into a thick vegetative cover over the soil surface, attained in 6 to 8 weeks after sowing. The movement in the crop should then be reduced to prevent plant damage.

**Pest and disease control**

The most common pest of bitter watermelon is aphids. The crop is affected by various diseases and the most common among others, are fusarium wilt, mosaic viruses, bacterial rind necrosis and root knot nematode. A proper crop rotation, use of correct volumes of fungicide and resistant cultivar can assist in the control of these pests. It is also reported that by watering at the base of the plants instead of using overhead sprinklers, diseases can be prevented.

**Harvesting**

Bitter watermelon reaches maturity within 75 to 95 days after planting. Hand picking is mostly preferred to avoid breakage and damage to the melons.

**Uses**

The tender leaves and fruit are cooked as a green vegetable. Fruit flesh may be cooked as porridge with maize meal. The fruit are traditionally used for making jam. Roasted seeds are edible. It is also used as animal feed.

**References**


Further information can be obtained from:

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Scientific name: *Citrullus lanatus* (Thunberg)
Family: Cucurbitaceae
Common names: Tsamma melon, wild watermelon, bitterboela, bittenwautleemoen, karkoer, tsamma, makataan, ibotola
Climate and soil requirements

Temperature
Generally, a long period of warm, preferably dry weather, with abundant sunshine is required. It is frost sensitive and requires temperatures of 27 °C.

Rainfall
In the Kalahari region, tsamma melons require 400 to 650 mm of rain a year. A seed type of drier climates requires less water than West African seed types, which require an average annual rainfall of at least 700 to 1 000 mm. It does not tolerate waterlogging.

Soil
Bitter watermelon prefers loose, sandy and well-fertilised soil. The crop does best on a rich, sandy loam, although it will grow in most soil types provided that the soil is well drained. It also grows best at a soil pH of 5,6 to 7,0, but will also tolerate a pH as low as 5,0.

Cultivation practices

Propagation
Bitter watermelon is propagated through seed.

Soil preparation
Minimal soil preparation is needed one month before planting; the field should be deeply ploughed and allowed to settle. The field should be relatively free of stones. Levelling may be needed for furrow irrigation. Raised beds (10 to 50 cm high) improve drainage, modify temperature and increase the depth of the rooting zone.

Planting
Bitter watermelons are usually planted in hills of 2 plants, spaced 50 cm between plants and 2 to 3 m between rows when only melons are planted to give the plants plenty of room to grow, good air circulation and space for pollinators to work.

Fertilisation
Bitter watermelon responds well to fertilisers, especially to organic matter. The volume required depends on the nutrient status of the soil. In general, application at a rate of 20 to 30 t/ha organic manure, 50 to 60 kg N, 10 to15 kg P and 20 to 30 kg K per ha is suitable for good performance. Using a hoe, open a furrow and apply the fertiliser mixture in the bottom of the furrow at a rate of 40 g/m. A normal-sized teacup takes about 200 gram chemical fertilisers and would cover 5 m. For really good growth, add LAN at a rate of 20 g/m when the plants have about 5 to 6 leaves. When applying LAN to the growing crop, open a furrow with a hoe about 10 to 15 cm away from the row of plants, mix the fertiliser with the soil using a stick, water the furrow and then close.

When using poultry or pig manure, apply one 10-l bucket in a band of about 20 cm wide over a length of 15 m, work the manure into the top soil, water the band thoroughly and wait one to two weeks before transplanting. When you use Kraal manure, use the same procedure, but apply one 10-l bucket over a length of 5 m.

Irrigation
Bitter watermelon needs consistent moisture. Irrigating deeply is needed to keep the soil moist, rather than applying frequent, shorter sprinklings. Once the flowers emerge, irrigate the plants thoroughly every three days. The best time to irrigate is mid-day, after the flowers and fruit have had time to set and the bees have visited.

Weed control
Weed control is essential for good yield and it makes harvesting easier. Hand weeding, hoeing and other mechanical means are used to control weeds. Two or three weedings are needed before the stems grow...