

# Harbours to Highlands

A Geography Manual

Plant Science

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# Plant Science

The information for the following story is from Reader's Digest New Illustrated Guide to Gardening in Canada.

## Words to Preview

texture	nutrient	phosphorous
essential	humus	potassium
grayish-brown	nitrogen	alkaline

## All About Soil

Soil -- some people call it earth, some call it dirt, loam, or clay. Some call it mud or muck. Some talk about the "ground," "earth," or "soil." All these terms can be very confusing for those of us who thought soil was simply soil.



Whatever it may be called, soil is so essential to our planet that life in the world would not exist without it.

Soil covers all of the Earth's surface and supports plant life. It can be just a few inches deep or many feet deep.

When we travel the countryside, we notice the difference in soils. Soils vary in color and texture -- they may be grayish-brown or yellowish, or they may be reddish or dark brown. To understand what makes them differ, first we must understand what soil really is.

Soil is made up of a mixture of different ingredients, both organic and inorganic, air, and water. Inorganic material is composed of rock particles and minerals. Organic material was once living animal and plant matter which has decayed. This usually dark nutrient-rich material is called humus. Humus is essential in the soil for good plant growth. It is rich in nutrients, helps retain water and air, and improves drainage. Soil also contains insects, earthworms, bacteria, and fungi.

Topsoil, or the top layer of soil, is the richest layer of soil. It contains more humus and minerals. Plants grow best in this layer because they easily receive the nutrients they need for good root development and top growth. Plants need at least sixteen elements for growth. They need only small amounts of some of the elements, but nitrogen, phosphorus, and potassium are needed in larger quantities.

Under the topsoil is a layer called subsoil. This layer is more reddish-orange in color and is harder to dig.

Most soils are made up of three ingredients -- sand, silt, and clay. The proportions vary in different soil types. Sandy soil is gritty, drains easily, and is easily plowed. This kind of soil usually needs added humus, water, and nutrients to improve plant growth. Sandy soil is called "light soil."

Silt is a finer texture than sand -- it is powdery and sticks together easily. It drains slower than sandy soil.

Clay particles are still finer than silt. They pack together when wet and dry hard, but drainage is poor. Clay soil is called "heavy soil."

Loam is well-balanced, good-textured soil. Loam is the ideal soil. It contains sand, silt, and clay. It is "crumbly" and easily worked. Gardeners call humus-rich loam "good soil." Earthworms love this kind of soil.

There is also acid and alkaline soil. It has to do with the pH level in soil. The pH scale ranges from 0, which is pure acid, to 14, which is pure lye. The best level for most plants is somewhere around pH 6.5. Acid soil is usually referred to as "sour soil" and can be sweetened with applications of ground limestone. Alkaline soil can be corrected with applications of flowers of sulphur which is an element. Certain plants, such as azaleas and blueberries, need acid soil to grow. A soil test will tell you whether the pH level in soil is acid or alkaline.

Understanding your soil is important. A lady once asked my advice on growing nasturtiums in her window boxes. I told her to give them soil that was not too rich and they'll grow beautifully. A few months later, she told me that her flowers were not doing so well. I went to investigate and found her window boxes filled to the brim with hard, rocky soil. I am now a lot clearer when I give information on soils!

## **"All About Soil"** Comprehension Questions

1. What two types of ingredients is soil made up of along with air and water?
2. What is humus? Is it an essential part of soil? Why or why not?
3. Which layer of soil is the richest?
4. How many elements do plants need to grow?
5. What is light soil? Give a brief description. What is heavy soil?
6. What is loam? Why is it called "good soil"?
7. What is the pH scale? What pH level is the best for most plants?

[\(View answers\)](#)

## Reading Between the Lines

1. Why do you think earthworms love loam?

### Trivia Question

**Do a bit of research.**

What is tundra soil?

[\(View answer\)](#)

## "All About Soil"

### True or False

Circle the correct answer.

1. Organic material was once living animal and plant matter which has decayed. True or False
2. Plants need at least ten elements for growth. True or False
3. Humus is essential in the soil for good plant growth. True or False
4. Subsoil is the richest layer of the soil. True or False
5. Silt drains slower than sandy soil. True or False
6. Most soils are made up of three ingredients -- sand, silt, and clay. True or False
7. Sandy soil is gritty, drains easily, and is easily plowed. True or False
8. Clay soil is called "light soil." True or False
9. Loam is well-balanced, good-textured soil. True or False
10. The pH scale ranges from 0, which is pure acid, to 14, which is pure lye. True or False
11. The best level for most plants is somewhere around pH 8.5. True or False
12. Acid soil is known as "sour soil." True or False
13. Blueberries need alkaline soil to grow. True or False
14. Alkaline soil can be corrected with applications of ground limestone. True or False

[\(View answers\)](#)

## Soil

Soil is made up of organic and inorganic ingredients, air and water.

Inorganic material is rock particles and minerals.

Organic material is decayed animal and plant matter.

The organic material in soil is usually called humus.

Soil needs humus for good plant growth.

Loam is the ideal soil.

It is rich in humus.

It also contains a good balance of sand, silt, and clay.

Soils can have different pH levels.

Some soils are acid and some are alkaline.

The pH scale ranges from 0 to 14.

Zero is pure acid and 14 is pure lye.

Most plants like a pH level of 6.5.

Certain plants, like blueberries, need acid soil to grow.



1. \_\_\_\_\_ is the ideal soil.
2. Zero on the pH scale is \_\_\_\_\_ and 14 is \_\_\_\_\_.

For sources to this article, see [All About Soil](#).

The information for the following story is from the following Internet sites accessed 11/13/02:

[http://www.gov.pe.ca/infopei/Reference/All\\_about\\_PEI/Nature/](http://www.gov.pe.ca/infopei/Reference/All_about_PEI/Nature/)

<http://www.pbase.com/image/3770600> <http://www.veseys.com/store.cfm?cat=92>

[http://www.midisle.com/news\\_article.cfm?SID=3](http://www.midisle.com/news_article.cfm?SID=3)

<http://www.atlanticcanada.info/princeedwardisland.htm>

Words to Preview		
tourism	sandstone	aboriginal
sedimentary	iron oxide	Mi'Kmaq

## P.E.I. Soil

Many people in Canada call Prince Edward Island P.E.I. for short.

Prince Edward Island is located in Atlantic Canada.

P.E.I. is known for its potatoes and tourism industry.

P.E.I. farmers grow almost one-third of Canada's potatoes.

P.E.I. potatoes grow well in their unique, red soil.

P.E.I.'s climate of warm days and cool nights is just right for potato growing.

Also, Prince Edward Island's long, cold winters, with deep frost, naturally cleanse the soil.

Prince Edward Island is made of sedimentary bedrock and soft, red sandstone.

Sedimentary means materials, such as sand and stone, deposited by water.

Many people wonder why P.E.I.'s soil is so red.

It is because of the high iron oxide content (rust) in the soil.

Aboriginal people lived in North America before the Europeans.

Aboriginals who lived in P.E.I. and around Atlantic Canada were called Mi'Kmaq.

The Mi'Kmaq called Prince Edward Island "Abegweit."

Abegweit means "land cradled by waters."

The Mi'Kmaq had their own story of why the soil was so red.





Mi'Kmaq traditions tells of how Glooscap, a Mi'Kmaq god, created the red soil.

Mi'Kmaqs say that Glooscap first painted and created all of the beautiful wonders of the world.

Glooscap mixed beautiful colours with his paintbrush.

Then Glooscap painted the Abegweit soils, known today as Prince Edward Island.

## **"P.E.I. Soil"**

### Comprehension Questions

1. What naturally cleanses P.E.I.'s soil?
2. What is the P.E.I. soil made of?
3. What does sedimentary mean?
4. Why is the P.E.I. soil so red?
5. What is the Mi'kmaq's story of why the soil is red?

[\(View answers\)](#)

### Reading Between the Lines

1. P.E.I. farmers grow almost one third of Canada's potatoes. Where do you think the other 2/3 come from?
2. Rust is called iron oxide. How does rust form? Hint: Look at its chemical name.

### Trivia Question

**Do a bit of research.**

P.E.I. is about 1.2 million acres. How many of these acres are used for growing potatoes?

[\(View answer\)](#)

## "P.E.I. Soil"

### Plurals

Give the plural forms of each of the following words.  
Don't forget to change the y to i and add es in some cases.

- |             |       |               |       |
|-------------|-------|---------------|-------|
| 1. person   | _____ | 2. farmer     | _____ |
| 3. potato   | _____ | 4. winter     | _____ |
| 5. content  | _____ | 6. industry   | _____ |
| 7. climate  | _____ | 8. material   | _____ |
| 9. European | _____ | 10. story     | _____ |
| 11. colour  | _____ | 12. tradition | _____ |

[\(View answers\)](#)

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### Long "E" Sound

The letter "e" can have a long and short vowel sound. It has a long vowel sound in words like "easy" and "sea." It has a short vowel sound in words like "egg" and "men."

**Circle the words with the long "e" sound.**

because	people	mean
content	tell	red
well	before	create

[\(View answers\)](#)

The information for the following story is from these Internet sites accessed 10/28/02:

<http://www.museum.gov.ns.ca/mnh/nature/symbols/berry.htm>

<http://www.nsac.ns.ca/wildblue/facts/grow.htm>

A special thanks for the delicious recipe from Drumlin Heights Home And School Playground Group's recipe book, "*Our Best To You!*"

Words to Preview		
humble	abandoned	antioxidants
harvest	economy	Oxford

## Nova Scotia's Provincial Berry

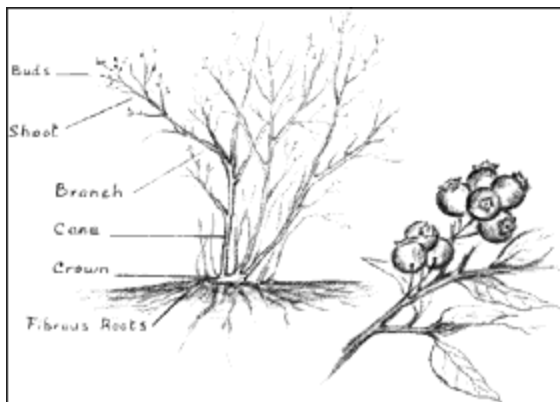
### Blueberries

A famous Nova Scotian fruit is the blueberry. The wild blueberry is native to Nova Scotia and has always been a favourite. On January 11, 1996, the House of Assembly declared the wild blueberry the Provincial Berry of Nova Scotia.

Blueberry picking has humble beginnings. Many of us remember our grandparents, parents, or even ourselves telling blueberry picking stories. Usually it was a story of a long walk to the perfect blueberry patch and the long time spent picking berries in the hot sun. Then the berries were sold for very little. When I was a young child, we were lucky to get \$2.00 a quart. Boy, has blueberry picking come a long way!

The blueberry mainly grows in northeastern North America. Unlike the cranberry, blueberries are very sweet.

The wild blueberry grows on a low bush. Wild blueberries grow best on abandoned farmland or in a clearing in the forest. Also wild blueberries grow well in acid soils that are well-drained.



Wild blueberries spread and grow by underground runners. These runners are the stems, and they create new roots. As these new roots spread, new shoots come up in the early spring through the ground, and they continue to grow year after year. In the late summer to early fall, flower buds appear on the new shoots. It's not until the next summer that the blueberry fruit will grow and ripen.

There are two ways to harvest blueberries. One is hand harvesting. This is done with a metal rake. The other is machine harvesting. To machine harvest, the land should be clear of big rocks and trees. The harvested crops are sent to a processing plant where the fruit is frozen and shipped all over the world. Nova Scotia's wild

blueberries are shipped to twenty or more countries.

Blueberries make up a huge part of Nova Scotia's economy. Nova Scotia is the largest blueberry producer in Canada. Oxford, Nova Scotia is the wild blueberry capital of Canada.

Blueberries, like cranberries, are viewed as a very healthy fruit, filled with antioxidants. It is believed to be one of the most heart-smart foods you can eat. This new knowledge on blueberries is making it more popular and in demand. Here is another reason why blueberries are so popular: they are delicious in desserts! Enjoy this recipe!

## Blueberry Grunt

Step 1:

1 quart blueberries

½ cup sugar

½ cup water

Dumplings:

1 ½ cups flour

3 teaspoons baking powder

½ teaspoon salt

1 tablespoon shortening

¾ cup milk

1 teaspoon sugar

**Step 1:** To stew blueberries, mix blueberries, sugar, and water. Bring to a boil, then reduce heat and let them stew.

**Step 2:** For dumplings, mix flour, sugar, baking powder, and salt together. Add shortening; blend well. Add milk, but do not over mix. Drop by spoonful in stewed blueberries. Cover pot and let the dumplings cook. Approximate time, 10 minutes, but the longer they're in the blueberries stewing, the better the flavor!

## **"Nova Scotia's Provincial Berry"**

### Comprehension Questions

1. What did the House of Assembly declare the blueberry on January 11, 1996?
2. Where do blueberries grow? In what type of soil do they grow best in?
3. How do wild blueberries spread?
4. How are blueberries harvested? Where are they shipped to?

[\(View answers\)](#)

### Reading Between the Lines

1. Blueberries, like cranberries, are viewed as a very healthy fruit filled with antioxidants. What are antioxidants?
2. The story says that the blueberry is a "heart-smart" food. What does this mean?
3. The blueberry grows in northeastern North America. Find a map of North America. Where is northeastern North America?

### Trivia Question

**Do a bit of research.**

Nova Scotia, New Brunswick, Quebec, Maine, Newfoundland, and Prince Edward Island are the main wild blueberry producing locations. Which of these areas is the largest producer?

[\(View answer\)](#)

# "Nova Scotia's Provincial Berry"

## Synonyms

Synonyms are words that have similar meanings.  
Example: fast and quick

Look in the story to find a synonym for each of the following words.

- |              |       |             |       |
|--------------|-------|-------------|-------|
| 1. recall    | _____ | 2. tales    | _____ |
| 3. fortunate | _____ | 4. autumn   | _____ |
| 5. stalk     | _____ | 6. mature   | _____ |
| 7. reap      | _____ | 8. biggest  | _____ |
| 9. emerge    | _____ | 10. methods | _____ |

[\(View answers\)](#)

## Antonyms

Antonyms are words that have opposite meanings.  
Example: fast and slow

Look in the story to find a antonym for each of the following words.

- |             |       |               |       |
|-------------|-------|---------------|-------|
| 1. short    | _____ | 2. sour       | _____ |
| 3. high     | _____ | 4. tame       | _____ |
| 5. forget   | _____ | 6. old        | _____ |
| 7. late     | _____ | 8. least      | _____ |
| 9. smallest | _____ | 10. disappear | _____ |

[\(View answers\)](#)

## "Nova Scotia's Provincial Berry"

### Math

The following questions refer to the recipe in the story.

1. If you wanted to double the recipe, how much milk would you need? How much is this in milliliters?
2. How much more shortening does the recipe call for than sugar?
3. If you wanted to make only half of the recipe, how much flour would you need?
4. What is  $\frac{3}{4}$  cup milk in ounces?
5. What is  $\frac{3}{4}$  cup milk in millimeters?
6. If you tripled the recipe, how many ounces of water would you need?

[\(View answers\)](#)

#### Conversion Chart

1 cup = approx. 227 milliliters

1 tablespoon = 3 teaspoons

1 cup = 8 ounces

## Blueberries\*

The wild blueberry is the provincial berry of Nova Scotia.

Blueberries grow on a low bush.

They grow well in acid soils.

They often grow on empty farmland or a clearing in the forest.

Blueberries are picked, frozen, and shipped all over the world.

Nova Scotia blueberries are sent to twenty or more countries.

Nova Scotia is the largest blueberry producer in Canada.

Blueberries are very good for your health.



1. The wild blueberry is the \_\_\_\_\_ of Nova Scotia.
2. Blueberries grow on \_\_\_\_\_.
3. Nova Scotia blueberries are sent to \_\_\_\_\_ or more countries.

\* For sources to this article, see [Nova Scotia's Provincial Berry](#).



The information for the following story is from the following Internet sites accessed 10/28/02:

<http://www.acoa.ca/e/media/press/press.shtml?1303>

<http://www.gov.ns.ca/nsaf/elibrary/archive/hort/berrycrops/cranberry/cranfact.htm>

<http://www.oceanspray.com/about/whiteharvest.asp>

Words to Preview		
cranberries	unique	pemmican
tart	habitat	cultivate

## Nova Scotia's Tasty Treat

### Cranberries

A popular, tart treat used for baking in many Nova Scotian kitchens is the cranberry. This unique, round berry is used for many different recipes like muffins, cakes, puddings, and main dishes, just to name a few.

Wild cranberries grow in swamps, open bogs, and wet areas around the shore line throughout Nova Scotia. The cranberry also grows in other areas in North America similar to the habitat that it grows within Nova Scotia. Habitat means the natural residence of a plant or animal.

Cranberries are found on low-growing, vine-like stems, or bushes. These stems can grow from one to six feet long. When the berries turn red, this is the time to harvest them. In Nova Scotia, cranberries are harvested in late September and early October.

The name "cranberry" was thought to have originated from the European settlers. The European settlers first called the berry "craneberry." Later it was just known as "cranberry." The Europeans saw that native North Americans used the berry often. They used it for food and to dye clothing or other items a beautiful color of red. Also, the native North Americans used cranberries to make "pemmican." This is a mixture of pounded cranberries and dried deer meat formed into cakes and left to dry in the sun.

Cranberries have been so popular that people started to cultivate them many years ago. In Nova Scotia, a man by the name of William MacNeil from the Annapolis Valley was one of the first to cultivate them. He planted the cranberry seeds on the edge of a peat bog. A bog is a swamp. Since then, the cultivation of cranberries in Nova Scotia and other areas has increased over the years.

Today, cranberries have become a national symbol of good health. Cranberries are filled with vitamins and are believed to help in the fight against cancer.

Here is a quick refreshing recipe made with cranberries!



## **Cranberry Spritzer**

1 can cranberry juice cocktail concentrated (undiluted)

2 cups pineapple juice

1 large bottle Sprite or other white soda

Combine ingredients in a punch bowl. Serve over ice. If you want to make it more festive, make a ice ring with cranberries frozen in the ring. Enjoy!!

## **"Nova Scotia's Tasty Treat"** Comprehension Questions

1. Give a definition of habitat.
2. Where do cranberries grow?
3. When are cranberries harvested?
4. Native North Americans mixed pounded cranberries and dried deer meat and formed it into cakes which dried in the sun. What was the mixture called?
5. What disease is it believed that cranberries help fight?

[\(View answers\)](#)

### Reading Between the Lines

1. The story says that cranberries are a popular, tart treat. What is another word for tart?

### Trivia Question

**Do a bit of research.**

One juice company has been making white cranberry juice. Where do white cranberries come from?

[\(View answer\)](#)

## "Nova Scotia's Tasty Treat" Verbs

Select the correct verb.

1. The berries \_\_\_\_\_ (turn/turns) red.
2. Cranberries \_\_\_\_\_ (grow/grows) in bogs.
3. This berry \_\_\_\_\_ (is/are) used in many recipes.
4. I \_\_\_\_\_ (like/likes) to harvest cranberries.
5. Native North Americans \_\_\_\_\_ (mix/mixes) cranberries and deer meat together.
6. Cranberries \_\_\_\_\_ (are/is) filled with vitamins.
7. The cakes \_\_\_\_\_ (dry/dries) in the sun.
8. A bog \_\_\_\_\_ (is/are) a swamp.
9. The settlers \_\_\_\_\_ (see/sees) all the harvest.
10. Cranberries \_\_\_\_\_ (help/helps) fight cancer.
11. He \_\_\_\_\_ (plant/plants) the seeds.
12. A man \_\_\_\_\_ (cultivate/cultivates) them.

[\(View answers\)](#)

## Cranberries\*

Cranberries grow along the shores in Nova Scotia.

Cranberries grow in swamps.

They grow on low bushes.

The stems grow one to six feet long.

In Nova Scotia, cranberries are picked in early fall.

Cranberries are very tart.

They are used in many recipes.

Cranberries are very good for you.



1. Cranberries grow in \_\_\_\_\_.
2. Cranberries grow on \_\_\_\_\_.
3. Cranberries are picked in \_\_\_\_\_.

\* For sources to this article, see [Nova Scotia's Tasty Treat](#).

The information for the following story is from these Internet sites accessed 12/12/02:

<http://www.canadianvintners.com/canadianwines/novascotia.htm>

<http://www.winesofcanada.com/scotia.html>

<http://www.proorgnanics.com/newsletter/issue4/grapes.htm>

<http://www.canadavintage.com/Industry2.htm>

Words to Preview		
ripen	dehydrated	chemically
irrigation	concentrated	substances
nitrogen	nectar	wineries

## Great Grape Growing in Canada?

Canada's grape industry is growing and is very successful. Canada has about 20,000 acres of grape crops. The four main provinces involved in this industry are British Columbia, Ontario, Quebec, and Nova Scotia. The lesser amounts are grown in Quebec and Nova Scotia. Grapes in Canada are grown mostly in sheltered lakeshore areas.

To grow grapes successfully, you need to have long, hot summers for the grapes to ripen properly. Grapes need to remain on the vine until they are fully ripe. If picked too early, grapes will not ripen on their own, like many other fruits and vegetables. You also need a good mix of sun and rain, or a good irrigation system. Grapes need different soil for growing than most other fruits and vegetables. Grapes grow better in soil that is not filled with nitrogen and other nutrients.

Canada grows many different varieties of table grapes and wine grapes. Table grapes are for eating, baking, and freezing. Wine grapes are grown for the purpose of making wine.

A popular wine, now made in Canada, is the icewine. Canada's cold winters make it possible to create this popular, unique wine. Icewine is usually made from frozen white grapes that are left on the vine well into the winter months. The dehydrated, frozen grapes are then harvested until December and January. The grapes are kept frozen while being pressed. Pressing grapes separates the water crystals from the concentrated, grape nectar. Only a few drops of nectar come from each grape. The grape nectar is then left to ferment. Fermentation causes the sugar to turn to alcohol. We make wine by leaving grape juice until all the sugar has turned to alcohol. After this the wine should have a nice, sweet flavor.

When thinking of Nova Scotia, grape growing is not the first thing that pops into most people's minds. Nova Scotia is mostly known for its fishing industry and tourism. Grape growing in Nova Scotia, for the purpose of wine making, is a small but successful business. In 2002, there are six well established wineries in Nova Scotia.

Because of the climate, Nova Scotia is limited to the kind of grapes it can grow. Mostly French Hybrid grapes are grown in



Nova Scotia. Nova Scotia is also known for making blueberry wine, a popular, semi-sweet treat!

## "Great Grape Growing in Canada?"

### Comprehension Questions

1. What are the four main provinces in Canada that are involved in grape growing?
2. What kind of climate do you need for growing grapes?
3. What are table grapes used for?
4. How is icewine made?
5. What happens during fermentation?

[\(View answers\)](#)

### Reading Between the Lines

1. Mostly French Hybrid grapes are grown in Nova Scotia. Look up the characteristics of the French Hybrid grape. Why do you think they grow well in Nova Scotia?

### Trivia Question

**Do a bit of research.**

Name the two best areas for growing grapes in Nova Scotia.

# "Great Grape Growing in Canada?"

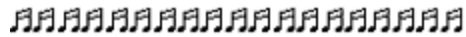
## Consonant Blends

Consonant blends are formed when two or more consonants blend together to make one sound. For example: There is the consonant blend "st" in "stop."  
There is the consonant blend "ch" in "each."

**Underline the consonant blends.**

grape	these	month	create
British	fruit	when	white
grown	crop	freeze	small
sheltered	sweet	thing	than
fish	climate	press	nitrogen

[\(View answers\)](#)



## Vowels

Vowels are the letters a,e,i,o,u and sometimes y. All words have at least one vowel.

**Fill in the blanks with a vowel to make a word.**

r__pen	fru__t	sep__rate	pop__lar
gr__w	ar__as	alc__hol	cryst__l
b__tter	ma__n	purp__se	un__que
vari__ty	s__ccess	industr__	sug__r
conc__ntrate	Dec__mber	deh__drated	to__rism

[\(View answers\)](#)

## Grapes\*

Grapes are grown in British Columbia, Ontario, Quebec, and Nova Scotia.

Grapes need to ripen on the vine.

They will not ripen if they are picked too early.

Grapes need sun and rain to grow.

In Canada, they grow mostly in sheltered lakeshore areas.

Table grapes are for eating, baking, and freezing.

Wine grapes are used for making wine.

Harvested wine grapes are pressed to get the grape nectar.

The grape nectar ferments and turns into wine.

Fermentation causes the sugar to turn to alcohol.



1. Grapes will not \_\_\_\_\_ if they are picked too early.
2. In Canada, grapes grow mostly in \_\_\_\_\_.

\* For sources to this article, see [Great Grape Growing in Canada?](#)



The information for the following story is from these Internet sites accessed 11/25/02:

<http://www.cnf.ca/plantwatch/may.html>

<http://www.geobop.com/Symbols/Plants/flowers/mayflower>

Words to Preview

trailing arbutus

bouquet

humus

woody

destroyed

disturbed

romantic

## Nova Scotia's Provincial Flower

Forests cover most of the province of Nova Scotia. In these woodlands, often nearly hidden with fallen leaves, grows a dainty, little plant with a delicate, spicy scent – the mayflower.

The mayflower is also called the trailing arbutus, and it delights nearly everybody who sees it. No wonder that in 1901 Nova Scotia adopted it as its provincial flower.

The mayflower is an evergreen with oval, shiny, green leaves and clusters of delicate, trumpet-shaped, pink flowers. It blooms in April and May in partly shaded areas.

This very fragrant plant grows a mere four inches high and spreads by shallow underground stems. However, it is a slow spreader because seeds do not form every year.

Nova Scotia woodlands and rocky, barren lands provide the perfect humus-rich soil for mayflowers to thrive. They grow best and are most commonly found in cool, acid soil that stays moist but is well drained. Like all native plants, the mayflower plant should not be destroyed or disturbed.

Why would Nova Scotia adopt such a humble, barely visible, woody flower for its official flower? Why not? It is certain that their dainty, little flowers graced many homes and cheered up the early Nova Scotia settlers. Perhaps many small hands gathered not so perfect bouquets of mayflowers. Mayflowers may even have touched a few romantic hearts in those early years. One romantic story comes to mind. I cannot think about the mayflower without remembering this beautiful love story.

In 1916 my grandparents were married. Grampa wanted to give his new wife a special birthday present. He didn't know what to give. He was not a rich man. Walking through the woods one day in early spring, he saw the beautiful mayflowers with their wonderful scent.

"That's it," he thought, "the perfect birthday gift."

Carefully, he picked a large bouquet, choosing the most beautiful mayflowers. At that time, mayflowers were plentiful and people didn't think they would ever be an endangered species. He hurried home to give them to his wife Sarah. She was delighted. She arranged the bouquet in her best crystal vase and set it in the centre of their oak dining table. Soon the



lovely perfume filled every corner of their cozy kitchen.

Grampa was a romantic man so for his wife's birthday the next spring, he gave her another bouquet of beautiful mayflowers. And again the next spring, and the next...and the next...

Being now an old man, Grampa suffered a severe stroke – he would never again go into the woods to gather mayflowers for his wife.

As it neared Grandma's birthday, I could see sadness in Grampa's eyes. I understood why he was sad. There would be no mayflowers this year to grace the old oak table. Or would there be? I was a young schoolgirl, so I took a walk in the woods in early spring and picked my grandmother a bouquet of mayflowers. And again the next spring, and the next, and the next, until I got married and moved to another province.

As it neared Grandma's birthday again, my father took over the role of mayflower picker. And again the next spring, and the next...and the next...

By the time my Grandma was nearly 90 years old, she had received many bouquets of mayflowers. They were gifts of love.

Grandma passed away just four months before Grandpa.

Nova Scotians should be pleased and proud of their little provincial flower which is part of great love stories.

## "Nova Scotia's Provincial Flower" Comprehension Questions

1. What year did Nova Scotia adopt the mayflower as its provincial flower?
2. When does the mayflower bloom?
3. What do the leaves and flowers of the mayflower plant look like?
4. How does the mayflower spread? Why is it a slow spreader?
5. What type of soil do mayflowers grow best in?

[\(View answers\)](#)

### Reading Between the Lines

1. Why do you think mayflowers should not be destroyed or disturbed?

### Trivia Question

**Do a bit of research.**

The mayflower is Nova Scotia's provincial flower, but it is also the state flower to which state in the United States? In what year was it adopted?

[\(View answer\)](#)

# "Nova Scotia's Provincial Flower"

## Sequencing

Put the following sentences in the order in which they occurred in the story.

After Grandpa's stroke, he couldn't pick Grandma's mayflowers. \_\_\_\_\_

Grandma died four months before Grandpa. \_\_\_\_\_

The author of the story got married and moved to another province. \_\_\_\_\_

For my Grandma's first birthday after she got married, Grandpa picked her a bouquet of mayflowers. \_\_\_\_\_

The author's father picked mayflowers for Grandma. \_\_\_\_\_

The author's grandparents got married in 1916. \_\_\_\_\_

Grandpa suffered a severe stroke. \_\_\_\_\_

The author of the story decided to pick the mayflowers for Grandma. \_\_\_\_\_

[\(View answers\)](#)



## Long "O" Sound

The letter "o" can have a long or short vowel sound. It has a long vowel sound in words like over and obey. It has a short vowel sound in words like olive and office.

**Underline the words with the long "o" sound.**

cover	also	do	Nova Scotia
oval	slow	grow	no
found	everybody	bloom	wonder
one	oak	cozy	stroke
old	go	so	adopt

[\(View answers\)](#)

## Mayflowers\*

Mayflowers are dainty, little, pink flowers.

They have oval, shiny, green leaves.

They have a delicate scent.

They bloom in April and May.

Mayflowers grow in woodlands and rocky, barren land.

They grow best in cool, acid soil that stays moist but drains well.

They grow four inches tall and spread by underground stems.

They spread slowly since seeds do not form every year.

In 1901, Nova Scotia adopted the mayflower as its provincial flower.



1. Mayflowers bloom in \_\_\_\_\_.
2. Mayflowers grow best in \_\_\_\_\_ soil that stays \_\_\_\_\_.
3. Nova Scotia adopted the mayflower as its provincial flower in \_\_\_\_\_.

\* For sources to this article, see [Nova Scotia's Provincial Flower](#).

A special thanks to the Canadian Nature Federation for giving us permission to describe their PlantWatch program and reproduce their data sheet.

## **The PlantWatch program**

The PlantWatch program is volunteer program that helps scientists understand how changes in climate affect the environment.

Anybody can take part in the PlantWatch program. All you have to do is choose one of the selected plants for your area and record your observations. The mayflower is one species selected for the PlantWatch program in Nova Scotia. The PlantWatch website lists the rest. You then submit your observations to the regional coordinator. The Regional Coordinator for Nova Scotia is:

Edward Reekie  
Biology Department  
Acadia University  
Wolfville, NS  
B0P 1X0  
ph: (902) 585-1162  
fax: (902) 585-1059  
Email address: [edward.reekie@acadiu.ca](mailto:edward.reekie@acadiu.ca)

See the Canadian Nature Federation's data sheet on the following two pages.

## PLANTWATCH DATA SHEET

### **Observer**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

City/Town: \_\_\_\_\_

Province/Territory: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Age:  5-10  11-15  16-20  21-30  31-55  56 and over

### **Plant Observed**

Name of Plant: \_\_\_\_\_

### **Flowering Phase**

First Bloom (month/day/year): \_\_\_\_\_

Mid Bloom (month/day/year): \_\_\_\_\_

### **Leafing**

Leafing (month/day/year): \_\_\_\_\_

### **Plant Location** (remember to give each location a unique name e.g. schoolyard, backyard)

Location Name: \_\_\_\_\_

Closest city or town: \_\_\_\_\_

Province/Territory: \_\_\_\_\_

Latitude: \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " N

Longitude: \_\_\_\_\_ ° \_\_\_\_\_ ' \_\_\_\_\_ " W

Elevation (if known): \_\_\_\_\_ ( metres ) \_\_\_\_\_ ( feet )

**Habitat Type**

- Deciduous forest  Coniferous forest  Mixed forest  Tundra/barren  
 Grassland  Marsh, bog, wetland  Farmland  Residential garden/lawn  
 Schoolyard

**Optional Details**

Sun Exposure:  sunny and open area  in half shade  shaded all day

Select one of the following: flat area gentle slope steep slope

slope facing: N, NE, E, SE, S, SW, W, NW (circle one)

**Comments** ( weather, etc.)

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Thank you for participating in Plant Watch.

As soon as your observations are complete, mail your data sheet to your regional co-ordinator or enter your dates on the Web at [www.plantwatch.ca](http://www.plantwatch.ca). By submitting on the Web you can cut down on paper and see your dates added instantly to the PlantWatch maps. Remember, every observation counts — reporting even one flowering date for one plant is a great contribution.

Be sure to make a photocopy of the data sheet for each plant you observe and for next year's observations. To obtain a copy of the Plant Watch guide send a self-addressed envelope with 96 cents postage to:

Canadian Nature Federation  
606-1 Nicholas Street  
Ottawa, ON K1N 7B7  
1-800-267-4088  
[plantwatch@cnf.ca](mailto:plantwatch@cnf.ca)



The information for the following story is from the following Internet site accessed 12/13/2002:  
<http://www.gov.ns.ca/nsaf/rir/weeds/ragweed.htm>

Words to Preview		
Ambrosia artemisiifolia	vigorous	Ambrosia trifida
disagreeable	essential	

## Ragweed - Nova Scotia's Harmful Plant

When most people hear the word "ragweed," they cringe. It is not a welcomed word. What is it about this plant that makes people sneeze?

Unlike the daisy or mayflower, the ragweed plant or common ragweed, is one of Nova Scotia's "unloved" native plants. Nearly everybody has heard of this harmful weed, or has seen it growing along our country roads.

The species that most Nova Scotians are concerned about is the *Ambrosia artemisiifolia*. This plant loves Nova Scotia. It especially loves the province's most fertile soil and can grow up to 50 cm or taller. Even though it is not fussy about soil types, it prefers soil with a level between 6 and 7 on the PH scale.

The ragweed is an annual. This means that its life cycle lasts only one season. In other words, it grows, blooms, sets seeds, and dies all in one season. However, this vigorous weed spreads readily by producing an extremely huge amount of seeds. Luckily for the ragweed, these seeds are capable of living in the soil for 40 years or more.

One single large ragweed plant can produce as many as 62,000 seeds per year and even a small plant can produce 3,000 seeds. That's a lot of seeds to spread around the province. They spread with the help of birds, water, and even humans.

The green leaves and stems of the ragweed are covered with fine hairs, but the plants vary in size and shape. The spiky flowers are tiny and rather inconspicuous and are light green in color.

Nova Scotia also has another species of ragweed called *Ambrosia trifida*, better known as the giant ragweed. It may grow 2 meters or more in height, but it does not spread as fast as the common ragweed.

The ragweed adapts itself to different soil types but grows best in rich loam. It has no trouble growing in soil that contains a large amount of zinc which would poison most other plants. As well, large amounts of salt in the soil don't seem to bother this weed.

The ragweed grows easily all over the province – along roadsides, in open fields, and in croplands.

Why do Nova Scotians dislike the plant that loves them? The airborne pollen of the ragweed is the most widespread cause of hay fever. Pollen is a fine powdery yellowish substance made by plants. Eight billion grains



of pollen can be carried by wind currents over 400 kilometers in 5 hours – and that's from one single ragweed plant.

Many people suffer from hay fever, especially in the fall. Severe sneezing, a runny nose, itchy throat, and irritated, watery eyes are all symptoms of hay fever. Animals that graze on ragweed in pastures are also harmed by it. It causes severe nausea in livestock and a disagreeable taste and odor in the dairy products.

The ragweed is also an enemy of the farmer. It grows vigorously among the crops, robbing them of essential nutrients, water, sunshine, and growing space, therefore reducing crop yield.

Certain regions in Nova Scotia, such as Pictou, Cumberland, Hants, Kings, and Annapolis counties are particularly bothered by this "friendly" plant.

Some weeds are like rude uninvited guests who do not know when they are not welcome. We can be certain that the ragweed will stay with us for a long, long time.

## **"Ragweed - Nova Scotia's Harmful Plant"**

### Comprehension Questions

1. What type of soil do ragweed plants like?
2. The ragweed is an annual. What does this mean?
3. How long can ragweed seeds live in the soil? How many seeds can one single, large ragweed plant produce? How do the seeds spread around the province?
4. What would zinc in the soil do to most plants?
5. The air-borne pollen of the ragweed plant causes what in some people?
6. How does ragweed affect animals that eat it?
7. How does ragweed affect farmers? Which counties are most affected by ragweed?

[\(View answers\)](#)

### Reading Between the Lines

1. Certain regions in Nova Scotia, such as Pictou, Cumberland, Hants, Kings, and Annapolis counties are particularly bothered by this "friendly" plant. Why does the author call the plant "friendly"?
2. Ragweed grows vigorously among the crops, robbing them of essential nutrients, water, sunshine, and growing space, therefore reducing crops. What does "robbing the soil" mean?

## Trivia Question

**Do a bit of research.**

Is there a way to control ragweed in Nova Scotia?

[\(View answer\)](#)

## "Ragweed - Nova Scotia's Harmful Plant"

### Math

**Solve the following math problems.**

- 1.A) If a large ragweed plant can produce 62,000 seeds per year, how many seeds would 9 ragweed plants produce?
- 1.B) A small ragweed plant can produce 3,000 seeds. How many small plants would produce the amount of seeds to the answer of question 1.A.
- 2.A) Wind currents can carry grains of pollen 400 km in 5 hours. How many kilometers per hour is this?
- 2.B) If the wind currents can carry grain of pollen 400 km in 5 hours, how far would it be carried in 12 hours?
3. There are 18 counties in Nova Scotia. Pictou, Cumberland, Hants, Kings, and Annapolis are particularly bothered by ragweed. What percentage of the counties are particularly bothered by ragweed?
4. The ragweed plant can grow up to 50 centimeters. How many inches is this? Round off to the nearest inch. (Hint: 1 inch is equal to 2.54 centimeters.)

[\(View answers\)](#)

## Ragweed\*

Ragweed is a plant native to Nova Scotia.

It grows well in many soil types.

It is an annual.

This means its life cycle lasts only one season.

The ragweed produces many seeds.

One large plant can produce 62,000 seeds per year.

Ragweed is the cause of hay fever in some people.

It can cause nausea in animals that eat it.

Ragweed can also hurt crops by taking over the fields.



1. A plant that is an annual has a life cycle that lasts \_\_\_\_\_.
2. Ragweed is the cause of \_\_\_\_\_ in some people.
3. Ragweed can also hurt crops by \_\_\_\_\_.

\* For sources to this article, see [Ragweed - Nova Scotia's Harmful Plant](#).

## **Organic Carrots in British Columbia**

### **An interview with Charles Alleyne**

#### **April 16, 2003**

Charles Alleyne was born in Tobago and lived in Trinidad. For the past 37 years he's been living in Canada.

During 1999 and 2002, Charles and his family lived in British Columbia. Charles was involved with the organic carrot industry with Fountainview Academy.

Students at the Fountainview Academy work on Fountainview Farms through their school work program. This farm has become the largest organic carrot producer in British Columbia.

Fountainview Academy packages the organic carrots and exports them to other places in British Columbia and Alberta. Their farm is located in a very narrow valley between the towns of Lytton and Lillooet in the Fraser Valley. This semi-desert area is on the edge of the Okanagan Valley.

The Okanagan Valley is well known for its fertile soils and good growing climate. Charles recalls the delicious cherries and apricots grown in this area.

The soil in the Fraser Valley is very rich and the climate is very hot. Lots of water comes down from the mountains. Plastic gutters built around the rim of the mountain allow water to move down towards the farms. The water goes through sprinklers on the farms at the base of the mountains.

To be certified organic in British Columbia, the land can be used to grow carrots only every four years. During the three other years, crops like barley, rye, and soya beans are grown then tilled back into the soil. This is done to build the soil back up. This is called green manure.

Of course organic farmers cannot use any chemicals or pesticides. Only natural products are used. Even animal manure is not used because of the hormones that the animals ingest.

We all want the best foods for our families. Organic produce, like the organic carrots grown by Fountainview Farms, are good, healthy choices.

### **"Organic Carrots in British Columbia"**

#### **Comprehension Questions**

1. Where is Fountainview Farms located? Look in an atlas or on a map of British Columbia to find its location.
2. How is the water brought down from the mountains to the farms?
3. What is green manure?
4. Why is animal manure not used on organic farms?

[\(View answers\)](#)

#### **Reading Between the Lines**

1. Organic produce is often more expensive. After the reading the story, can you think of reasons why it cost more?