

Peppers

Grow with USask



Tips for Planting

- Peppers require a long, warm growing season and must be transplanted in the Prairie garden. Pepper transplants can be grown in your own home or purchased from a local greenhouse.
- A healthy pepper transplant will be 15-25cm tall, dark green in color, possess a strong, thick stem and not be root bound.

Starting your own peppers from seed

- Start transplants at least 8 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 media temperature of 25-29°C, seeds will germinate in 10-21 days. Seedling heating mats can assist in maintaining warm soil temperatures for seed germination.
- 'Damping off' is the biggest disease threat to developing seedlings. 'Damping off' is caused by a combination of several fungi; *Phytophthora* spp., *Pythium* spp., *Rhizoctonia solani* Kühn). Damping off can be prevented by using soilless media, providing adequate spacing for developing seedlings, avoid overwatering, bottom watering seedlings, providing bright light during seedling growth 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 pepper seedlings. To test if you have sufficient lighting; the shadow cast on a white piece of paper by an object 10-15cm above the paper should have definite outline. Inadequate light will result in leggy plants with long, weak stems stretching toward the light. A set of fluorescent tubes (one cool white and one warm white) placed 30cm above the seedlings for 14-16 hours during the day will provide adequate light.
- **Controlling Transplant Size:** The ideal pepper transplant is approximately 15cm tall, has a good root system but is not root bound (tight, hard ball of roots that do not break apart when gently massaged). The stem will be strong and sturdy. The internodes (spaces between leaves along the stem) 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 from an oscillating fan – or by lightly brushing seedling tops with a 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.



■ Hardening off your pepper transplants

- Moving pepper 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 the temperature is a minimum of 15°C. Initially, bring transplants indoors over night. After a couple of days, if night time 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 prior to transplanting into the garden.
- During the 'hardening off' week, reduce watering and plant protection as the week progresses.
- Pepper plants are very sensitive to cold and frost damage, be prepared to protect plants with covers or blankets in the event of late spring/early summer frosts. It is best to refrain from transplanting peppers into the garden until all danger of frost has passed. The traditional "average day of the last spring frost" in the Saskatoon area is typically May 24th.

■ Transplanting and Growing

- Peppers 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 pepper transplants so that the lower part of the stem, up to the first set of leaves (the cotyledons) is covered with soil. Avoid planting into deep, cooler soil. For extra protection for your newly planted pepper transplants, place tin cans or milk cartons with the tops and bottom removed around newly planted peppers

and insert containers several centimeters into the soil. Not only does this provide some wind protection and increase soil temperature, but it may also discourage cut worms.

- Peppers should be planted at 30 cm spacings within the row, allowing at least 50cm 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 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. Pepper 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.
- Peppers are a 'warm season crop'. This means they prefer warm temperatures and very sunny conditions for optimal growth. Peppers 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.
- Peppers will also benefit from supported crop covers throughout the season; the covers will warm the air surrounding the plants and encourage plants to flower, fruit and mature earlier than outside covers. Because peppers are self-pollinating, it is unnecessary to remove the cloth covers during the growing season except to weed.



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- Perforated clear plastic tunnels or covers are not recommended as temperatures can be extreme under this clear plastic, causing pepper flowers to abort.
- Peppers benefit from a steady supply of soil moisture. Irrigate actively growing pepper plants with 2.5 cm water/week.
- Harvest hot peppers late in the season when they are ripe orange or red. Green fruit is mature enough to harvest when it is firm and waxy to the touch.

■ Pepper Types and Cultivars

Factors to consider when deciding what pepper cultivar to grow include; taste, days to maturity, end use, type of pepper, disease resistance and availability

- Peppers that require more than '75 days to maturity' will probably not fully mature during an average Saskatchewan growing season.
- Most peppers start off green and ripen to yellow, orange or red. As bell peppers turn color, they become sweeter. As hot peppers turn color, they usually become hotter.
- Pepper flavours range from sweet to spicy to hot. The most common peppers found in the North American diet belong to two different species of peppers; *Capsicum annuum* var. *annuum* (Anaheim, bell, cayenne, cubanella, Hungarian wax, Italian sweet, jalapeno, New Mexico, pimento, serrano) and *Capsicum chinense* (Aji dulce, habanero, Scotch bonnet)
- Sweet bell peppers are large blocky peppers with a hollow interior. Bell peppers range in color from green to yellow, red, orange, white, brown or purple. Yellow, red and orange bell peppers start off green and ripen to their respective color. Green bell peppers have not yet ripened to their mature color. One of the earliest bell peppers to ripen to red in the Prairie garden is 'Redstart'.
- As the name suggests, banana peppers are shaped like small yellow bananas. They are usually sweet in flavor and not hot. Poblano peppers are slightly more spicy than bell or banana peppers but are not considered 'hot peppers'. Poblano peppers are small blocky peppers and are often used for stuffing.



Jalapeno peppers growing in research trials at the University of Saskatchewan Horticulture Field Research Facility.



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Hot Peppers and Scoville Units

- Pepper heat is measured in Scoville units. Scoville units (shu) are a measure of the amount of capsaicin in a pepper. Capsaicin is the chemical compound that stimulates nerve endings in the skin and mucous membranes.
- Some of the hottest peppers available are habanero peppers. Habanero and Scotch Bonnet peppers (325,000 to 500,000 shu) are small lantern-shaped peppers (2.5 – 4cm long) that mature from green to red or orange. They require a long season to mature and should be protected with crop covers and plastic mulch. Scotch Bonnet peppers are typically smaller than habanero peppers and are popular in Caribbean cuisine. Recommended cultivars include: 'Habanero', 'Caribbean Red' and 'Kukulkan'.
- Thai chili peppers (150,000 shu) are used mainly in Thai and other Asian curries. Thai peppers are not more than 2.5cm in length and range in color from red to green when fully mature. 'Flame Hybrid' is a recommended.
- Cayenne peppers (60,000 shu) easily mature during the Prairie growing season. They are usually 12-15cm long and 1-2.5 cm in diameter at the stem end. Cayenne peppers are used in Cajun recipes, cayenne pepper and many natural medicines in history known for their healing properties. Recommended cultivars include: 'Cayenne Long Slim', 'Long Cayenne Red', 'El Hombre' and 'Ring of Fire'.



Cayenne peppers growing in research trials at the University of Saskatchewan Horticulture Field Research Facility.

- Serrano peppers (25,000 shu) resemble a miniature jalapeno pepper (approximately 3-4 cm long) and mature from waxy green to orange or red. Usually the smaller the serrano pepper is, the hotter it is. 'Serrano Del Sol' is recommended.
- Hot Hungarian Wax peppers (5,000 shu) are light yellow/green, banana shaped and often confused with sweet banana peppers. 'Inferno', 'Super Hungarian Hot' and 'Hungarian Yellow Wax' are recommended.
- Jalapeno peppers (5,000 shu), most commonly found on nachos and cheese, start out green and mature to red with their best flavour being produced in late summer and early fall. Chipotle peppers (slightly hotter than fresh jalapeno peppers) refer to smoked and dried red jalapeno peppers. Recommended jalapeno peppers include 'Mucho Nacho', 'Early Jalapeno' and 'El Jefe'.
- New Mexico peppers (5,000 shu) are medium sized (10-15 cm long and 4-5cm wide at the stem end), light green peppers maturing to medium green and red. These peppers are often dried and hung in bunches. Once dried, New Mexico peppers can easily be frozen. 'Chili Grande' is recommended.
- An easy, attractive and unique hot peppers to grow is 'Big Bomb' which is a hot cherry type that matures to red early in the season; providing hot, attractive green or red peppers for your favorite salsa or chili.

• **CAUTION!** Growing hot peppers is both entertaining and dangerous! After handling the pepper plants and fruit, be sure to thoroughly wash your hands with soap and water before touching your eyes, blowing your nose or going to the bathroom. The hot capsaicin that burns your mouth and taste buds, will burn ALL parts of your body that come in contact. Although the fruit and plants may not be as potent as pepper spray (5,000,000 su), they can still make your life extremely uncomfortable for a while.



Big Bomb cherry tomato, source http://gardener.wikia.com/wiki/Capsicum_annuum_%27Big_bomb%27