

Disease Control

Tomatoes are susceptible to several fungal, viral and bacterial diseases. Many of the viral diseases, such as the tomato yellow leaf curl, are transmitted by insects such as whiteflies and the best way to control the disease is through control of the host pest. Hot water treatment is recommended for the control of some seed-borne viral diseases.

The table below contains recommendations for the chemical control of some common fungal and bacterial diseases.

Disease	Product	Application Rate	Pre-Harvest Interval
Late Blight (fungal)	Ridomil	15 grams in 4.5 L of water	14 days
Fusarium Wilt (fungal)	Banrot	12 grams in 4.5 L of water	4 - 7 days
Southern Blight, Damping-Off (fungal)	Rizolex	36 grams in 4.5 L of water	7 days
Anthracoze (fungal)	Bellis	6 - 10 grams in 4.5 L of water	7 days
Bacterial Wilt, Bacterial Soft Rot	Coback	15 - 30 in 4.5 L of water	7 - 10 days
	Kocide 101	36 - 72 grams in 4.5 L of water	7 - 10 days
	Nexenade	15 - 30 ml in 4.5 L of water	

1 gallon is equivalent to 4.5 L

Nutritional diseases such as blossom-end rot are prevented through the application of limestone during land preparation, or by frequent spraying with calcium-rich liquid fertilizers such as Omex Calmax.

Staking & Trellising

Tomato plants grow profusely and the soft stems can be broken easily when the trees come into bearing. To avoid this, wooden stakes should be firmly placed alongside the plants, and as the plants grow, the main stems and branches should be loosely tied to the stakes to prevent them from breaking off.

Harvesting & Post-Harvest Care

Depending on market demands, harvesting is done any time after the fruits are fully matured and ripe. If the market is far away and the consumption is delayed (as in mining areas) the tomatoes should be harvested when mature-green. If they are to be consumed as table-grade salads, they should be harvested when fully ripe but firm. Harvesting is done by gently removing the fruit from its stalk, avoiding breakage of the plant's stems.

A light washing of the fruits prior to packaging would be useful in removing dirt, abrasive debris and pests. Care should be taken to avoid packing too many of the fruits in one container (not more than 20 pounds), to avoid crushing of those at the bottom. Also, avoid packing fruits of different stages of ripeness in the same container. Discard any fruit with worm holes, bites, soft areas or which are affected by anthracnose.

Depending on the market, pre-weighing, waxing and packaging may be required.



Estimated Yields

Fruits of the Heatmaster variety are on average seven (7) ounces in weight, while the fruits of the Mongol variety are slightly smaller. Yields per plant can reach 5 - 7 pounds, depending on crop care. Hence, good yields can produce between 75,000 and 110,000 pounds per acre.



Promotion of Regional Opportunities for Produce through Enterprises and Linkages (PROPEL)

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Growing Tomatoes in Guyana



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Introduction

Tomato is one of the most widely grown garden and cash crops in Guyana, and elsewhere. As a very nutritious and tasty fruit, it is used fresh in salads, processed into juices and condiments, and cooked in stews. It is a short-term cash crop, which is ready for harvest 70 - 80 days after transplanting. The main varieties grown commercially are Heatmaster and Mongol, while other varieties such as Alafua Winner, TA, TB and TC are popular among home gardeners.

Cultivation Requirements

Tomatoes can be grown throughout the country, but do well in areas where the soils are loose, deep, free-draining, rich in nutrients and with a pH range of slightly acidic to slightly alkaline (5.5 - 7.5). Sandy and loamy soils should be enriched with organic matter - manures or compost. They can be cultivated throughout the year but grow better during the dry seasons.

The crop grows well in open plots, but can also be grown in protected, enclosed farming structures. They respond well to sunlight as they harden and become properly established.

However, they are very sensitive to water availability and can easily wilt when the soil is dry or can become asphyxiated when the roots are water-logged. Frequent, light irrigation is required to avoid any form of water stress.



Land Preparation and Crop Establishment

The land should be forked (or harrowed), chipped and thoroughly loosened with a rake, ensuring that all weeds, stones and other obstacles are removed. Based on the results of a soil test, limestone should be added and incorporated into the soil at least six weeks before the first crop is planted. The use of limestone is very critical as tomatoes require calcium in large quantities for good fruit formation and retention, and prevention of blossom-end rot, a common problem in this crop.

The preferred field layout for tomatoes is the ridge-and-furrow type. Beds should be formed at least 8-10 inches high and a furrow (drain) made between the beds about 20 inches wide. The recommended plant spacing is 24 inches between the rows and 18 inches along the rows, resulting in approximately 15,000 plants per acre. The depth of loose soil should be a minimum of 8 - 10 inches which will permit free drainage of excess water.

The crop is best established from transplanted seedlings which have 4 - 5 true leaves and which were sufficiently hardened in the nursery. The best time for transplanting is during the late afternoon or early evening period, as this will allow the young plants to acclimatize before the harsh sunlight of the following day.

If there is evidence of fungal infections during the previous crop, a soil fungicide such as Rizolex should be applied prior to transplanting. The seedlings should be planted to a depth of 1.5 - 2.0 inches along the centre of the ridges, and spaced 18 - 20 inches apart, ensuring that the roots are properly covered. Temporary shading may be required to allow seedlings to further harden in the field. This spacing will give a planting density of 15,700 plants per acre.

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Fertilizing

Tomatoes are heavy-feeding plants and require good nutrition in their short growing cycle. The application of fertilizers should be based on the recommendations coming out of the soil test, but if this is not available the following rates can be used:

Fertilizer	At Transplanting	At Flowering	During Fruit Set
Triple Super-phosphate (TSP)	75 lbs. per acre (1 lb. / 580 square feet)	Nil	Nil
Urea	50 lbs. per acre (1 lb. / 870 square feet)	68 lbs. per acre (1 lb. / 640 square feet)	50 lbs. per acre (1 lb. / 870 square feet)
Muriate of Potash (MOP)	56 lbs. per acre (1 lb. / 780 square feet)	56 lbs. per acre (1 lb. / 780 square feet)	Nil

The fertilizers applied at the time of transplanting, and again at flowering, should be mixed and lightly incorporated into the soil.

Periodically (every two weeks), the plants can be sprayed with a light solution of a foliar fertilizer such as *Miracle-Gro All Purpose*, *OmexCalmax* or *Fersan Nourish 20:20:20*

Weed Control

Weeds are best controlled at the pre-emergent stage, prior to transplanting of the seedlings, or if they emerge as the crop grows, they should be rouged out. If herbicides

are to be used, the following is recommended:

- Apply Lasso as a pre-plant treatment to the surface of dampened ridges, at the rate of 40 ml in 4.5 litres of water
- Apply Paraquat (*Gramoxone*) at the rate of 28 ml in 4.5 litres of water, on growing weeds, using a shield to prevent spray making contact with tomato plants
- Apply Carzone (*Metribuzin*) as an over-crop spray at the rate of 10 ml in 4.5 litres of water.

Insect Pest Control

Tomatoes are affected by several insect pests, the most common of which include mites, aphids, whiteflies, thrips and leafminers. The table below indicates the products that can be used for the control of these pests, their mixing rates and the pre-harvest intervals that are to be observed.

Pest	Insecticide	Application Rate	Pre-Harvest Interval
Mites	Abamectin / Vertimec	9 ml in 4.5 L of water	7 - 10 days
	Pegasus or Pirate	2.5 - 5.0 ml in 4.5 L of water	7 - 10 days
Aphids, Thrips & Whiteflies	Admiral	5 - 10 ml in 4.5 L of water	14 days
	Caprid	2.5 - 5.0 ml in 4.5 L of water	7 - 10 days
	Fastac	1.0 ml in 10 L of water	4 - 5 days
Leafminer	Leaf Guard (IGR 75%)	1.75 grams in 4.5 L of water	7 - 10 days
	Padan 50 WSP	15 grams in 4.5 L of water	10 days
	Trigard 75% WP	2.5 grams in 4.5 L of water	7 - 10 days

1 gallon is equivalent to 4.5 L

Insecticides for control of the same pest should be rotated to avoid resistance build-up.