

Tomatoes

Grow with USask



Tips for planting

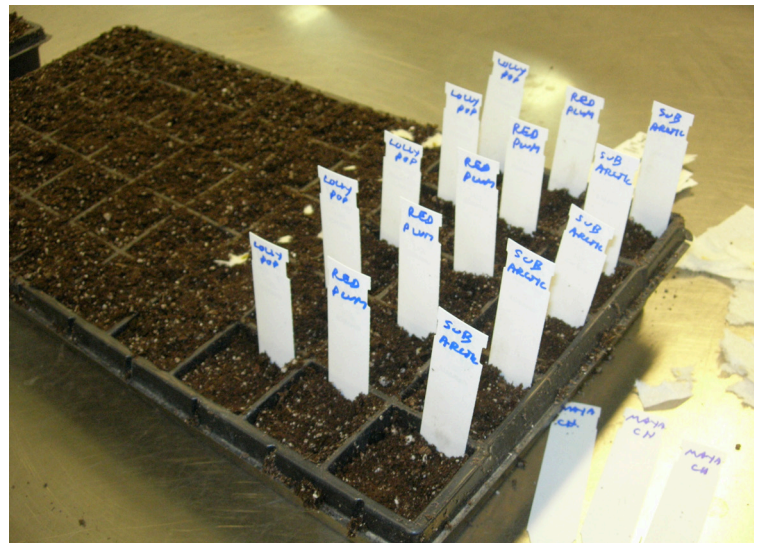
- Tomatoes require a long growing season to mature and must be transplanted in the Prairie garden. Tomato transplants can be grown from seed in your own home or purchased from a local greenhouse.
- Whether you purchase or grow your own, your tomato transplant should be 20-25cm tall, dark green in color, possess a strong, thick stem and not be root bound.

Starting your own plants from seed

- Start transplants indoors at least 6 weeks prior to planting out.
- Sow seeds 0.5cm deep in a commercial soilless media containing peatmoss, perlite and vermiculite (ex. Sunshine Mix #4). Soilless media provides a disease-free environment as well as excellent drainage to minimize root disease problems.
- Use flats, pots or containers with bottom drainage holes. At a soil or media temperature of 24°C, tomato seeds should germinate within 6 days.
- The biggest threat to the developing seed and seedling is a disease known as damping off (caused by a combination of several fungi; *Phytophthora* spp., *Pythium* spp., *Rhizoctonia solani* Kühn). Damping off can be prevented by using soilless media, sowing seeds thinly, avoid overwatering, bottom watering, providing good lighting and setting up a floor fan several meters away to increase air circulation. Never allow seedlings to sit in standing water.
- **Lighting:** Good lighting is crucial for growth of healthy tomato seedlings. To test if you have sufficient lighting: the shadow cast on a white piece of paper at midday by an object 10-15cm above the paper should have a definite outline. If there is no outline, light is inadequate and plants will stretch toward light, becoming pale and leggy. A set of fluorescent tubes (one cool white and one warm white) placed 30-45 cm above the seedlings for 10-12 hours during the day will provide adequate light.



- **Controlling Transplant Size:** The ideal transplant has a good root system but is not root bound (tight, hard ball of roots that will not break up). The stem will be strong. And the internodes will be small. Transplants that are too tall will tend to break and dry out more easily once planted out into the garden. Research has shown that stem diameter can be increased, and height controlled, by providing seedlings with constant air movement with an oscillating fan – or by lightly brushing seedling tops with tea towel or stick at least 20 times daily.
- **Fertilize** developing transplants two times/week using 20-20-20 water soluble fertilizer. Mix according to label directions.



Tomato seeds started in trays





■ Hardening off your tomato transplants

- Moving tomato transplants from your home or the local greenhouse directly to the cold and often harsh reality of a prairie garden can result in stunted growth or even death. "Hardening off" is the term used to gradually acclimatize your seedlings to the real world.
- At least one week before transplanting out, place transplants outdoors in a sunny, protected location where temperature is at least 15°C. Bring transplants indoors over night for the first couple of days. If temperatures are above freezing, leave transplants outdoors overnight in a protected location (i.e. next to a building or in an unheated building) Transplants should be left outdoors at least three nights before transplanting into the garden.
- Reduce watering and plant protection as the week continues.
- Do not transplant tomato plants out until all danger of frost has passed (the traditional "average day of the last spring frost" in the Saskatoon area is typically May 24st).
- Tomato plants are very sensitive to frost damage, so be prepared to protect plants with covers or blankets in the event of late spring/early summer frosts.

■ Recommended Growing Conditions and Practices

- Although tomatoes produce well in fertile soils, too much nitrogen, especially early in the season, will encourage excessive top growth and delay flowering and fruit production.
- Tomatoes are a 'warm season crop'. This means they prefer warm temperatures and very sunny conditions for optimal growth. Tomatoes will benefit from planting in black, clear or dark green plastic mulch. The mulch increases soil temperature as well as conserving soil moisture and suppressing weed growth. Crop covers or clear plastic tunnels during the day are not recommended for tomatoes; the covers tend to encourage foliar growth and delay flowering and fruiting.

- Tomatoes benefit from a steady supply of soil moisture. Uneven watering, i.e. excessive water followed by drought conditions can disrupt the amount of calcium available in the plant for cell production. This lack of calcium will result in physiological problems in the plant and tomato fruit. Irrigate actively growing tomato plants with 2.5 cm water/week.
- Tomatoes should be staked or caged. Cages and stakes expose the plant to more sunlight while keeping the fruit off the soil.



Tomatoes will benefit from planting in black, clear or dark green plastic mulch

■ Transplanting

- Tomatoes prefer sandy loam, loam or clay loam soils for good fruit production.
- Prepare the garden soil well in advance, adding organic matter and compost if needed. The soil should be of good tilth: soft, crumbly and easily worked.
- When planting, cover the entire transplant "plug" or seed ball with soil to prevent the plant from drying out. Exposed peat within the plug will act as a wick, drawing water away from the transplant and drying out the root ball.
- Gently massage the roots within the plug so that the roots will grow into the surrounding soil and not remain restricted within the ball.
- Ideally, transplanting should be done on a cool, cloudy day; hot, windy days will easily desiccate tender transplants.
- Plant tomato transplants so that the lower part of the stem, up to the first set of leaves is covered with soil. Avoid planting into deep, cooler soil. For longer, larger transplants, plant the root ball and lower stem in a

- horizontal position; allowing existing roots to remain in the warm upper layer of the soil while encouraging root development along the buried stem.
- Tomatoes should be planted at 45 cm spacings within the row, allowing at least 1m between rows. Water-in the transplants with a starter fertilizer higher in phosphorous for good root growth (ex. 10-52-10) Mix according to label directions.
- For extra protection for your newly planted tomato transplants, place tin cans or milk cartons with the tops and bottom removed around newly planted tomatoes and insert them several centimeters into the soil. Not only does this provide some wind protection and increase soil temperature, but it may also discourage cut worms.
- For those gardeners that want to get an early jump on the growing season, warm up the soil with 'Wall O' Water®': a series of plastic tubes filled with water joined together to form a wall of water around the transplant. 'Wall O' Water®' have been known to protect plants to -11°C. Tomato transplants could be planted out at least 2 weeks earlier on the Prairies provided the soil under the 'Wall O' Water®' has also been warmed.



'Wall O' Water®': a series of plastic tubes filled with water joined together to form a wall of water around the transplant

■ Harvesting

- For the best tomato flavor, tomatoes should be harvested when they are vine ripened.
- Tomatoes will ripen off the vine if picked at the 'mature green' or later stage. Mature green refers to tomatoes that remain green in colour but are physiologically mature and will ripen to red (or yellow) off the vine with good flavor and quality. Because it is difficult to determine when tomatoes are mature green, these tomatoes are often picked only immediately prior to

the final killing fall frost. At this point, most gardeners will try to salvage as much produce from their garden as possible. A green mature tomato will ripen indoors under proper storage conditions. The tomato breaker stage is indicated by a slight pink or red coloration to the fruit, at which time it will fully ripen off the vine.

■ Storage

- Mature green tomatoes will store for 2-6 weeks at 15°C. Tomatoes at the breaker stage will fully ripen off the vine at temperatures above 15°C. Ripe red tomatoes will store at 15 - 22°C for 5-10 days.
- Temperatures much below 10°C will cause tomato chilling injury, resulting in rot and poor ripening colour and quality.

■ Tomato Cultivars-How do I decide??

- Factors to consider when deciding what tomato cultivar to grow include; taste, days to maturity, end use, fruit size, plant size and type, disease resistance and availability
- Tomatoes that require more than '70 days to maturity' will probably not mature during an average Saskatchewan growing season.
- If tomato diseases have been a big problem in your tomato garden in the past, look for disease resistant tomato cultivars. Most seed catalogues will indicate resistant cultivars.

Determinate vs Indeterminate tomato plants

"Determinate" tomatoes bloom and produce fruit at nearly every node but are limited in growth. Determinate tomatoes eventually terminate in one final flower cluster. "Indeterminate" tomatoes produce flower clusters at about every third node but will continue to grow and produce fruit indefinitely. Indeterminate plants must be pruned and staked for successful fruit production. Determinate tomato plants are rarely pruned except near the end of the season to help existing fruit ripen on the vine. Determinate tomato cultivars tend to ripen earlier than indeterminate tomato cultivars and therefore are preferred for Prairie gardens.

Indeterminate tomatoes must be pruned weekly. At each node, a sucker (or new shoot) will develop between the leaf cluster and the main branch. In order to produce large tomato fruit that ripen in a timely manner, these suckers should be removed by pinching them off near the branch between your thumb and forefinger. In climates that have a longer growing season, some of these suckers may be allowed to grow into main shoots.

Tomato fruit types:

Cherry tomatoes: small in size (1-3cm in diameter) but profuse in numbers. Tend to mature earlier than some of the larger types however the endless harvest of small fruit later in the season can frustrate even the most ardent gardener.

Recommended cultivars include: Sweet 100 – sweet and tasty, approximately 2.5cm diameter, prolific producer, must be staked; Sweet Million – good flavor, more disease resistant than Sweet 100, 2.5 cm diameter, better tolerance to cracking than Sweet 100; Vilma – early maturing, dwarf-sized plant with 2cm round fruit, recommended for pots or winter production indoors; Tumbler – high yielding, good flavor, recommended for hanging baskets or pots; Yellow Pear – small (0.75cm), pear shaped, yellow fruit with mild flavor and attractive color.

Beefsteak types vary in size and maturity. Fruit is round to flattened globe shape and 3-10cm+ in diameter. Earlier beefsteak types tend to be smaller in size.

Recommended cultivars include: Duchess – early, round and small (5cm), productive, average flavor; Cabot – early, good yields, small, sweet and mild; Scotia – early, nice interior color, good yields of small fruit, juicy; Bella rosa – nice flavor, juicy, attractive medium sized fruit, average yields; Early Girl – good flavor, juicy, good yields of medium sized fruit; Tasti-lee – very good flavor, firm fruit, medium size with average yields; Fantastic – good flavor, large size with average yields, matures mid-late season; Celebrity – good flavor (more acidic than others), attractive with average yields, fruit shoulders tend to crack; Champion – medium to large size, juicy, tasty good yields and vigorous plants; Defiant – medium size and mid-season maturity, average flavor, resistant to late blight; Lemon Boy – medium-sized round yellow fruit, early to mid-season maturity, low acidity (recommended for people unable to tolerate the acid in tomatoes)

Paste or roma tomatoes are plum-shaped and more “meaty” in texture than the beefsteak types. The meatiness and thick flesh make paste tomatoes most suitable for cooking, freezing, canning and drying.

Recommended cultivars include: Monix – small plant with good yields of fast maturing fruit; Roma – standard type with good yields and average flavor; Plum Regal – superior flavor, recommended for sauces, has good disease resistance including late blight resist.



Beefsteak tomato fruit



Cherry tomato fruit



Roma tomato fruit