

Watermelon Farming

Ecological requirements

Altitude

- Watermelon grows at altitudes of up to 1500 m.
- It does well lowland areas such as coastal regions, lowland of eastern region and parts of the lake basin.

Temperatures

- They grow best under hot temperatures.
- They do well at temperatures of between 22 and 28° C.
- Stagnation of growth occurs at temperatures less than 150 C.

Rainfall

- Suited in low to medium rainfall areas with additional irrigation.
- Optimum rainfall is 600 mm and 400 mm is considered minimum.
- Excessive humidity favours leaf diseases and also affect flowering.

Sites and soils

- Grow best on well drained and slightly acidic sandy loam soils.
- Slow development is exhibited in heavy clay soil, and fruit size and quality are usually inferior.
- Watermelon is fairly tolerant to soil pH as low as 5.5.
- However, a slightly acidic soil with pH of 6.0 to 6.5 is ideal.

Propagation

Watermelon is propagated by seeds, directly planted in the field or raised in the nursery before transplanting.

Planting

- The seed rate is about 3 kg/ha and seeds germinate best when the soil is very warm (25 - 32° C) and the air is almost hot (28 to 33° C), as it is the case at the end of the dry season.
- Do a soil test to know which fertilizer to use when planting or during top dress.

Sowing seeds

- If direct seeding, seeds should be sown after the last frosts and when the soil has warmed to at least 18.4°C .
- Allow 90–120 cm (3–4 ft) between seeds in a row and 150–180 cm (~5–6 ft) between rows.
- Plant 2 seeds per hill, placing them 3 to 4 cm (1.5 inches) deep into the soil. Water the hills thoroughly if there is no rain.
- In nursery propagation transplant when the seedlings develops 1st set of true leaves.
- Hardening should commence in 7-10 prior to planting.
- Seeds should germinate in 3–10 days depending on the soil temperature.

Irrigation

- After planting, water regularly with plant or manure tea to provide additional nutrients.
- Watermelons need sufficient moisture:
- After planting to allow fast and even emergence.
- At early bloom to prevent poor fruit set and misshapen fruit.
- During fruit development to ensure good melon size.
- Do not apply too much water, avoid waterlogging, and minimise wetting of the bed tops. Heavy irrigation or rainfall may also result in fruit splitting.

Weeding

- Weeding should be done regularly to keep the field clean. Avoid injuring the plants when weeding.
- Fruit pruning
- Remove misshapen and blossom-end rot affected fruits to promote additional fruit set and better size of the remaining melons.
- If a market demands larger melons, remove all but two or three well shaped melons from each plant. To avoid disease spread, do not prune melons when vines are wet.

Rotation

- Watermelons can be rotated with cereals, legumes or cabbages

Harvesting

- Harvesting usually begins 3-4 months after planting. Maturity is sometimes difficult to determine.
- Stem should be cut rather than pulled from the vine to avoid damage to the stem end.
- Do not stack fruit on their ends, as this is where the rind is thinnest.
- Maturity indicators include:
 - A dull hollow sound when the fruit is tapped with the knuckles.
 - The change from white to cream or pale yellow of the skin area where the melon has been resting on the soil.
 - Shrivelling of tendrils on nodes to which melons are attached.
 - Slight ribbing on surface of fruit can indicate maturity in some varieties.

Irrigation

- After planting, water regularly with plant or manure tea to provide additional nutrients.
- Well-filtered teas can also be used in a drip irrigation system.
- There are three critical periods where watermelons need sufficient moisture:
 - After planting to allow fast and even emergence.
 - At early bloom to prevent poor fruit set and misshapen fruit.
 - During fruit development to ensure good melon size.
- Do not apply too much water, avoid waterlogging, and minimise wetting of the bed tops. Heavy irrigation or rainfall may also result in fruit splitting.

Pest and Disease Management

Pest	Features	Effects on plants	Control Measure
Aphids	Small soft bodied insects on underside of leaves, usually	If aphid infestation is heavy it may cause leaves to yellow; aphids secrete a	Spray with ASATAF or Bio power which is biological insecticides.

	green or yellow in color	sticky, sugary which encourages the growth of sooty mold on the plants.	
Fruit flies	they are about 4-7mm long, they pierce the fruits and lay eggs in fruits	Feed inside the fruit causing sunken, discoloured patches, distortions and open cracks which serve as entry points for fungi and bacteria, causing fruit rot.	Spray with ASATAF or Nimbecidine which is biological insecticides.
White flies	Tiny insects white in colour	They suck plant sap and excrete honeydew where moulds grow, which may affect plant growth and vigour	Spray with ASATAF or Nimbecidine which is biological insecticides.
Root Nematodes	are invisible	The infested roots eventually rot and affected plants die	use Bio Nematon

Diseases	Symptoms	Prevention	Curative
Fusarium Wilt	In seedlings, the cotyledons lose their healthy look (luster) and wilt. Older plants initially exhibit wilting and yellowing of leaves near the crown leading to eventual death	Drench seedling with PERAL 500SC	Control 70DF or PEARL 500SC

Rust Anthrocnose	The fungus can attack all the above-ground plant parts. Cotyledons (seed leaves) of affected seedlings droop and wilt.	use OSHOTHANE or SULCOP	Control 70DF or PEARL 500SC
Powdery Mildew	These areas covered by white powdery growth may enlarge and join up to cover both lower and upper leaf surfaces	Use COSAVET or FLOSUL	use COTAF or PEARL or BIO-DEWCON
Downy Mildew	large, angular or blocky, yellow areas visible on the upper surface	OTHOTHANE	MISTRESS
Damping off	Diseased seedlings exhibit rotting and death of infected roots. A white cottony growth appears on affected tissues.	OTHOTHANE MANCO FLO	MASTER
Watermelon Mosaic virus		MIDA or UMEME	

Other prevention mechanism to keep off diseases include:

- Plant only certified seeds
- Do not plant watermelon where plants of cucurbit family (Cucumber, pumpkins butter nuts and squash) had been planted before.
- Always rotate watermelon with cereals or legumes after every harvest
- Do not cut or cause injuries to plants while weeding. Do light weed and avoid injuries.

- When fruit start to form apply dry mulch and routinely change when they start to decompose.
- Scout your farm to spot you insects or diseases.

For further inquiry emergency of further information call 0711082606 or send an SMS to 21606. Always consult with iShamba experts whenever you have any difficulties.

