

CHARINE

F1 Hybrid Indeterminate Salad Tomato

Experimental

OUTSTANDING QUALITIES

- ◆ UNIFORM GREEN SHOULDER
- ◆ OUTSTANDING FRUIT QUALITY
- ◆ TOMATO CURLY STUNT RESISTANCE
- ◆ VIGOROUS PLANT

Charine is an exciting new indeterminate salad tomato with outstanding fruit quality and a very good disease package. **Charine** offers a high resistance to Verticillium wilt race 1 (Vd: 1), Fusarium wilt races 1 and 2 (Fol: 1 - 2), Root-knot (Mi) and Tomato mosaic (ToMV). **Charine** has intermediate resistance to Tomato yellow leaf curl (TYLCV) and provides intermediate resistance to the South African strain of Tomato curly stunt (ToCSV). **Charine** can be grown under protection and in the open field but should be trellised to one or two stems. **Charine** is a very adaptable variety and also performs well in other parts of the world.



SPECIAL VARIETAL REQUIREMENTS

- For open field production, trellis to two stems for best results
- **Charine** is sensitive to a high fertiliser regime especially nitrogen, correct imbalances between elements
- Contact your area representative for more information

CHARACTERISTIC*	CHARINE
KIND	Indeterminate F1 hybrid tomato (<i>Lycopersicon esculentum</i> L.)
PRODUCTION TYPE	Under protection and open field
SHELF LIFE	Excellent
MATURITY	Medium
PLANT VIGOUR	Very good
SEASON	Year round in frost-free areas
FRUIT WEIGHT	120 - 150 g
FRUIT SHAPE	Deep oblate
PEDUNCLE	Jointed
ATTACHMENT POINT	Very small, neat
SHOULDER	Smooth
SHOULDER COLOUR	Uniform
COLOUR	Internal: very good; External: very good
FLAVOUR	Good
UNIFORMITY	Excellent
LEAF COVER	Medium dense
DISEASE REACTION (SCIENTIFIC)	High resistance: <i>Verticillium dahliae</i> race 1 (Vd: 1), <i>Fusarium oxysporum</i> f. <i>Sp. lycopersici</i> races 1 and 2 (Fol: 1 - 2), <i>Meloidogyne incognita</i> (Mi) and <i>Tomato mosaic virus</i> (ToMV) Intermediate resistance: <i>Tomato curly stunt</i> (ToCSV) and <i>Tomato yellow leaf curl virus</i> (TYLCV)
MARKETS / END USE	Fresh market and pre-pack
POPULATION GUIDE	20 000 – 24 000 final stand per ha for production under protection 10 000 – 14 000 final stand per ha for open field
SPECIAL FEATURES	Excellent quality, intermediate resistance to Tomato curly stunt virus

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

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.

Recent version: Kindly contact Sakata or Area Representative for the most recent version of this Technical Bulletin.

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). The temperature requirements for the different growth stages are given in the table below. 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.

Developmental stage	Temperature (°C)		
	Min	Opt	Max
Germination	11	16-29	34
Vegetative growth	18	21-24	32
Fruit set (night)	10	14-17	20
Fruit set (day)	18	19-24	30
Red colour development	10	20-24	30
Yellow colour development	10	21-32	40
Chilling damage		< 6	
Frost damage		< 1	
Lethal temperature		< -2	

Soil requirements

In South Africa tomatoes are cultivated on different soil types, from heavy clay to light sandy soil and sandy peat. 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.

Soil preparation depends on the soil conditions and under the climatic conditions under which the crop is cultivated. Tomatoes are very seldom direct seeded. Seedlings are normally produced by commercial seedling growers and then transplanted.

Raised beds are ideal for tomato production. It helps prevent damage from soil compaction and flooding. Raised beds also improve airflow around the plant roots resulting in reduced disease incidence. Before beds are made, the soil should be properly worked to a depth of 40 cm to enhance aeration as well as water penetration and drainage.

Early blight (*Alternaria solani*)

Vegetables affected by this disease are tomato, potato and eggplant. Uncontrolled, the disease may cause severe

defoliation, resulting in reduced fruit number and size.

Symptoms

This pathogen affects the plants foliar parts (yellowing that later turns brown and drops from the plant) as well as the stem and fruit. Brown spots develop on the leaves and fruit close to the calyx attachment and lesions occur on the stems.

Conditions favourable for disease development

Mild temperatures between 24 – 29 °C and humid conditions. For the spores to germinate free standing moisture is required, the spores are spread by air, irrigation water and heavy dew. The spores survive in soil, seed and plant material.

Prevention and control

- Control humidity and wetting of the leaves
- Use pathogen free seed and seedlings
- Spray with a fungicide at regular intervals

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.

Susceptibility (S): is the inability of a plant variety to restrict the growth and development of a specified pest or pathogen.

Tolerance (T): is the ability of a plant variety to endure **abiotic stress** without serious consequences for growth, appearance and yield. Vegetable companies will continue to use tolerance for abiotic stress.

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