vine, leaf, flower or fruit growth.
- Check your farm daily for pests & diseases and control once you see them.
- Plan to spray after a given time to prevent viral diseases or cure fungal and bacterial diseases.
- Make use of cultural practices such as removing weeds to control pests and diseases. Always keep the vineyard weed free and clean.



Stages of Passion Fruit growing

# Crop Journal for Passion Fruits



A crop journal helps you keep track of all the activities on your farm and how much money you spent on each activity if any.  
It also helps you keep track of all the money IN (Revenue).  
Fill in the detail about your farm on the table below:

DESCRIPTION	DETAILS	DATE
Land size		
Soil type (When was your soil last tested?)		
Soil PH		
Crop planted		
Variety		



**SCAN ME**  
To get this online



Please refer to the crop journal as you can use it to monitor the different stages

## Early Vegetative Stage (Month 1-3)

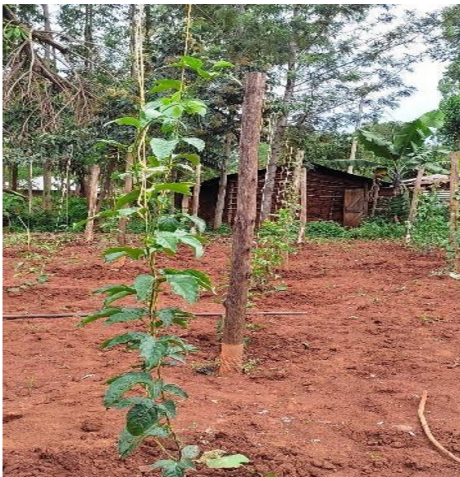
After transplanting, this is the stage when roots and main vines are growing fast.

### Plant Nutrition

- In the second month, top dress with a balanced NPK foliar fertilizer for robust root and vine development, and vegetative growth;
- Supplement calcium and magnesium micronutrients for overall plant health through foliar feed sprays every two weeks.

### Plant Protection

- Look out for pests and diseases and manage them. Have a routine spray plan to protect your trees.
- Spray against pests every 2 weeks.
- It is a good idea to change the type of pesticide used every after 2-3 sprays to avoid resistance by the pest or disease.
- Apply the right pesticide, to prevent caterpillars and aphids/ thrips every month.
- Apply a root drench to control nematodes and fungal root diseases in the second month after transplanting.



A vine tied to a pole needing removal of suckers and defoliation at the base de-suckering and removal of tendrils.



An averagely maintained vine trained to a twine needing defoliation of the lowest two leaves.



## Cultural Practices

**Training:** Use a strong stick to direct vines up to the trellis wires as shown: Allow a single shoot from the base of the plant to grow up to the trellis wire and from this point, two vigorous shoots (primaries) are allowed to grow along the trellis in opposite directions.

**Or**

Allow two vigorous primaries to grow up the twines from a level of 1 foot up the ground.

**Defoliation:** remove old leaves from the first three nodes so that all the food is directed to the young growing leaves.

**De-suckering:** remove suckers from the main stem to avoid lateral vines from growing and the vines being bushy.

**Weeding:** Uproot weeds by hand to prevent competition for nutrients.

**Irrigation:** Water your vines during the dry season.

## Crop Nutrition

- Top dress with fertilizer rich in nitrogen and calcium (CAN) on the fourth month to promote healthy leaf and strong vines.

**or**

- Apply manure in the fourth month after transplanting and supplement with high foliar fertilizer high in Nitrogen and Calcium foliar sprays every two weeks.
- Together with the above, spray a monthly balanced NPK (23:23:23) foliar fertilizer with trace elements like Magnesium, Zinc and Boron.
- This will encourage proper root, vine, leaf growth, and overall plant health.

When top dressing, wet the soil if dry and then apply CAN. Evenly spread fertilizer in a circle 1.5 ft away from the stem. Do not apply a Nitrogen fertilizer.



## Late Vegetative Stage (Month 4-5)

This is the time when leaves and secondary vines are still grow fast. The vine is now growing across the trellis wire and the lateral vines are hanging down.



### Cultural Practices

**Training:** Use a strong stick to direct vines up to the trellis wires as shown: Allow a single shoot from the base of the plant to grow up to the trellis wire and from this point, two vigorous shoots (primaries) are allowed to grow along the trellis in opposite directions.

**Or**

Allow two vigorous primaries to grow up the twines from a level of 1 foot up the ground.

**Defoliation:** remove old leaves from the first three nodes so that all the food is directed to the young growing leaves.

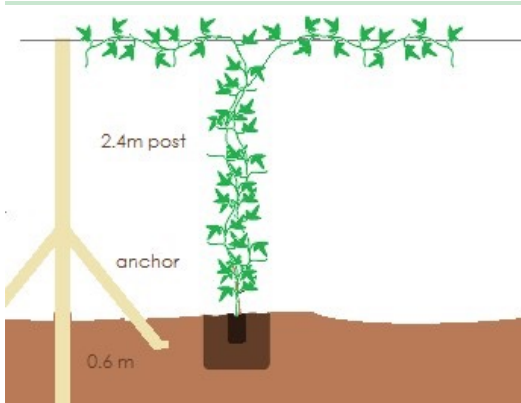
**De-suckering:** remove suckers from the main stem to avoid lateral vines from growing and the vines being bushy.

**Weeding:** Uproot weeds by hand to prevent competition for nutrients.

**Irrigation:** Water your vines during the dry season.

### Crop Nutrition

- Top dress with fertilizer rich in nitrogen and calcium (CAN) on the fourth month to promote healthy leaf and strong vines.
- **or**
- Apply manure in the fourth month after transplanting and supplement with high foliar fertilizer high in Nitrogen and Calcium foliar sprays every two weeks.
- Together with the above, spray a monthly balanced NPK (23:23:23) foliar fertilizer with trace elements like Magnesium, Zinc and Boron.
- This will encourage proper root, vine, leaf growth, and overall plant health.



- When top dressing, wet the soil if dry and then apply.
- CAN. Evenly spread fertilizer in a circle 1.5 ft away from the stem.
- Do not apply a Nitrogen fertilizer such as UREA on dry soil as it loses Nitrogen to the air as gas.

## Crop Protection

Check for pests and diseases and manage them to avoid losing your crop.

- Spray recommended pesticides to control pests. Change the type used every 2 weeks to avoid resistances of the chemicals by the pests.
- Apply a nematicide to help control nematodes at the root zone area every 3 months to help control nematodes.

## Cultural Practices

**Training:** Allow only two vines of each plant to grow along the trellis wire as leaders in opposite directions. Remove the tendrils that grow on the leaders but allow lateral buds to develop and hang down the leaders

**Early selective pruning:** Remove any lateral shoots that develop from the selected leaders as the leaders grow towards the top trellis wire.

**Defoliation:** Remove (old) leaves from the main stem and leaders to prevent nutrient wastage on the growing vines.

**De-suckering:** Remove suckers from the main stem to avoid additional lateral vines from developing

**Weeding:** Manually uproot weeds and shallow ploughing to prevent root competition for soil nutrients.

**Irrigation:** Ensure the vines get adequate water during the dry season; at least 10 litres per week.

## Flowering and Fruiting Stage (Month 6-7)

The flowering stage is the most sensitive stage in a passion fruit plant.

Any pest and disease attacks, lack of water and nutrients will lead to flower drop hence low yields.



### Crop Nutrition

- Topdress your passion with fertilizer like NPK 17:17:17 on the 6th month to promote flower growth. You can dissolve the fertilizer and apply as a liquid around the root area or apply as it is 30 cm away from the stem. If the soil is not wet, irrigate to avoid losing the fertilizer as gas to the air.
- Also, spray with a foliar fertilizer rich in Potassium and has other nutrients like Boron and Calcium every 2 weeks. This will promote flowering and stop any flowers from dropping.

### Crop Protection

The major pests and diseases in passion fruit production are:

- Aphid which spreads passion fruit woodiness virus.
- Animal pests like monkeys, birds, squirrels.
- Fungal diseases due to the many leaves on the vines.
- Nematodes.

Check for pests and diseases and control them. You can:

- Spray against pests every two weeks to prevent woodiness disease, flower damage and flower drop.
- Alternate application of different fungicides every two weeks.
- Completely shift to spraying the right pesticides that have a shorter post-harvest intervals (PHI) because you will soon start harvesting your passion fruits.
- Apply a nematicide at the root zone area every 3 months to help control nematodes.



## Cultural Practices

### Training

- Allow new laterals that arise from the leaders to hang down.
- Keep removing the tendrils on the laterals to prevent the tree being bushy.

### Pruning

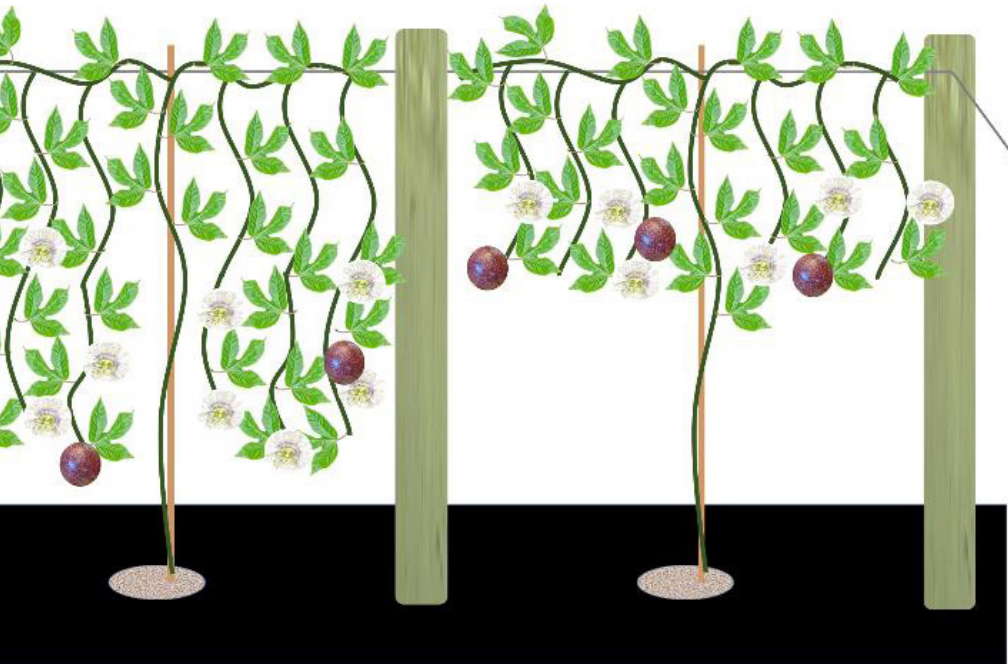
- Early selective pruning to remove the lateral shoots that grow from the selected leaders as they grow towards the trellis wire.
- Light pruning to keep lateral shoots 15 cm above the ground to prevent contact with soil and avoid fungal infections.

**Defoliation:** Remove diseased and dry leaves from the main shoot and leaders to prevent nutrient wastage on the growing vines.

**De-suckering:** Remove suckers to avoid lateral vines from growing from the main stem.

**Weeding:** Manually uproot weeds to stop competition for nutrients.

**Irrigation:** Ensure vines get enough water during the dry season, about 15 litres per plant per week.





## Harvesting Stage (Month 7+)

The vines start giving fruits at 6-8 months of planting and peak harvest will be at 13-15 months. There are two main periods of fruiting in Kenya:

1. August to December
2. March to May

Fruits take 80-85 days to reach maturity.

## Crop Nutrition

Passion fruit is a heavy feeder and therefore needs intensive crop nutrition produce fruits well:

- Top dress with basal fertiliser rich in potassium (NPK) on every other third month to promote healthy flower and fruit formation. Mix the fertilizer with water and drench onto the soil.
- Supplement with applications of a foliar fertiliser rich in potassium (K) with Boron and calcium trace elements every two weeks, for healthy flowering.
- Depending on the soil fertility, apply manure every other three or four months to boost nitrogen and foliar development

## Crop Protection

The major pests and diseases in passion fruit production are:

- The passion fruit aphid.
- Animal pests like monkeys, birds, squirrels.

- Fungal diseases because of the amount of foliage of the vines.
- Nematodes.
- Scout for and manage pests and diseases and do the following:  
***Alternate applications of pesticides against chewing and sucking pests every two weeks.***
- Alternate application of different molecules of foliar contact fungicides every two weeks.
- Complete shift to applications of contact pesticides is best at this stage because of the shorter post-harvest intervals (PHI) required during harvesting stage.
- Quarterly application of root drenches to control nematodes and fungal root diseases to continue.

## Cultural Practices

### ***Training***

- Allow new laterals that arise from the leaders to hang downwards.
- Keep removing the tendrils that come in the way to prevent entanglement and skyward growth of the laterals.

### ***Pruning***

- Light pruning to keep lateral shoots 15 cm above the ground to prevent contact with soil.
- Further selective pruning to remove some of the older and unproductive secondary shoots to make way for the development of younger ones. would be more productive.
- Severe pruning to rejuvenate old vines and renew the vineyard.

***Defoliation:*** Remove (old) leaves from the main shoot and leaders to prevent nutrient wastage on the growing vines.

***De-suckering:*** Remove suckers from the main stem to avoid additional lateral vines from developing.

***Weeding:*** Manually remove weeds through shallow ploughing to prevent root competition for soil nutrients and eliminate hosts for pests and diseases.

***Irrigation:*** Ensure the vines get adequate water during the dry season to the excesses of 15 litres per week.

# Passion Fruit Macro and Micro Nutrients

These are Nutrients needed in large amounts and those needed in small amounts by passion fruits.

## Major Nutrients

**Phosphorus (P)** at planting for roots to grow well

*Signs your crop is missing P:*

- Reduced root and vine growth
- Older leaves turn dark green and later yellow from the edges to the centre.

**Nitrogen (N)** for good growth of leaves

*Signs your crop is missing N:*

- Slow plant growth
- Reduced plant's size
- Thinner and fewer vines
- Yellowing (Chlorosis) and premature fall of leaves

**Potassium (K)** for flowering and fruiting.

*Signs your crop is missing K:*

- Reduced root and vine growth
- Older leaves turn dark green and later yellow from the edges to the centre.





# Micronutrients

<b>Cu</b> Copper	<b>Mg</b> Magnesium	<b>Zn</b> Zinc
<b>B</b> Boron	<b>Mn</b> Manganese	<b>Ca</b> Calcium
	<b>Fe</b> Iron	



All these nutrients can be supplied from a mix of manure, compost, and in organic fertiliser.

Doing a soil test helps you to know the type and amount of different nutrients needed.

**Calcium (Ca):** is needed in small amounts by the plant. It promotes the uptake of other plant nutrients and the overall growth of the plant. It also protects plants against heat stress and diseases.

*Low calcium uptake by your plant is caused by:*

- Long dry periods.
- Salinity builds up due to water logging.

*Signs Calcium is lacking:*

- Burns on young leaves and stems.
- Young fruit bottoms turn black, a condition known as blossom end rot.
- Deformed leaves due to the breakdown of leaf tissue structure.

**Magnesium (Mg):** is important for the formation of the green color; this helps the plant trap sunlight and make its own food.

*Low Magnesium is caused by:*

- Very low or very high soil pH.
- When the nutrient is taken deep in the soil and roots cannot take it up.
- Too much potassium (K) in the soil.

*Signs Magnesium is lacking:*

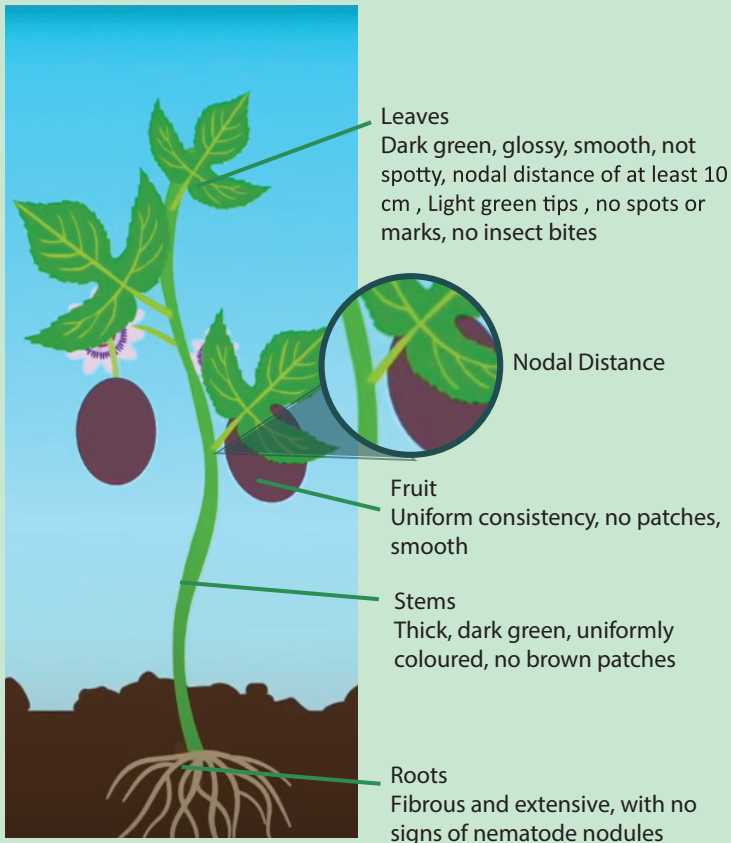
- Burns on young leaves and stems.
- Yellowing of old leaves.
- Yellowing of areas between the veins in young leaves.
- Leaves fold upwards.

# Characteristics of a healthy Passion Fruit Vine

<b>Roots</b>	Fibrous and long with no signs of nematode nodules
<b>Stems</b>	Thick dark green, same colour across stems, no brown patches
<b>Leaves</b>	Dark green, glossy, smooth, not spotty
<b>Nodal distance</b>	At least 10 cm
<b>Tips</b>	Light green, no spots/marks, no insect bites
<b>Fruit</b>	Uniform, no patches, smooth

## Healthy Passion Fruit Vine

Here is what a healthy passion fruit vine looks like:



# Frequently Asked Questions



## ► ***Why is a plant nutrition program so important in passion fruit production?***

Passion fruits require the right amount of nutrients for to give you the best yield possible. Both major and minor nutrients should be supplied to the crop in the required amounts for proper growth. You can apply both basal and foliar fertilizers

## ► ***Why are my leaves going yellow?***

The most common cause for early leaf yellowing is passion fruit woodiness virus. Other possible causes are:

- Lack of magnesium.
- Lack of Nitrogen.
- 'Winter yellows'. This is brought on by cold weather, windy conditions, low humidity or a combination of these.

## ► ***Why do my vines flower but never set fruit?***

There are several reasons for this, including:

- Poor pollination. This can be because:
- Bees are not working on the flowers (for example, during heavy rain).
- Temperatures being too low or too high for pollination. Pollen germination is best at a temperature of between 20-35 °C.
- Rain directly reduces the viability of the pollen as moisture causes the pollen grains to split.
- Rains make the pollen split/break and not germinate.
- Boron deficiency.
- Extended periods of dry weather, which can cause flower drop.

Watch



Saturdays 1:30pm (English)

Sundays 1:30pm (Kiswahili)



Produced by



For more information

Subscribe to iShamba

Send the word "JOIN" to 21606

Content approved by



Implemented by



Shamba Shape Up

[www.shambashapeup.com](http://www.shambashapeup.com)