SAKATA®
PASSION in Seed

Zeal

F1 Hybrid Semi-Determinate Salad Tomato

TB REF: ZEAL: 01/04/2024

OUTSTANDING QUALITIES

- ♦ **ALL TIME FAVOURITE**
- ♦ **RELIABLE AND WIDELY ADAPTED**
- ♦ **EXCELLENT COLOUR AND FLAVOUR**

Zeal is a medium-late maturing, very adaptable, semi-determinate salad tomato hybrid. The plants are very robust and sturdy with a bush height in the region of 90 cm. The fruit is globe in shape, uniform in size and weighing around 150 - 180 g. The fruit has a jointed peduncle and is firm. Yield potential of **Zeal** is high, with the first-class grading being very good. The leaf canopy is medium and the general vigour of plants tends to make it less susceptible to diseases under conditions normally conducive to disease. **Zeal** has a high resistance to Verticillium wilt race 1 (Vd: 1), Fusarium wilt races 1 and 2 (Fol: 1 - 2), Root-knot (Mi, Mj) and intermediate resistance against Bacterial wilt race 1 (Rs: 1). **Zeal** is one of the most widely used determinate hybrids in Southern Africa due to its consistent reliability and performance.

SPECIAL VARIETAL REQUIREMENTS

- Production for cool weather harvesting

CHARACTERISTIC*	ZEAL
KIND	F1 hybrid semi-determinate salad tomato (*Lycopersicon esculentum* L.)
PRODUCTION TYPE	Open field
FIRMNESS	Good
MATURITY	Medium-late
PLANT VIGOUR	Very good
SEASON	Year-round culture in frost-free areas
FRUIT WEIGHT	150 - 180 g
FRUIT SHAPE	Globe
PEDUNCLE	Jointed
ATTACHMENT POINT	Medium
SHOULDER	Medium
SHOULDER COLOUR	Light green
BLOSSOM END	Medium
COLOUR	Internal: very good External: very good
FLAVOUR	Excellent
UNIFORMITY	Good
LEAF COVER	Good
DISEASE REACTION (SCIENTIFIC)	**High resistance***: Verticillium dahliae race 1* (Vd: 1)*, Fusarium oxysporum* f. sp. *lycopersici races 1 and 2* (Fol: 1 - 2), *Meloidogyne incognita* (Mi)❖, *Meloidogyne javanica* (Mj)❖ ❖ **Nematode resistance can break down when soil temperatures are above 32°C** **Intermediate resistance***: Ralstonia solanacearum race 1* (Rs: 1)
MARKETS / END USE	Fresh market
POPULATION GUIDE	10 000 - 16 000 final stand per ha (50 - 55 cm in row, 160 cm between rows)
SPECIAL FEATURES	Very adaptable, reliable variety

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

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.

Sakata Seed Southern Africa (Pty) Ltd.
Tel: +27 11 548 2800
e-mail: info.saf@sakata.eu
Fax: +27 11 548 2820
website: www.sakata.co.za

GENERAL TIPS FOR TOMATO PRODUCTION

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 (H_2O) 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 the climatic conditions under which the crop is cultivated.
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.

Bacterial wilt (*Ralstonia solancearum*) *(Pseudomonas solancearum)*
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 occurs as plants are still green, without foliar yellowing. Grey liquid oozes from the cut stem when it is placed into water, there will be a grey-pink discolouration inside the stem. The Bacteria survives in the soil and infects the plants through wounds, and can also be transferred through the irrigation water. High soil moisture and temperature (29 - 35°C).
Prevention and control
Use disease-free seedlings, crop rotation and weed control. Soil fumigation.

Plant establishment
Seedlings should be watered prior to planting and should be transplanted into moist soil. Ensure that the roots are not bent during the process otherwise, plants will be stunted and may not produce heads. Planting out on raised beds or ridges is advisable in wet areas to reduce the risk of water-logging and development of stem or other diseases.

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.

Irrigation requirements
Tomatoes require frequent irrigation, as the plants use a large amount of water, especially under warm conditions. Tomato roots can penetrate the soil up to 1.5m but seldom deeper than 60 cm. 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. Indeterminate growers need more water than determinate ones.

Conditions favouring the development of nutrient deficiency in tomato (micro-elements)

Element	***Conditions***
Nitrogen (N)	
	- Leaching rains
	- Soils with low organic matter
	- Restricted substrate volume
	- Inadequate fertiliser
Phosphorus (P)	
	- Low temperatures
	- Soil compaction
	- Acid or alkaline soils
	- Inadequate fertiliser
Potassium (K)	
	- Light, sandy soils
	- Leaching rains
	- Acid soils
	- Organic soils
	- Inadequate fertiliser
Calcium (Ca)	
	- Acid soils
	- High concentrations of K, NH,
Magnesium (Mg)	
	- Low or fluctuating soil moisture
	- High atmospheric humidity
Molybdenum (Mo)	
	- Acid soils
	- Well-drained, alkaline soils
Zinc (Zn)	
	- Organic soils
	- Alcaline soils
	- Acid, high leaching soils
	- Soils with low organic

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