



Fruit Crops for Northern Manitoba

A Guide to Planting, Growing and Variety Selection



Table of Contents: Growing Fruit Crops in Northern Manitoba

Introduction	2
Manitoba's Plant Hardiness Zones	2
Fruit Crops Adaptable to Northern Climates	2
The Basics	3
Pollination	3
General Location Guidelines	3
General Watering Guidelines	3
General Fertilizer Guidelines	3
General Weed Control Guidelines	3
Planting Bare Root Trees	4
Planting Container Stock Trees	5
Troubleshooting: Why no fruit harvest?	5
Strawberries	6
Raspberries	9
Crabapples	10
Apples	12
Dwarf Sour Cherry	13
Saskatoons	14
Wild Fruit Harvesting	14
Fruit Plant Suppliers	16
Resources	16
Acknowledgements	16

Growing Fruit Crops in Northern Manitoba

Introduction

Many fruit crops introduced to northern Manitoba by gardeners can survive and produce fruit. The major challenges in growing introduced fruit are extreme weather and a short growing season. Success at gardening in northern regions has more to do with choosing the best locations, keeping soils fertile and well-watered, using hardy plant stock and investing the time and effort to nurture and protect crops as they grow. Protecting plants from damage by animals, ranging from deer, rabbits or mice to domestic animals like dogs, is essential.

Manitoba Plant Hardiness Zones

Although a growing season that is too cold, dry or wet can prevent fruit plants in northern Manitoba from producing a crop in any given year, hardy fruit plants can survive and produce fruit in the next good growing season. The ability to sit out seasons is not just a northern phenomenon. It is common among fruit bearing plants from many regions, because extreme weather can happen almost anywhere.

For northern Manitoba, it is important to select fruit crop species and varieties rated for Plant Hardiness Zones 1-2 (see map below).



Fruit Crops Adaptable to Northern Climates

- Strawberry (grows wild in north)
- Raspberry (grows wild in north)
- Saskatoon berry (grows wild in north)
- Blueberry (grows wild in the north, common)
- Apple (difficult to get fruit every year)
- Crabapple (hardier than apple, can be successful in northern Manitoba)
- Dwarf sour cherry (never been tried)
- Other northern wild fruit crops (ex: lingonberry, cloudberry)

Map obtained from the Agriculture and Agri-Food Canada National Land and Water Information Service at www.agr.gc.ca/nlwis-snite

The Basics

Pollination

To bear fruit, plants must be pollinated. Pollination happens when pollen is transferred from one flower to another flower. Not all fruit crops have the same requirements. Some are pollinated by wind and others require pollination by bees or other insects. Apples and crabapples stand out among fruit crops because they will not bear fruit unless pollinated by a different apple variety. Both varieties must flower at the same time for pollen to be transferred from one to the other. Interestingly, full-sized apples and crabapples are related closely enough to pollinate each other.

General Location Guidelines

The best places to plant fruit trees, bushes and vines where they will receive the most sunlight and where they are protected from wind. They usually also require well drained soil with more sand content than clay, so standing water will not accumulate after a rain. Fruit trees should also be fenced to prevent deer, rabbits and other wildlife from eating various parts of them.

General Watering Guidelines

Water fruit trees thoroughly after planting them. Maintain good soil moisture until plants are well established. Maintain good soil moisture, the equivalent of three to five centimetres of rain per week throughout the season. Water fruit trees regularly, two to three times per week in their first year, depending on soil dryness. For woody plants like apples and Saskatoons, continue watering weekly or every two weeks over the next couple of years as the trees become established.

General Fertilizer Guidelines

It is easiest to use a 20-20-20 soluble fertilizer. Be sure to read the fertilizer mixing instructions on the manufacturer's container to find out how much to use and how often to use it.

General Weed Control Guidelines

Remove all weeds from your planting site before planting. Continue to remove weeds throughout the growing season. Weeds compete with plantings for water and fertilizer.

Planting Bare Root Trees

With bare-root stock, plants must be protected until they are planted. Examine the condition of your stock when it arrives. Keep moist packing material around the roots and store the plants in a cool place, out of the sun and wind. Plant as soon as possible. Be sure to plant bare-root nursery stock in spring before growth starts.

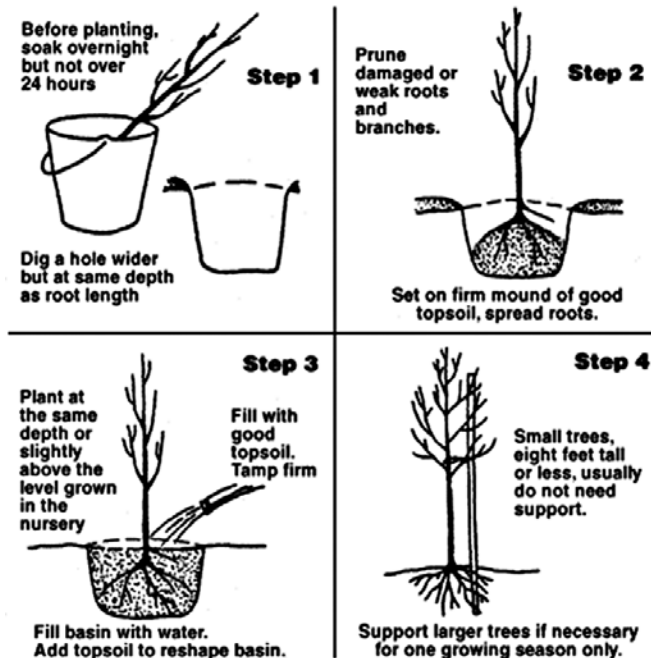
Dig holes large enough to allow the roots to be spread out when planting. Prepare soil properly before using it to fill in around roots. Use a mixture of one-third topsoil and two-thirds good garden soil. If the soil you are using is heavy, containing clay, consider adding sand or vermiculite for better drainage.

Carry the plants in a pail of water or moist soil to the planting site. Never allow the exposed roots to dry out in the sun or wind. Remove the container just before planting. Prune away any broken or cracked roots.

Plant trees about three to five centimetres deeper than the original soil mark on the trunk. When refilling the hole, be sure to pack the soil in around the roots, leaving the surface around the trunk slightly depressed to retain water instead of directing it away from the trunk.

Using a mild transplant fertilizer is also recommended at this stage. It is important to use a starter formulation (ex: 5-15-5 or 10-10-10) and water thoroughly after planting.

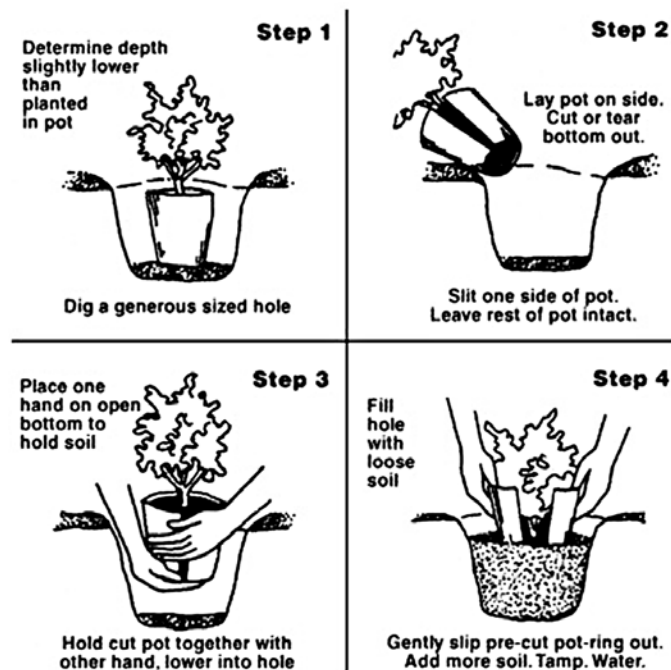
Supply water two or three times per week during the establishment period. Maintain good moisture throughout the season (equivalent of three to five centimetres of rainfall per week). Attention to watering should extend through the second or additional growing seasons, especially during dry spells.



From NDSU fact sheet: *Planting Trees and Shrubs*, H-531 (Revised), December 1993 (Reviewed and reprinted May 1998) North Dakota State University Agriculture and University Extension Morrill Hall, P.O. Box 5562, Fargo, ND 58105-5562

Planting Container Stock Trees

Plants from container stock generally need close attention as they acclimatize because they have often been raised in ideal nursery environments. To plant them, dig a hole twice the depth and width of the root ball. This is so soil around and under the plant is loosened to allow for easy expansion of roots that have been kept compact in a container. Put in a topsoil and fertilizer mix, or use water-soluble fertilizer and water it in well. Place the root ball in the middle of the hole with the main stem straight up and the top of the root ball three to five centimetres below the soil surface. Water after planting and water two or three times per week, depending on soil dryness, during the first growing season. Continue watering the plant every week or two over the next couple of growing seasons



From NDSU fact sheet: *Planting Trees and Shrubs H-531* (Revised), December 1993 (Reviewed and reprinted May 1998) North Dakota State University Agriculture and University Extension Morrill Hall, Fargo, ND

Troubleshooting: Why No Fruit Harvest?

Successful fruit harvests can be hit and miss wherever you are located in Manitoba. There are many factors involved when no fruit is produced, but these are the most common:

- Extreme cold winters (-35°C to -45°C) may result in no fruit the next summer, if fruit buds are killed off, but plants will usually survive.
- Late spring frost during flowering may result in no fruit that summer if flowers are damaged or killed.
- Cool, wet weather during flowering may result in little or no fruit crop because of poor pollination by bees or other insects.
- A plant may also lack the energy needed to produce fruit because of poor soil nutrients, disease, insect infestations or wildlife damage.

Strawberries

There are three types of strawberry plants used in northern Manitoba:

- June-bearing – produce fruit in July. Kent and Glooscap cultivars are hardier and will survive longer.
- Day-neutral – produce fruit in July and August. These are less hardy. Seascape is a recommended cultivar.
- Everbearing – produce fruit in July and August. They have a lower berry harvest. Fort Laramie and Ogallala cultivars are recommended for northern use.

Strawberry plants multiply by sending out above ground stems called stolons that develop into new plants called daughter plants. This reproduction technique will eventually fill in a flowerbed or a corner of garden around the original plant. Daughter plants will take root in the ground and produce even more fruit than the original mother plant. Daughter plants can also be dug up and used to fill in bare patches, or planted in other locations to start a new strawberry patch.

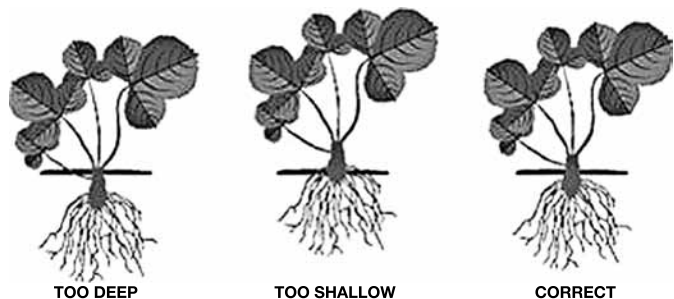


How to Plant and Grow Strawberries

Transplant fruit crops after the last spring frost, usually in early June. To keep the roots from drying out before planting, carry the trees or plants in a pail or plastic bag with the roots covered in moist soil. Place the pail or bag in cool and shady spot. Once the planting area is ready, carry the plants in a pail of water and water each plant after planting.

Place plants fifteen to thirty centimetres apart, in holes twelve to fifteen centimetres deep. Only leaves should be poking out of the ground.

Insert the plant roots allowing them to hang down to their full length and spread them out in a fan shape. Set the plant with the crown at the surface (see diagram) and press soil into the hole.



Fertilizing

Water using 20-20-20 soluble fertilizer diluted according to container instructions after planting. Add supplementary 20-20-20 soluble fertilizer in July to maximize growth.

Weed Control

Remove all weeds from the planting site before planting and continue to remove weeds during the growing season. It is important to keep your strawberry patch free of weeds so they don't compete with your strawberries and reduce the berry harvest.

Strawberry - Pre-Winter Care

It is necessary to cover strawberry plants with a protective mulch cover to protect the strawberry plants from low winter temperatures that can damage or kill the plants. Mulch covers keeps soil temperatures uniform, prevents the winter winds from drying out plants and helps trap snow.

Apply mulch over the row in late fall after several frosts but before temperatures have dropped to -6°C to -7°C.

Plants must be dormant before applying mulch cover. Plant leaves will be pale green/ yellow-red in colour or entirely red in colour when dormant.

In southern Manitoba farmers will apply mulch straw cover in late October to early November.

In northern Manitoba mulch cover can be applied mid to late October, depending on the weather.

Since field straw from wheat or oat field is not available in northern Manitoba, alternative mulch covers can be used quite successfully:

- **Dry, loose** fallen leaves
- **Dry, loose** peat moss

Apply leaves or peat moss four to six inches thick over the rows only, which will be two to three inches thick after settling.

Remember that the trapped air in the mulch cover acts like house insulation to protect the plants, so the leaves or peat moss must be dry and loose when applied.



Spring Care Activity

Remove leaves or peat moss in spring once plants start to green-up again and risk of severe frost has passed (-4°C to -10°C). Leaves will become light yellow in colour. In southern Manitoba mulch cover is usually raked off mid April to early May depending on the weather, **in northern Manitoba early to late May.**

In **larger** row plantings, if using leaves some of them can be kept in between rows to provide some weed control, hold in soil moisture and provide a pleasant picking area.

Some of the mulch cover can also be removed in the spring to partially protect the plants and delay flowering in order to avoid frost damage to mature flowers by early spring frosts. Strawberry flowers in full bloom (fully open) and flower buds (unopened flowers) can survive short term frosts down to -1°C **for less than thirty minutes.** If cold temperatures are expected, cover with mulch cover or blankets/tarps the night before to protect the flower buds and opened flowers.

Frost damages the center of the flower with the center turning black while the petals and leaves appear uninjured. The blackening occurs within a few hours to one day after the frost. Frost can also damage the developing fruit, deforming the berries. Flowers that are only slightly damaged from frost may develop deformed fruit (also called cat facing), with the end of the berry becoming stunted and seedy or the plants may produce no fruit at all. If weather is cool or wet during flowering, pollination of flowers by bees will be poor resulting in fewer healthy strawberries and more deformed (cat faced) berries.

Harvesting Strawberries

The first year harvest is normally small harvest in year, but will increase in years that follow. Plants should survive three to four or more years in a home garden setting. Fruit takes thirty to forty days to develop after flowering is completed. If flowers appear in May and June, fruit should appear in July.

When fruit is fully ripe and berries are entirely red, harvest by pinching the berries off the stem. Berries that are very dark red and soft or wilted are overripe and may be too mushy to eat. Refrigerate strawberries immediately to store them or rinse and eat them right away. Strawberries will only last a couple of days in refrigeration. They can be preserved by freezing them in plastic bags or by processing them as jam.



Raspberries

Always select summer bearing or floricanne type raspberries for northern areas. They produce berries on stalks from previous years so they can bear fruit earlier, usually in July and early August. Hardy raspberry varieties to use in northern Manitoba are Boyne and Souris. Both were developed in Morden, Manitoba, and both exhibit good fruit production and good flavour.



Site Selection

Pick locations with full sun, no shade, well drained and well tilled soil. Plant raspberries in a row on a garden edge or an area dedicated to them. Allow suckers (new daughter plants) to fill in the row over the years.

Watering

Water raspberries thoroughly after planting. Maintain good soil moisture until the plants are well established. Provide plants with the equivalent of about three to five centimetres of rainfall each week afterward.



Fertilizer

Use 20-20-20 soluble fertilizer mixed according to container instructions and water thoroughly it into soil after planting. Add supplementary 20-20-20 soluble fertilizer in July to maximize growth.

Weed Control

Prepare your planting site before planting by removing weeds and continue to remove weeds during the growing season. It is important to keep weeds from competing with your raspberries because they will reduce the numbers of berries you can harvest.

How to Plant Raspberries

Carry the plants in a pail of water and water each plant thoroughly after planting. Place plants thirty centimetres apart in a row and plant them in holes twelve to fifteen centimetres deep with the cane planted three to five centimetres lower than previously planted as indicated by old soil marks on the cane. Till or spade the area deeply before planting. Plant by pushing a spade into the ground to its full depth and then press it to one side. Insert the plants roots allowing them to hang down to their full length. Remove the spade and press soil against the roots.

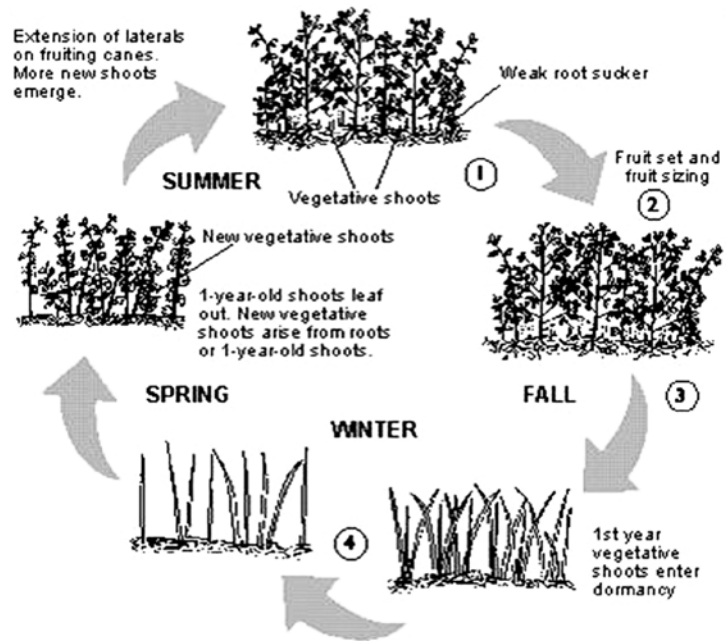


How to prune summer-bearing red raspberries in their second and following years:

In April or early May, remove dead and damaged canes at ground level and dispose of them completely. They will be brittle, dry, and grey coloured when dead. Leave behind healthy brown or green canes, which will produce the season's fruit before dying off.

Harvesting Raspberries

After flowering, the raspberry plant takes thirty to forty-five days to develop fruit. If flowers occurred during June, expect a harvest of berries in late July or early August. Pick berries when they are fully ripe and entirely red. They should pull off easily, leaving a white core or receptacle behind. Berries that are very dark red and soft or wilted are overripe and may be too mushy to eat. Store raspberries in a refrigerator immediately to retain their quality or rinse and eat them immediately. Raspberries last only a couple of days in a refrigerator, but freeze well.



From: Frank Louws. 1992. *Growing Raspberries in Ontario*. Ministry of Agriculture and Food. Publication 105).



Crabapples

Crabapples are actual apple species, but with smaller fruit and usually a more tart flavour. They are best planted in full sun, well protected from the wind on well-drained soil. Plant them according to container stock instructions found earlier in this publication (see page five). Always plant two different varieties (ex: Rescue and Dolgo) of crabapples because all apple species need cross-pollination to achieve good fruit production. Use fencing to protect crabapples from deer, rabbits and other wildlife.



Crabapple Varieties for Northern Manitoba:

- Rescue – sweet taste, good for fresh eating, red fruit, plant hardiness zone 1, readily available
- Trailman – sweet taste, green and red fruit, fresh eating and cooking, readily available
- Dolgo – bright red fruit, tart taste, good for jelly, readily available
- Early Yellow – plant hardiness zone 1, small yellow fruit, hard to find
- Red Siberian – small red fruit, plant hardiness zone 1, green fruit, hard to find, good for jelly
- Norhey – plant hardiness zone 1, green fruit, hard to find
- Osman – plant hardiness zone 1, reddish fruit, hard to find

Healthy trees should develop fruit after four to five years. They will flower in May or June and produce fruit in August or September.

Watering Guidelines

Water thoroughly after planting. Maintain good soil moisture until plants are well established and throughout the season, providing the equivalent of three to five centimetres of rainfall each week. Water regularly in the first year, two or three times per week until soil is moist. For crabapples, continue watering the plant regularly, weekly or every two weeks, over the next couple of years as the tree becomes established.

General Fertilizer Guidelines

The easiest fertilizer mix to use is a 20-20-20 water soluble fertilizer mix. Read the fertilizer mixing instructions on the container to determine how much to use and how often to use it.

General Weed Control Guidelines

Prepare your planting site before planting by removing weeds and continue to remove weeds during the growing season. Weeds compete with cultivated plants for water and fertilizer.

Harvesting Fruit

Harvest fruit when crabapples are fully red (Dolgo and Rescue), or fully green-red (Trailman). The flesh should be crisp but soft to eat, not hard as rock. The taste should be sweet-tart. Store crabapples in a refrigerator or rinse and eat immediately. They will last up to a month in a refrigerator. You can also cut out the core, remove the skin and freeze crabapples or make them into apple sauce, jelly and baked desserts like pies.

Apples



Prairie apple species are similar to commercial apples except they are usually smaller, more tart and firmer. The best location to plant these is in full sun, well protected from the wind on well-drained soil (ex: not in swampy areas or areas that have standing water on them after heavy rains or snowmelt). Plant them according to container stock instructions found earlier in this publication (see page five).

Since apples require cross-pollination to bear fruit, always plant two different varieties to achieve fruit production (ex: Norkent and Battleford). Apple growers sometimes plant hardier crabapples as pollinators in orchards of apples. The key is to pick species and varieties that flower at the same time. Use a fence to protect apple trees from wildlife that will eat their various twigs, buds, flowers and fruits.



Apple varieties worth trying in northern Manitoba (plant hardiness of these types is zone 2):

- Battleford – green and red striped apple with green-yellow fruit that ripens mid to late August – good eaten fresh or cooked – stores well
- Norland – green-mostly red fruit ripens mid to late August – good eaten fresh or cooked – stores well
- Norkent – red over pale yellow fruit – ripens mid to late August – taste similar to Golden Delicious apple – good for cooking – stores well
- Gemini – red over pale yellow fruit – ripens late August – stores well
- Parkland – fruit greenish-yellow with red striping – good for eating or cooking – ripens late August

Healthy trees should develop fruit after four to five years. They flower in May or June and fruit in August or September. For watering, fertilizer and weed control guidelines, see the previous section on crabapples (see page ten).

Harvesting Fruit

Different apples have different colours and flavours when ripe. Most apples are best harvested when the flesh is crisp but soft to eat, not hard as rock. Store apples in a refrigerator or rinse and eat them. Depending on the variety, apples may last a month or more in refrigeration. You can also cut out the core, remove the skin, freeze or preserve apples and bake with them.

Dwarf Sour Cherry



This fruit crop was developed at the University of Saskatchewan and has shown good winter hardiness across the prairies since its release to the public in 1999. It has not been tried in northern Manitoba, but is worth testing. Protect this plant with a fence to prevent deer and rabbits from eating parts of it. Only one tree is needed because no cross-pollination is required, but the plant still needs bees to pollinate it. Follow the directions for planting container stock shown earlier in this publication (see page five).

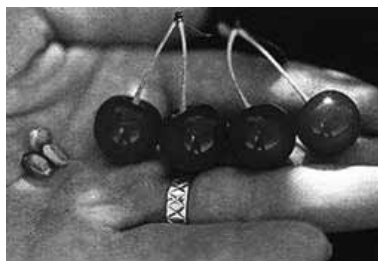
Dwarf Sour Cherry Recommended Varieties:

- Carmine Jewel (most common)
- Romeo
- Valentine
- Crimson Passion
- Juliet
- Cupid

Expect fruit after four to five years, with flowers in May or June and ripe fruit in mid-August or early September. For watering, fertilizer and weed control guidelines, see the section dealing with crabapples on page ten of this publication.

Harvesting Fruit

Harvest fruit when it is bright to dark red and flesh is slightly soft. Store it in a refrigerator immediately or rinse, remove pit and eat. Dwarf sour cherries will last only a couple of days in the refrigerator. An easy way to pit the cherries is to push the pit out with a drinking straw and then freeze or can them.



Saskatoons

Saskatoons grow naturally throughout many regions of Manitoba. For best fruit production, locate plants in full sun, well protected from the wind on well-drained soil. Use fencing to protect them from deer, rabbits and other wildlife. Plant them as outlined in bare root planting procedures earlier in this publication (see page four).

Saskatoon varieties recommended for northern Manitoba are Canadian mid-late season:

- Smokey
- Northline
- Honeywood

Avoid varieties Martin and Thiessen because they are early flowering and may not survive late spring frosts. Only one variety is needed because Saskatoons are mostly self-pollinated. Healthy trees should develop fruit after three to four years. They should flower in May or June and bear fruit in mid-July to August.

For watering, fertilizer and weed control guidelines, see the section dealing with crabapples on page ten in this publication.



Wild Fruit Harvesting

Many wild fruits are abundant in northern Manitoba for local eating. Low-bush wild blueberries are quite common and are the same type of blueberries that are commercially harvested in Quebec and the Maritimes. Wild fruits contain higher levels of anti-oxidants, vitamins and minerals than most store bought fruit types (ex: apples, oranges). Edible wild fruit crops in northern Manitoba include: lingonberry, cloudberry, high-bush cranberry, wild strawberry, wild raspberry, Saskatoons and others.



Harvesting Fruit

Pick the fruit when the berries turn dark purple or blue in colour. In years of high plant disease activity, fruit harvests will be low or absent. Store berries in refrigerator or rinse and eat immediately. Fresh berries will only last a couple of days, but they will freeze quite well for use over the winter.

Improving Blueberry Production

Ways to improve wild blueberry harvests:

- fertilize to improve yield (use 17-17-17)
- conduct soil test and leaf tissue analysis to indicate nutrient levels
- reduce competition from trees, shrubs and weeds



Fruit Plant Suppliers

Mail-order and retail fruit plant suppliers:

T & T Seeds Ltd.
Winnipeg, Manitoba
Phone: 204-895-9964
www.ttseeds.com

Boughen Nurseries Valley River Ltd.
Valley River, Manitoba (north of Dauphin on HWY 362)
Phone: 204-638-7618
www.boughennurseries.net

Resources

University of Manitoba Horticultural Inquiries (fruit and vegetable info)
www.umanitoba.ca/afs/hort_inquiries/

University of Saskatchewan Fruit Crop Program (fruit articles)
www.usask.ca/agriculture/plantsci/dom_fruit

Basic Gardening Manual for Northern Manitoba available from Manitoba Agriculture, Food and Rural Initiatives The Pas GO Centre at 204-627-8255.

Manitoba Agriculture, Food, Rural Initiatives Commercial Fruit Production Info
www.gov.mb.ca/agriculture/crops/fruit

Acknowledgements

Special thank you to the following for their assistance with this manual:

- Manitoba Northern Healthy Foods Initiative
- Northern community's local food champions
- The Pas Growing Opportunities Office
- Manitoba Agriculture, Food and Rural Initiatives Crops Knowledge Centre
- Saskatchewan Department of Agriculture
- Prairie Fruit Growers Association

For More Information

To find your nearest GO Office, call Manitoba Government Inquiry, toll free at 1-866-626-4862.

To find out more about program details, go to manitoba.ca/agriculture.