Growing Potatoes in the Home Garden

Manitoba Agriculture, Food and Rural Initiatives

Potato growing, even in the home garden involves more than covering a few potatoes with soil and waiting for them to grow. Soil and seed preparation, proper plant care, harvesting and storage are important to your gardening success.

Seed Potatoes

The best seed available is certified seed produced under carefully controlled isolation, disease control and storage. Buy certified seed every year because home produced planting stock can become infected with disease in a single season. Infestation with diseases can result in a high yielding crop the year before producing poor yields and low quality tubers the following year.

Varieties

Varieties commonly available in Manitoba include:

Viking

- early to mid season maturity with a red skin and very white flesh
- high yielding with excellent cooking quality
- tolerates adverse weather conditions well

Yukon Gold

- mid season maturity with a yellowish/white skin and light yellow flesh.
- medium to high yielding with very good cooking quality.
- susceptible to hollow heart but is an excellent storing potato.

Norland

- early to mid-season maturity
- good yielder with fair to good cooking qualities
- red with shallow eyes
- prone to early death caused by insect damage and lack of moisture
- short dormancy period

Shepody

- mid to late maturity
- long white-skinned tubers
- good baking and boiling and french fry quality

Superior

- early maturing with white skin and flesh
- medium yielding with fair to good cooking quality
- moderately resistant to common scab

Red Pontiac

- late maturing, red, medium deep eyes
- very good yielder
- appears to have some drought resistance
- fair cooking quality

Russet Burbank (Netted Gem)

- late maturing, russet skin, attractive tubers
- poor to fair yielder
- good cooking qualities; keeps well
- requires a light soil with uniform moisture (otherwise produces many rough, knobby tubers)
- tubers are relatively resistant to common scab

Specialty Varieties

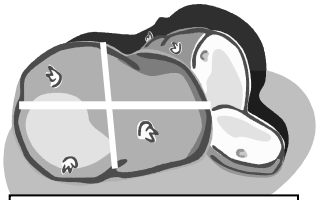
Gardeners who are looking for something different in the way of potato varieties to plant may want to consider planting specialty potato varieties. Seed of specialty varieties is not as readily available as the regular varieties listed above. Specialty varieties appeal to the home gardener because of vegetable's unique qualities – banana shaped, purple skin color, better nutrition.

Soil Preparation

Potato plants prefer a deep, well drained, easily crumbled and fertile soil. If possible, do not plant potatoes in stony areas of the garden. Most commercial potatoes are produced on light textured soils with sandy loams. Clay loam and clay soils also produce good crops if organic matter content is high and drainage is good. Work the soil well, down to approximately the 30 - 50 cm (12 – 18 inch) level. Organic matter such as manure or compost may be incorporated to improve soil structure and fertility.

Preparing Seed

Seed potatoes must be properly cut. The seed pieces should be cut in blocks with at least one good eye per seed piece (two is better). Small potatoes weighing under 85g (3 oz.) should be planted whole. Larger potatoes can be cut into halves, or quarters; usually one vertical and one horizontal cut spaced as needed to include eyes. The average seed piece should weight 40 to 70 g (1 ½ to 2 ½ ounces).



Each seed piece should have one or two eyes.

Manitoba

Many people believe potatoes should be planted as soon as the frost is out of the ground to ensure an early crop. This is not true because potatoes will not start to grow until the soil is warm. For best results, plant the main crop of potatoes two weeks before the last killing frost is expected. Under good conditions, potato stocks begin to develop as soon as they are planted. Do not plant in soil that is too cold (less than 7° C) to avoid late sprouting or rotten stock pieces.

The potato is a cool season crop that can tolerate a little frost. Potatoes will take from 10 days three weeks to sprout depending on the dormancy of the seed potato and the soil temperature. Sprouts grow longest at 18ºC (64ºF) while the ideal temperature for tuber planting is between 16-19ºC (61-66ºF). Tuber development declines if the soil temperature is over 20ºC (68ºF) and nearly stops if the soil temperature is over 30ºC (86ºF).

Green Sprouting
Green sprouting is a way of ensuring early potatoes. To do this, place seed potatoes in open boxes in a warm, well lit room. Green sprouting takes about 20 days so if you are planting the third week of May, start green sprouting the first week of May. The potatoes will develop short green sprouts, rather than the long white sprouts they produce in the dark. Because the potatoes become green, this sprouting process is called greening. Green potatoes should not be eaten, but when you plant them, the crop will be fine.

When planting time comes, cut the potatoes and plant the seed pieces as usual, without breaking the tiny sprouts.

Note: When cutting potatoes disinfect the cutting knife with household bleach to prevent the spread of diseases, such as ring rot.

Planting
Do not plant potatoes in the same place every year because diseases will build up in the soil. Potatoes in the home garden are often planted too deep. The heavier the soil, the shallower the planting should be. In heavy soils a depth of 5cm (two inches) is recommended. For lighter soils about 8 cm (three inches) is deep enough. Plant the potato seed pieces in moist but not overly wet soil.

To plant potatoes in small gardens, make a trench with a hand hoe or dig individual holes with a spade or garden fork. Put fertilizer in the row or individual holes and then cover with a 2.5 cm (one inch) layer of dirt. Plant seed pieces about 30 cm (12 inches) apart in the row and about 70-90 cm (28 to 36 inches between the rows.

Fertility
Commercial fertilizer can be used to increase fertility. For heavier soils, nitrogen plus phosphorus carriers such as 16-20-0 will increase yields. In lighter soils, adding nitrogen phosphorus and potassium carriers such as 10-30-10 increase yields.

Note: The fertilizer formulations listed above may not be available in your area. Ask the staff of your local home and garden centre about specific formulations available in your area.

Apply commercial fertilizer at about 200dg/ha (220 lb/acre) or 7 g/seed piece (0.25 oz/piece) or 6 mil per seed piece (1 level teaspoon per seed piece).

Cultivation and Hilling
Cultivation is done to control weeds and is best done when weeds are small. Make the first cultivation the deepest. Additional cultivations should be shallow, 5 cm (two inches) or less to avoid damaging potato roots near the surface that could reduce yield potato quality.

Hilling is a gradual process of building soil up into a hill around the potato plant. Soil covers potatoes and prevents greening of any potatoes that form near the surface. Potatoes must not be exposed to light or they will turn green and bitter.
A little hilling at the time of every cultivation is good idea. Small weeds found between the potato plants are smothered and killed. Using chemical weed killers in a home garden is generally not recommended.

Water During Dry Weather
Not having enough moisture available to the potato is a major cause of reduced yields and poor quality. A healthy, well developing potato crop can use at least 25 cm (one inch) plus of water per week during growth. During dry weather, thoroughly water the garden with a hose. Do not wait until you see the

potato plants wilting before you add water. At this stage yield potential has already been reduced.

Cycles of hot dry weather, followed by heavy rains prompting sudden short periods of rapid growth, are the main causes of rough, knobby, malformed or cracked tubers. High humidity and excessive rainfall may also provide ideal conditions for the development of diseases such as late blight.

While potatoes need moisture, be cautious as over watering causes the soil to become saturated reducing the ability of the potato tubers to breath. This can also lead to a reduced yield, tuber size and quality.

Insects
Some of the most common insects that attack potatoes are: Colorado potato beetles, potato flea beetles, leafhoppers and aphids.

Colorado Potato Beetle

Colorado Potato Beetles are very distinctive black and yellow striped insects found wherever potatoes grow. They lay tiny, orange eggs in clusters on the underside of the leaves. The eggs hatch into tiny brick red or reddish brown larvae. The larvae have a tremendous appetite, chew the tender leaves of the plant and the larvae grow rapidly.

Potato Flea Beetles are tiny, black beetles about 1.5 mm (1/16 inch) long. They chew tiny holes that look like tiny pin pricks in the leaves. These beetles are very active and not easily seen.

Potato Leafhoppers are tiny, light green insects about 3 mm (1/8 inch) long. They suck juice from the leaves and often inject a virus disease. This causes the leaves to turn purple and curl inward at the tip. The leaves become dry and brown to purplish in color - a condition called hopperburn. Leafhoppers carry the disease from diseased to healthy plants.

Aphids are small, soft-bodied insects, usually green in color. Slow moving, they are most often found on the underside of the leaves. They carry virus diseases from infected to healthy plants.

Diseases
The most common potato diseases found in Manitoba are the virus or running-out diseases - Bacterial Ring Rot, Black Leg, Scab, Rhitoctonia (Black Scurf), Early Blight, Late Blight and Fusarium.

Insect and Disease Control Measures
Insects may be controlled by spraying or dusting a recommended insecticide as required. Regular applications of a suitable fungicide help control early and late blight of potatoes.

Diseases can be kept in check by planting certified seed, using sanitary handling practices and rotating the potato area of the garden with corn or other mono cot type crops to prevent diseases from building up in the soil. Handle potatoes carefully to prevent bruising. A bruise on a potato can be an entry point for disease organisms.

Potato dusts and sprays for controlling pests are available from most home and garden centres. These are convenient and inexpensive to use. Regular applications at seven to 10 day intervals after the plants reach 5 to 8 cm (2-3 inches) in height protects the potatoes during the growing season.

Note: Use insecticides and fungicides with care. Read and follow the instructions on the container. Store the material in a safe place because many of these chemicals are poisonous.

Potato Seed Balls
Potato seed balls are green and about the size of wild plums. Seed balls occur naturally and are not cause for concern. The balls enclose the “true” seed of potatoes but should not be eaten.

Harvesting
Potatoes may be harvested for immediate use once the tubers are big enough. However, the size of the tubers continues to increase as long as the vines remain alive. Except with very early varieties, potato tops will not die down naturally on a healthy plant. When the potatoes have reached the desired size, the tops should be cut off. This stops the potatoes from growing so that the skin of the potato sets and hardens. About two weeks after the tops have been removed, dig up the potatoes.

The best digging procedure is one that gives the fewest injuries and bruises to the potatoes. A garden fork works well for digging potatoes.

Avoid digging on a wet day since wet soil tends to stick to the tubers and is a good reservoir for rotting organisms. If the soil is in proper condition, relatively little soil will stick to the potatoes.

Bruises and cuts frequently develop into storage rot so handle the tubers gently to avoid bruising,

skinning or cutting. Do not leave tubers to dry in the field on a clear and sunny day. Exposure to light encourages a build up of unwanted, bitter tasting food chemicals that are poisonous.

After digging, allow potatoes to dry in a shaded open area for no more than a few hours and not if there's a danger of frost or in your basement. Drying helps harden the skin so the potatoes will last longer in storage.

Storage
Store potatoes in a dark place. As mentioned earlier, potatoes exposed to light turn green. This change in color is often accompanied by a build-up of toxic food chemicals. These potatoes are bitter and illness can result from eating potatoes containing these natural chemicals. A potato storage room must be completely dark and have good ventilation. A temperature of about 4ºC (39ºF) is best. A corner storage room in a basement can be quite satisfactory.

The Storage Room
The temperature in most homes is too warm which is not suitable for vegetable storage. Therefore, a special storage area should be built.

This storage room should be built in the coolest part of the house. A corner of the basement will work best. The walls, ceiling and the door between a warm basement and the storage area should be well insulated. Use thermal resistance value of RSI 3.5 (R20) for the ceiling and RSI 2.1 (R12) for the walls and door. Do not insulate exterior concrete walls.

If it is practical, include an opening to the outside. This duct provides for air circulation, allowing cool fresh air to replace the warm air of the storage room. Monitor the storage temperature regularly to prevent potatoes from getting too warm or too cold. Humidity can be increased by maintaining a wet storage room floor or installing a shallow metal tray to hold water. For additional moister use a vaporizer in the storage room.

Potatoes stored in this type of room should be placed on a removable slatted floor (ex: a pallet) to allow for air circulation. Leave an opening of 25 mm (one inch) between the slats.

A Note About Storing Store Bought Potatoes
Like home garden potatoes, tubers from the store keep fresh and crisp if they are placed into a dark, cool, humid storage room.

Planting Table Stock Potatoes
Results from planting store bought table stock potatoes are often disappointing. In many instances the tubers fail to sprout. This is because the potatoes have been sprout-inhibited so the tubers remain firm. Otherwise, the potato becomes wrinkled and spongy. Using non-certified planting stock from any source increases the risk of plant diseases, such as bacterial ring rot.

Resource Information
Manitoba Agriculture, Food and Rural Initiatives
Potato homepage
www.gov.mb.ca/agriculture/crops/potatoes

Manitoba Potato News Website:
www.mbpotatonews.ca

University of Manitoba horticultural inquiries website:
www.umanitoba.ca/afs/hort_inquiries/vegetable

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