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# TOMATOES

## CALU FACTSHEET

July 2010

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### INTRODUCTION

Tomato production in the UK varies from small local producers using polytunnels to large scale production using many hectares of glass (e.g. Thanet Earth). The wide differences in set up and size of production will have a distinct effect on the method of production.

### LARGE SCALE PROTECTED CROPPING PRODUCTION, WITH HEAT

Glasshouses require a large financial investment driving the grower to intensively crop the area to maximize returns. This involves the use of heating and lighting to extend the season, CO<sub>2</sub> enrichment to boost growth, introduction of bumble bees to act as pollinators, and very detailed monitoring of pests and diseases.

Large scale producers tend to utilize growing systems that promote uniformity of the crop using soilless growing systems (e.g. hydroponic)

Large scale producers will have tomatoes in place for almost 11 months of the year. Propagation starts at the end of November and plants are out in the growing medium by the end of December. Fruiting can start as early as February running through to the end of October. The cropping will peak between May and September. The plants can be cleared in November and the house prepared for the next crop in the intervening four weeks.

### SMALL SCALE PRODUCTION WITHOUT HEAT: BORDER SOIL OR GROWING MODULES

Growing tomatoes on a smaller scale may be carried out during the summer without the use of heat or CO<sub>2</sub> enrichment. Producing a winter crop, e.g. of salad leaves, keeps the glasshouse in use all year round.

Small scale producers will often grow the tomatoes in the border soil of the glasshouse, and enrich it with home produced compost, PAS 100 compost or imported manure.

Sowing in March in blocks or modules in a temperature of 21-25°C is a good aid to seedling establishment and development. The use of supplementary lighting will reduce etiolation in low light, high temperature periods. Once the plants are established in the next sized container they can be managed in a warm temperature and spaced out to avoid shading. At this stage they will develop at temperatures of 10°C or more until ready to plant in April with the first flowers open on the plants around 35cm high.

Plant in double rows at a spacing of 30cm – 40cm for cherry tomatoes and 40cm – 50cm for round or plum tomatoes. Water sparingly to begin with to encourage the roots to seek out the water.

Tomatoes are a hungry crop with high requirement for potassium.

### TRAINING

Tomatoes are classed as being either **determinate** or **indeterminate**. Indeterminate types keep on growing and fruiting until checked by frost. Determinate types (most



Cronfa Amaethyddol Ewrop ar gyfer Datblygu  
Gwledig: Ewrop yn Buddsoddi  
mewn Ardaloedd Gwledig  
The European Agricultural Fund for  
Rural Development: Europe Investing in  
Rural Areas



Centre for Alternative Land Use  
Canolfan Ddefnydd Tir Amgen



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government

cherry tomatoes) have a compact and bushy habit and produce one flush of fruit in a growing season.

Commercial tomato varieties tend to be of the indeterminate type which means they need to be trained and side-shooted as cordons to a string support which is wound around the plant in a clockwise direction remembering to pass the string above the developing truss. Once the plant reaches the top of the wire the head can be lowered and then moved along using a bobbin or spool system. The tip should be removed in September to allow the remaining fruit to develop and ripen.

### **DE-LEAFING**

The removal of the lower leaves up to the ripening truss as the plant grows will aid air flow and ripening of the truss.

### **WEED CONTROL**

Plants in border soil may suffer with annual weeds but this can be reduced using a variety of methods. Hand weeding, use of a barrier mulch such as black plastic or woven polypropylene sheets, a mulch of dry straw or use of an under-sowing of trefoil or white clover.

### **PESTS AND DISEASES**

The main threats to tomatoes are from Red spider mite (RSM), whitefly and tomato blight. RSM and whitefly can be controlled using biological controls. The incidence of blight can be reduced by using resistant varieties and practising good hygiene including: removing any infected leaves (brown blotches) as soon as they are seen; keeping the greenhouse closed during wet weather; and ventilating during good weather. Leaky roofs should be repaired to prevent the infection of the crop when it rains.

In high heat and humidity conditions *Botrytis* may colonize wet cuts caused during de-leafing and side-shooting. The incidence can be controlled by increasing ventilation, crop hygiene and by not watering freely at the end of the day. Downy and powdery mildew can cause problems with tomatoes. Powdery mildew usually appears on the upper surface of the leaves and is spread by air movement favouring dry condition. Downy mildew will develop on the lower leaves and will spread rapidly if foliage is wet during high humidity conditions.

### **DISORDERS**

Fruit splitting is usually caused by poor attention to watering. Fruit may swell with an influx of water causing the skins to split due to the inability of the skin to “give” with the sudden increase in size.

Blossom end rot, also caused by intermittent watering is the development of a black sunken area in the base of the fruit. Improved watering with an addition of calcium nitrate can be used for small areas

### **HARVESTING AND MARKETING.**

For direct sales fruit can be left to ripen on the plant. This will allow the fruit to develop the best taste. Fruit that is to be transported some distance and may be stored before sale is usually harvested just as the fruit turn orangey red. The extra firmness of the fruit will reduce the chance of bruising during transport.

Fruit will generally market throughout the season but imagination will be needed to deal with the late summer period when amateur greenhouses get into full swing or the customers go on holiday. Local sales of fresh fruit to pubs and restaurants will supply to holiday makers from other areas!

Refrigeration of the fruit will suppress the taste and smell of the fruit. To revitalize the taste and smell the fruit should be removed from the fridge at least an hour before market sale or use.

## VARIETIES

There are thousands of varieties of tomatoes that come in a variety of shapes, sizes and colours. The most common are round (beefsteak and globe), plum shaped and the smaller cherry. Most varieties are red but the less acidic yellow are widely available as are the striped and orange varieties. Many varieties have plant resistances included in the listings in the catalogues and will be included as F1 or open pollinated.

**Table 1:** Some popular varieties of tomatoes & their key characteristics

Variety	Type*	Fruit weight (grams)	Description
Sakura F1	I		Firm cherry, vigorous with large trusses
Belle F1	I	170-210	Flat globe shaped type, unheated green houses and tunnels, will grow outside.
Incas F1	D	80-90	Hybrid plum, outside or undercover, early maturing
Beefsteak	D	250	Large pink/red fruits excellent flavour
Gardeners Delight	I	14-18	Round Small fruits, tangy flavour
Golden Sweet F1	I	12-16	Grape type, yellow fruit, sweet flavor. Protected cropping and outdoor production
Money-maker	I	70-90	Round fruit heavy cropper
Shirley F1	I	70-90	Round fruit, large trusses.
Nectar F1	I	14-16	Cherry with good flavor. Heated structures, quick to mature.
Pannovy F1	I	75-85	Vigorous variety, soil or substrate, bright red round shape excellent flavor. Can be grown outdoors.
Velocity F1	I	200-250	Vigorous plant. Cold or heated structures

\* D = Determinate; I = Indeterminate

## FURTHER INFORMATION:

Crop walkers guide; Cucumbers, Tomato and Pepper (HDC)

Collins Pests, Diseases and Disorders of Garden Plants; Buczacki and Harris

Seed catalogues: Moles; Tamar

<http://www.thanetearth.com/>

<http://www.britishtomatoes.co.uk/>

<http://www.soilassociation.org/>