



OUTSTANDING QUALITIES

- ◆ UNIFORM FRUIT OF GOOD QUALITY
- ◆ EXCELLENT YIELD POTENTIAL
- ◆ INTERMEDIATE RESISTANCE TO BACTERIAL WILT


Emerald is a hybrid suitable for long distance transportation because of its excellent firmness. **Emerald** has a good plant cover that protects the fruit exposed to the sun. The plants have intermediate resistance to Bacterial wilt disease and bear an excellent yield.

SPECIAL VARIETAL REQUIREMENTS

- **Emerald** can be planted to reduce risk in areas with Bacterial wilt infection

CHARACTERISTIC*	EMERALD
KIND	F1 hybrid tomato (<i>Lycopersicon esculentum</i> L.)
TYPE	Determinate saladette
FIRMNESS	Excellent
MATURITY	Early (60 – 65 days after transplanting for first harvest)
SEASON	Year-round culture in frost-free areas. Rainy and post rainy.
FRUIT WEIGHT	80 – 100 g
FRUIT SHAPE	Blocky
ATTACHMENT POINT	Small, neat
FRUIT COLOUR	Bright red
UNIFORMITY	Very good
LEAF COVER	Very good
DISEASE REACTION (SCIENTIFIC)	High resistance: <i>Verticillium dahliae</i> race 1 (Vd: 1), <i>Fusarium oxysporum</i> f. sp. <i>lycopersici</i> races 1 and 2 (Fol: 1 - 2) Intermediate resistance: <i>Ralstonia solanacearum</i> (Rs), Tomato yellow leaf curl virus (TYLCV)
MARKETS / END USE	Processing and fresh market
POPULATION GUIDE	20 000 - 25 000 final stand per ha
SPECIAL FEATURES	Good disease package, excellent fruit quality. Tolerates high temperature and has intermediate resistance to Bacterial wilt

* Characteristics given are affected by production methods such as soil type, nutrition, planting population, planting date and climatic conditions. Please read disclaimer.

 WARNING: VARIETY PROTECTED UNDER PLANT BREEDERS RIGHTS. UNAUTHORIZED MULTIPLICATION AND/OR MARKETING OF SEED PROHIBITED.

Disclaimer: This information is based on our observations and/or information from other sources. As crop performance depends on the interaction between the genetic potential of the seed, its physiological characteristics, and the environment, including management, we give no warranty express or implied, for the performance of crops relative to the information given nor do we accept any liability for any loss, direct or consequential, that may arise from whatsoever cause. Please read the Sakata Seed Southern Africa (Pty) Ltd Conditions of Sale before ordering seed. **Resistance:** is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure (HR = High resistance, IR = Intermediate resistance).

* **Experimental:** This variety does not appear on the current South African Variety list, but has been submitted for registration.

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GENERAL TIPS FOR TOMATO PRODUCTION

Climatic requirements

Tomatoes can grow at a wide range of temperatures but for optimum growth tomatoes prefer temperatures between 10°C (minimum) and 30°C (maximum). Tomatoes do not tolerate frost or waterlogged conditions and these should be avoided at all cost. The most sensitive stages for water and temperature stress are directly after transplanting, during the flowering stage and during the fruit development stages. Water stress during these stages of tomato development will reduce yield and quality.

Soil requirements

In South Africa tomatoes are cultivated on different soil types, from heavy clay to light sandy soil and sandy peat's. Tomatoes seem to prefer well-drained sandy soils. Good moisture holding capacity with good drainage is important. Tomatoes grow well at a wide pH range from 5.5 - 7.5 but are sensitive to acid soils and if the pH (H₂O) is lower than 5.5, additional lime should be applied. The lime should be added 4 - 6 weeks before planting.

Irrigation requirements

Tomatoes require frequent irrigation, as the plants remove a large amount of water, especially under warm conditions. Tomato roots can penetrate the soil up to 1.5 m but seldom more than 60 cm deep. Care should be taken to water the soil thoroughly to a depth of about 60 cm. Soil type does not affect the amount of total water needed, but does dictate frequency of water application. Lighter soils need more frequent water applications, but less water applied per application.

Iron (Fe) deficiency

On the terminal leaves, chlorosis starts at the margins and spreads through the entire leaf. Initially the smallest veins remain green, giving a reticulated pattern of green veins on yellow, with no necrosis. The symptoms start from terminal leaves and work down to older leaves. The plants are stunted, spindly, and the leaves are smaller than normal. Flowers can be aborted.

Remedies

Foliar spray with 0.02 - 0.05 % solution of iron chelate (FeEDTA) every 3 - 4 days.

Add iron chelate to nutrient solution or increase dosing rate.

Manganese (Mn) deficiency

Symptoms are visible on the middle and older leaves which turn pale. Characteristic chequered patterns of green veins and yellowish interveinal areas can be seen. Later small necrotic spots in pale areas form, the chlorosis is less severe than in iron deficiency, also the chlorosis is not confined to younger leaves as in the case with iron.

Remedies

Foliar spray using high-volume spray of 0.1 % or low-volume spray of 1 % solution of manganese sulphate.

Add manganese sulphate to nutrient solution or increase dosage rate.

Bacterial wilt (*Ralstonia solanacearum*) (*Pseudomonas solanacearum*)

This disease is also known as brown rot or blight. More than 60 host plants are known but tomato, potato and tobacco are most severely affected.

Symptoms

Wilting occur as plants are still green, without foliar yellowing. Grey liquid ooze from cut stem when it is placed into water, there will be a gray-pink discolouration inside the stem. The Bacteria survives in the soil and infects the plants through wounds, and can also be transferred through irrigation water. High soil moisture and temperatures (29 - 35°C).

Prevention and control

Use disease free seedlings, apply crop rotation, weed control, soil fumigation and use resistant varieties.

Disease resistance definition

Resistance: is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure. Two levels of resistance are defined:

High/standard resistance (HR): plant varieties that highly restrict the growth and development of the specified pest or pathogen under normal pest or pathogen pressure when compared to susceptible varieties. These plant varieties may, however, exhibit some symptoms or damage under heavy pest or pathogen pressure.

Moderate/intermediate resistance (IR): plant varieties that restrict the growth and development of the specified pest or pathogen, but may exhibit a greater range of symptoms or damage compared to resistant varieties. Moderately/intermediately resistant plant varieties will still show less severe symptoms or damage than susceptible plant varieties when grown under similar environmental conditions and/or pest or pathogen pressure.

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