

Description

It is a warm season crop that contains some of the most important antioxidants in nature called lycopenes. It is a source of Potassium, Vitamins A and C.

Varieties

The common varieties include;

- The commSukari F1
- Sugar baby
- Raha
- Black Chairman
- Crimson Sweet

Ecological Requirements

Watermelons require well drained slightly acidic(pH 6.0 - 6.8) sandy loam soils. They are heavy feeders that thrive in soils with high organic manure. They also need adequate rainfall especially in the early stages as well as enough sunlight for them to produce fruits.

Visual



Credit: pexels-pixabay-265216

Crop Cycle

Raising Seedlings

- Watermelon seeds should first be planted in a well set up nursery bed. Farmers can either raise the seedlings themselves or acquire them from certified nursery operators
- If raised, farmers need to water regularly and manage the insects and diseases through sprays where necessary.
- The seedlings should be exposed to direct sunlight prior to transplanting to enable their hardening.

Land Preparation

- The land should be cleared of all vegetation and debris through ploughing or use of herbicides.
- Manure should be into the well ploughed soil at a rate of 4 - 8 tonnes per acre and then mixed with the soil.
- Manure application should be done between 2 - 3 weeks before transplanting of the seedlings into the field to enable its complete breakdown.
- Ridges of 10-20 cm high and 30-35cm wide should be set up.

Vegetative Stage

- Topdressing fertilizers like CAN can be applied in splits i.e 40kgs in the first application and 80kg in the second application when the plants are about to flower.
- Weeds should be removed from the field and this shouldn't be done when the soils are wet to avoid spread of diseases like bacteria wilt.
- Since watermelons are shallow rooted, care must be taken while weeding to avoid bruising the roots.
- Adequate water should also be availed
- Pests and diseases can be managed by use of pesticides

Maturity/Fruiting Stage(If Applicable)

- Fruit enhancing fertilizers viz foliars like Easy gro fruit and flower or granular ones like Nitrabor can be used.
- Pests and diseases can be managed by use of pesticides.

- Mulching should be done since;
 - It conserves water in the soil
 - It suppresses weeds in the field
 - It prevents the watermelons from being in direct contact with the soil which could spread diseases to them.
- The fruits need to be turned regularly to ensure uniform colour development.
- Remove any dead, diseased, yellowing or infested leaves and shoots at the joint where they connect with the main stem.
- Remove deformed and blossom end fruits
- Maintain 2-3 vines and remove the rest
- Avoid pruning when the vines are wet.

Harvesting Stage

- Watermelon is ready for harvest after 80 - 120 days depending on the variety i.e Sugar baby takes 120 days, Sukari F1 takes 90 days, Crimson Sweet takes 90-120 days etc
- The fruits should be harvested in the early morning as hot fruits respire much more rapidly and lead to over ripe fruit at delivery.
- Mature melons can be identified from;
 - Tendrils near the fruit stem change color from green to brown
 - Ground spot on the belly of the melon changes from white to yellow
 - The fruits have a sweet flavor, crisp texture and deep color
 - The fruits produce a muffled dull tone if thumped which is different from the clear metallic ringing tone that they produce when immature.
- Harvesting should be done by cutting the vines and not pulling, twisting or breaking off the vines.
- The harvested fruit should be kept under shade and transported to the pack house within the shortest possible time to prevent fruit temperature from rising and minimize moisture loss

Post Harvest Stage

- Handling should minimize fruit injury which may be caused by abrasion or impact
- Shading is necessary to protect the melons from direct sunlight which could otherwise cause sunburns.
- The crops should be sorted to remove insect damaged, blossom-end rot, discolored.
- Grading should also be done according to size for each variety.

References

Daily Monitor, 2021. ABCs of growing watermelons.

SHEP PLUS, 2019. Watermelon Production.

NAADS, 2021. How to grow Watermelons. NAADS.

<https://naads.or.ug/wp-content/uploads/2021/02/how-to-grow-watermelons-zas-1.pdf>



Pests/Diseases

MELON FLY

- It has a yellow stripe in the middle of the thorax between the wings.
- It has a black T Shaped marking on the abdomen as well as additional dark patches towards the outer edge of the wings.



Credit: <http://t3.gstatic.com>

Signs and Symptoms

- It usually tunnels through the fruit causing a watery ooze to form on the surface that later turns brown and resinous. Exit holes by the larvae are usually visible on the surface of the fruit.
- The affected fruit rots and falls from the plant prematurely.

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Use pheromone traps like cue lure baited traps
- Wrap the fruits with eco bags
- Use synthetic pesticides like deltamethrin
- Use organic pesticides like nimbecidine

References

Infonet Biovision, 2018. Wheat. Infonet Biovision.
SHEP PLUS, 2019. Watermelon Production

APHIDS

- Colonies of green to blackish aphids are found on tender shoots.
- They suck sap from the plants and weaken them.

Signs and symptoms

- The leaves curl, shrivel and may turn brown and die.
- Sooty mold which is due to the secretion of honeydew.



Credit: www.gardeningknowhow.com

Management/Recommended practices

- Early planting
- Use of neem based pesticides like Nimbecidine

References

Infonet Biovision, 2018. Wheat. Infonet Biovision.
<https://infonet-biovision.org/PlantHealth/Crops/Wheat>

SPIDER MITES

- They are tiny spider like pests which spin silk threads for anchoring to the plant.
- Their bodies are yellow green to reddish brown in color and they flourish more during dry conditions.

Signs and symptoms

- Attacked leaves show white to yellow speckling
- The plant is covered with an orange cloud of mites and webs.
- Yellowing between veins on the top of crown leaves
- The underside of the leaves appears tan



<https://site.extension.uga.edu/cook/files/2019/06/O10.jpg>

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Adequate irrigation
- Use synthetic pesticides like deltamethrin
- Use organic pesticides like nimbecidine
- Use synthetic miticides like abamectin i.e Dudu acelamectin

References

Bell, N., Waters, T., 2021. Vegetable Crops.

SHEP PLUS, 2019. Watermelon Production.

Growers Trust, 2013. Spider Mites on Watermelons.

<https://www.growerstrust.com/blogs/news/7842709-spider-mites-on-watermelon>



EPILACHNA BEETLES

- Adults resemble lady bird beetles
- The adults and larvae feed on leaves leaving a fine net of veins
- It is the vector of squash mosaic virus

Signs and symptoms

- Brown lesions on the glumes and around the nodes.
- Young plants can be entirely destroyed



Credit: <https://infonet-biovision.org>

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Spray with synthetic insecticides like Striker
- Use organic neem based pesticides like nimbecidine

References

SHEP PLUS, 2019. Watermelon Production.

Infonet Biovision, 2019. Watermelon. Infonet Biovision
<https://infonet-biovision.org/PlantHealth/Crops/Watermelon>

ROOT KNOT NEMATODES

- It is a very common pest for all cucurbits, a family in which the watermelons belong.

Signs and symptoms

- Wilting of plants. The infested roots rot and the plant dies.
- If the infested plants are uprooted from the soil, they are seen to be distorted, swollen and bearing knots



Credit: <https://infonet-biovision.org>

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Crop Rotation
- Grow resistant varieties
- Use adequate amounts of manure to keep the soil conditions in a good state
- Spray with azadirachtin containing pesticides like nimbecidine.

References

SHEP PLUS, 2019. Watermelon Production.
Green Life, 2023. Watermelon Farming.
<https://www.greenlife.co.ke/watermelon-farming/>

POWDERY MILDEW

- It is a fungal disease which is favored by dry conditions.
- Foliage is most susceptible 16-23 days after unfolding.
- The infection increases as humidity increases but does not occur when the leaf surface is wet.



Credit: Dr. Lina Quesada, NC State Vegetable Pathology Lab

Signs and symptoms

- Symptoms first develop as a whitish talcum-like powdery growth composed of fungal spore mass on the upper leaf surface. The areas covered by the white powdery growth may enlarge and join up to cover both the upper and lower surfaces
- Severely affected leaves dry, turn brown and become brittle
- Secondary effects include sun burning and premature ripening of the fruit

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Crop Rotation
- Grow resistant varieties
- Use adequate amounts of manure to keep the soil conditions in a good state
- Spray with azadirachtin containing pesticides like nimbecidine.

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SHEP PLUS, 2019. Watermelon Production.

Green Life, 2023. Watermelon Farming.

<https://www.greenlife.co.ke/watermelon-farming/>



ANTHRACNOSE

- It is caused by fungus and affects the leaves, vines and the fruits.
- The fungus can attack all the above ground plant parts.
- The fungus is seed-borne. It can survive in crop debris and in weeds belonging to the cucurbit family.
- The fungal development is promoted by wet conditions, high relative humidity and moderate temperature.



Anthracnose leaf spots and stem lesions.

Credit: <https://extension.okstate.edu/fact-sheets/watermelon-diseases.html>

Signs and symptoms

- Round to angular reddish brown spots on older leaves.
- The spots on fruits are circular, black and sunken
- The spots on the leaves start as small yellowish areas that enlarge and turn brown.
- The affected tissue dries, breaks and the whole plant dies.

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Spray with curative fungicides like Topilite, Eureka etc
- Use resistant varieties
- Practice crop rotation

References

SHEP PLUS, 2019. Watermelon Production.

Green Life, 2023. Watermelon Farming.

<https://www.greenlife.co.ke/watermelon-farming/>



FUSARIUM WILT

- It is a fungal disease that can attack the crop at any growth stage. It can be spread by soil, seed and drainage water
- In seedlings, the cotyledons lose their healthy look and wilt. This is followed by the complete collapse of the plants



Credit: <https://lgpress.clemson.edu>

Signs and symptoms

- In seedlings, the cotyledons lose their healthy look and wilt. This is followed by the complete collapse of the plants.
- Older plants initially exhibit wilting and yellowing of leaves near the crown
- Fruits from affected vines are small with poor flavour and colour

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Spray with curative fungicides like Topilite, Eureka etc
- Use resistant varieties
- Practice crop rotation

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SHEP PLUS, 2019. Watermelon Production.

Green Life, 2023. Watermelon Farming.

<https://www.greenlife.co.ke/watermelon-farming/>



WATERMELON MOSAIC VIRUS

- It is transmitted by aphids and only affects cucurbit crops. The aphids acquire the virus from an infected plant and transmit to a healthy plant with their probing.



Credit: <https://www.pestnet.org>

Signs and symptoms

- Mottling of leaves
- Stunted growth
- Shortened internodes with bushy erect growth for some runner

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Control of aphids
- Ensuring field sanitation through removal of weeds
- Neem based pesticides like nimbecidine can be used

References

Green Life, 2023. Watermelon Farming.
<https://www.greenlife.co.ke/watermelon-farming/>

Deficiencies

NITROGEN DEFICIENCY

- It is caused by a lack of enough nitrogen in the soil.

Signs and symptoms

- Cessation of growth
- Inhibition of lateral roots
- Chlorosis and necrosis in older leaves

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Apply Nitrogen containing fertilisers like CAN, Easy gro vegetative

References

Green Life, 2023. Watermelon Farming
<https://www.greenlife.co.ke/watermelon-farming/>

Correia Costa, L., Vergara Carmona, V.M., Bernardes Cecílio Filho, A., Seno Nascimento, Camila, Seno Nascimento, Carolina, 2017. Sintomas de deficiências de macronutriente em melanciaira. Com. Sci. 8, 80

POTASSIUM DEFICIENCY

- It is caused by a lack of enough potassium in the soil.

Signs and symptoms

- Marginal chlorosis in older leaves progressing to the entire limb and evolving to necrosis

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Marginal chlorosis in older leaves progressing to the entire limb and evolving to necrosis

References

Green Life, 2023. Watermelon Farming
<https://www.greenlife.co.ke/watermelon-farming/>

Correia Costa, L., Vergara Carmona, V.M., Bernardes Cecílio Filho, A., Seno Nascimento, Camila, Seno Nascimento, Carolina, 2017. Sintomas de deficiências de macronutriente em melancia. Com. Sci. 8, 80

PHOSPHORUS DEFICIENCY

- It is caused by a lack of enough phosphorus in the soil.

Signs and symptoms

- Chlorosis and wrinkles in older leaves which later progresses to necrosis

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Apply Phosphorus containing fertilisers like DAP, SSP

References

Green Life, 2023. Watermelon Farming
<https://www.greenlife.co.ke/watermelon-farming/>

Correia Costa, L., Vergara Carmona, V.M., Bernardes Cecílio Filho, A., Seno Nascimento, Camila, Seno Nascimento, Carolina, 2017. Sintomas de deficiências de macronutriente em melancia. Com. Sci. 8, 80

CALCIUM DEFICIENCY

- It is caused by a lack of enough calcium in the soil for crops.

Signs and symptoms

- Young fruits drop and brown rotting lesions at the blossom end of the older fruit.
- Hollow fruit centers

Visuals

How the infested crop looks like



How the healthy crop should look like



Management/Recommended practices

- Apply calcium containing fertilisers like Nitrabor, Easy gro fruit and flower

References

Lauren, M.A., 2014. 5 Tips For Better Nutrient Management In Cucurbits. Growing Produce. <https://www.growingproduce.com/vegetables/5-tips-for-better-nutrient-management-in-cucurbits/>

Planting

Item	Size/ Quantity Sold	Quantity per Acre	Frequency
Sugar baby	50g	10	1
Indofil	250g	4	1
Total			

Transplanting

Item	Size/ Quantity Sold	Quantity per Acre	Frequency
Osho Easy gro Starter	1kg	1	1
Indofil	50kg	4	1
Total			

Vegetative

Item	Size/ Quantity Sold	Quantity per Acre	Frequency
Osho Easy gro Vegetative	250g	4	1
Toplite	100g	10	1
Dudu Cyper	1Ltr	2	
Butanil 70	1Ltr	2	

Flowering

Item	Size/ Quantity Sold	Quantity per Acre	Frequency
Osho Easy gro Fruit & Flower	250g	4	2
Toplite	100g	10	1
Striker	1Ltr	2	1
Butanil 70	1Ltr	2	1

Flowering

Item	Size/ Quantity Sold	Quantity per Acre	Frequency
Osho Easy gro Fruit & Flower	250g	4	2
Toplite	100g	10	2
Striker	1Ltr	2	2
Butanil 70	1Ltr	2	2

