FIELD TOMATO

Production & Spray Guide

80TH ANNIVERSARY
SEED·CO
EST. 1940

Field Tomato Production Guide

"Integrated Crop Solution"

General

Field Tomatoes are a very important crop in the country sold mainly as fresh tomatoes, used in salads or used as an ingredient in Soups, Stews, Sauces and various other dishes. Some production is grown and sold for processing or pulping under contract. There are a number of varieties available for specific markets or uses so contact a Prime Seed Agronomist for the best cultivar for the purpose intended for example, Fresh Market Tomato or " Jam" or Processing Type. Tomatoes are a warm season mainly summer crop but can be grown in certain low veldt areas in winter that are frost free. A few degrees above freezing will result in damage to both plant and fruits. Optimum temperature range is between 20° C to 28° C. Temperatures below 12° C or above 35° C can result in flower shed and big losses of yield. Continuous moist or rainy weather favours the rapid increase in leaf diseases and makes control difficult. For best results the crop should be finishing around the end of December or early January though however at this time and mid-winter prices are highest as there is always a shortage.
No other crop is subjected to such a variety of diseases and control of these diseases is paramount during the whole growing period to achieve good yields.

Determinate type varieties are normally shorter plants than indeterminate varieties which can result in big savings on trellising and spraying costs. They also normally produce a concentrated yield over a shorter space of time, however could be a disadvantage if it comes in during a price drop so plan carefully. The final size of the plants is dependent on climatical and cultural conditions as well as the specific cultivar selected. Processing cultivars possess high solid content required for such use. Their keeping quality is normally better than normal field tomato types.

Soils

Tomatoes like growing in deep, fertile, humus rich, good draining soils. Soil types can vary from sandy loam to clay loam with a clay content of between 15% to 35%. Sandy soils can also be used provided soil moisture content can be maintained at the desired level. The roots can penetrate to a depth of over 2 metres but the greatest root concentration is in the top 600mm of soil. Deep ploughing or sub soiling must be done to ensure any old plough pan is broken up, so roots are free to go down deep. A PH of 5.0 – 5.8 is ideal. Tomatoes must also be grown in a rotation of one crop every three or four years to reduce nematodes and disease problems. Tomatoes will do very well after a green manure crop which has been ploughed in and well-rotted down.

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Fertilizer

Depending on soil analysis results the following is a general guide.

Basal :-

750kg per hectare up to 1,000kg per hectare of Compound “C” or “B”

Top Dressings.:-

One week after transplanting 25kg/hect Mono Ammonium Phosphate (M.A.P.)
Second week after transplanting 50kg/hect AN
Third week after transplanting 50kg/hect AN
Fourth week onwards 50kg/hect AN plus 50kg/hect Sulphate of Potash (S.O.P.)
Stop all fertilization two weeks prior to final harvest.
Micro nutrients are also necessary to obtain top yields. These are Calcium (Ca), Magnesium (Mg), Sulphur (S), Boron (B), Iron (Fe), Copper (Cu), Zinc (Zn), Manganese (Mn) and Molybdenum (Mo). These can be obtained in micro nutrient mixes like Nutrifoil, Liberal, BMX, Omniboost etc. These should be applied every two weeks or as per the instructions on the label.
Calcium is very important to the crop as a shortage of Calcium will result in Blossom End Rot. This can be sprayed on using Calcium Nitrate from first flower on a weekly basis at a rate of 10g/ 1lt of water using 250l to 300l water per hectare.

Irrigation

Best results have been achieved using drip irrigation as water can be applied as often as required when using tensiometers in the soil which measures the soil moisture content. Also no foliage gets wet thus minimising leaf diseases. Overhead sprinkler irrigation can be used where there is no rainfall in the dryer months up to the fruiting stage. Sprinkler irrigation can dramatically increase the incidents of various diseases in medium rainfall or misty areas. Any method of irrigation which does not wet the foliage is the preferred method. Furrow irrigation or flood irrigation is also good but uses high volumes of water. Amounts of irrigation needed depends on soil type and growing conditions like temperature and humidity. Normally around 400mm to 600mm is required. The use of tensiometers and an evaporation pan as tools will help.
Lateral roots can spread up to one metre or more so soil moisture needs to increase with plant growth. During the first month when the plants are relatively small and the roots may not have spread this far so keep the water applied to the planting area. After one month increase irrigation as the plant and its root system start to develop.

Planting

Propagated speedlings are the preferred method of establishing the crop. Good, strong, healthy well rooted seedlings will give the best results so get speedlings done professionally in a Nursery like Prime Plants Nursery. Plant speedlings into moist soil and firm the soil around the plug to achieve good soil to plug contact so roots can develop quickly into the fertilizer enriched soil. Irrigate as soon as possible after transplanting to settle in the seedling.

Spacing

Rows generally 1.2m- 1.8m apart
In row spacing can vary between 40cm – 50cm apart
Population can be from 16,000 – 22,000 plants per hectare.

Trellising

For table tomatoes plants are invariably trellised. This is because the incidents of various diseases, pests and sun burn is generally lower than crops that are not trellised. Trellised crops have shown a significant advantage in higher marketable yield, better quality and makes harvesting easier. The newer Processing cultivars are now generally shorter vined, have a more concentrated harvest and have fruits with thicker and tougher skins, which don't damage easily, are therefore seldom trellised.
Poles of between 50mm – 70mm in diameter are dug in to a depth of +/- 600mm and spaced every 3m apart leaving 1.4m – 1.8m above ground. The end poles should be stronger and well anchored to prevent them being pulled over by the weight of the crop. Wires are put in early to avoid damage to the small plants while they are getting established. Two wires of between 14gg – 16gg are pulled and attached to either side of the poles so the crop is between the wires. Wires can be placed up the poles at intervals of 300mm – 400mm. The number of pairs of wires will depend on the growth, height and vigour of the cultivar being grown. All plant growth is trained to grow between the two wires.
Some growers do a single stake method where a stake is driven in next to the plant and as it grows up the plant is tied at intervals to the stake.

Pruning

This is not recommended for outdoor growing of tomatoes. It is labour intensive and often increases the incidents of disease like Botrytis, Pseudomonas and Phytophtora which enter the scar wounds. The incidences of virus diseases and other disorders is also possible

Harvesting

Avoid picking green fruits as these will ripen with poor quality and affect the marketing of the crop. Fruits should be harvested when a pink colour first shows at the blossom end. At this stage the tomato is mature and already red inside. Indicators are as follows:-

a) Pick when cream coloured streaks are noticed at the blossom end. At this stage fruits will last about a week after picking.
b) If the colour is dark pink going red at the blossom end it will have a shelf life of about 4 days.
c) When the tomato is pink it is 1 or 2 days to full ripe.
d) Full ripe nice red colour but still firm, need to sell immediately.

Reap into boxes that hold +/- 5.5kgs. Ripe tomatoes can be stored for about 7 days at 5° C – 10 °C with a RH of 80% - 85%. Tomatoes are sensitive to chilling. Temperature management is crucial to maintaining quality. Fruits must be graded to uniform size and maturity in the packing box. Mixing sizes and maturity can result in rejection or price drop at the market place. Fruits need to be free from any blemishes e.g. insect, disease or mechanical damage. Remove all diseased and damaged fruits from the plant as soon as they are seen. Remove them totally from the field, do not discard in the field on the ground near the plants. To help with picking use shorter rows or provide pathways to get across long fields to the waiting truck or trailer. Reduce unnecessary walking to speed up harvesting. Provide pickup facilities at both ends of the

Field Tomato Spray Guide

Stage	Nursery	Transplanting	Vegetative	First Flowers	First Fruits	Fruiting
Days:	0-35	28-36	30-60	60-65	65-70	70-125
Pest Problems						
Nematodes		Solvigo				
Soil Pests & Aphids		Actara Soil Drench / Solvigo				
Cutworms		Karate Zeon				
Leafminer		Trigard / Dynamec				
Red Spider Mites			Dynamec / Polo / Curacron			
Fruitworm & Caterpillars				Ampligo / Matish / Karate Zeon / Proclaim		
Aphids & Whitefly		Actara Soil Drench		Actara / Ampligo / Polo/Chess		
Disease Problems						
Damping off	Apron Star Seed Dress					
Bacterial Complex		Bion / Copper Oxychloride				
Early Blight		Copper Oxychloride / Bravo / Amistar Top				
Late Blight			Folio Gold / Revus / Ridomil Gold			
Leaf spots; Powdery Mildew		Amistar Top				
Virus Complex	Actara Soil Drench / Dip					
Weed Problems	Below are off-labe suggestions; grower must do own tests for crop damage.					
Before planting - post emergence perennials	Touchdown					
Before planting - post emergence annuals	Gramoxone / Touchdown					
Pre-emergence: grasses		Dual Magnum				
Post-emergence: grasses			Fusllade Forte			
Post-emergence: grasses & broadleaf		Codal Gold				
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CROP	DAYS TO MATURITY		PLANT SPACING (cm)		PLANTS/HA X1000	AVERAGE SEED PER GRAM	SEED REQUIREMENT (Kg/Ha)	COMMON PESTS	COMMON DISEASES
	WARM	COOL	IN ROW	BETWEEN					
Garden Beans	55	65	2x7*	50	285	4-5	75	Bollworm	Rust Anthracnose Halo Blight
Beetroot	80	110	10*	20	450	50-60	8	Aphids	*Ccpa* *Rzoct*
Broccoli	70	90	40	70	36	225	0.2	Diamondback Moth Aphids	Black Rot White Blister
Butternut	90	120	50	100	20	8-10	3	Fruit Fly	Gummy Stem Blight Anthracnose
Cabbage	80	110	40	50	30	300	0.2	Diamondback Moth Aphids	Black Rot Club-root *S*
Carrot	90	120	3*	15	1100	800	2	Nematodes	*ta*
Cauliflower	85	110	40	70	36	240	0.2	Diamondback Moth Aphids	Black Rot Club-root
Cucumber Field	60	85	40	150	16	40	16 000 Seeds	Red Spidermite Aphids Whitefly	*Fm* Powdery Mildew Downy Mildew
Cucumber Tunnel	65	85	45	150	16	40	3 per m²	Red Spidermite Aphids Whitefly	*Fm* Powdery Mildew Downy Mildew
Eggplant	75	90	50	75	27	220	0.15	Thrips Aphids	Powdery Mildew
Gem Squash Semi- bush	50	70	35	150	18-22	10-12	4	Pumpkin Fly	Powdery Mildew
Gem Squash Vine	55	80	50	150	14	10-12	2	Aphids	Virus Diseases
Hubbard Squash	110	130	100	150	7	6	1.5	Pumpkin Fly Aphids	Powdery Mildew
Lettuce	50	70	30	60	55	800-1000	0.05-0.07	Aphids Leafminer	Powdery Mildew Bacterial Rot
Marrows	35	55	40	150	18	8-10	2.5	Fruit Fly Whitefly	Virus Diseases Powdery Mildew
Melon	85	100	40	150	16	20	1	Fruit Fly	Anthracnose Fusarium Root Rot
Onions	170	190	8*	20	850-1000	250	3.5	Thrips	White Bulb Rot Pink Root Rot *ta*
Peppers	70	85	2x40*	150	30-35	150	0.25	Aphids Thrips	Virus Diseases Phytophthora Root Rot
Pumpkin Semi-bush	90	120	80	180	8	4	2	Pumpkin Fly Cutworm	Powdery Mildew Fruit Rots
Pumpkin Vine	120	140	100	180	5	4	1.5	Pumpkin Fly Cutworm	Powdery Mildew Fruit Rots
Sweet corn	75	100	20	90	55	8	8	Stalk Borer Bollworm	Rust NCLB
Swiss chard	60	75	20*	45	200	60	4-6	Aphids	*Ccpa*
Tomato	80	100	40	150	16	250	0.1	Bollworm Whitefly Nematodes	Blight Bacterial Wilt Viruses
Watermelon	80	90	50	180	6	20	0.3	Fruit Fly	Gummy Stem Blight Anthracnose

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