

WILD BLUEBERRY SCHOOL KIT

Nova Scotia's Provincial Berry



Wild Blueberry Producers' Association
of
Nova Scotia



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LETTER TO TEACHERS



Dear Teachers,

The **Wild Blueberry Producers' Association of Nova Scotia** has compiled the following industry information, which we hope you will find useful. The objective of this kit is to increase awareness of the importance of this industry to the economy of the province, the health benefits, and other pertinent information. It is designed to allow students to have fun and be actively involved while learning!

We have integrated wild blueberries into various parts of the curriculum where possible. Some aspects of this kit may be used to link different subject areas together. Each topic has activities that may aid in the learning process. A list of references is included, should you wish to learn more about wild blueberries. We hope that you and your students will enjoy using this kit!

Yours truly,

The Wild Blueberry Producers' Association of Nova Scotia





WILD IDEAS



Dedicate a week to learning about wild blueberries and use some of the ideas below to create a theme and involve the whole school.

- **Wild Blueberry Bakeoff** - students can submit recipes and choose a selection of finalists to "bake off".
- **Wild Blueberry Trivia** - a question can be read each morning and answers would be placed in a ballot box. A winner could be drawn each day.
- **Wild Blueberry Snacks** - a wild blueberry pancake breakfast could be arranged for one morning and nutrition breaks could include nutritious snacks made from wild blueberries.
- **Wild Blueberry Crafts** - mason jars can be tole painted by students to hold wild blueberry syrup or sauce.
- **Wild Blueberry Mural** - students could prepare a mural involving wild blueberries.
- **Wild Blueberry Dance** - a dance could be held where anyone wearing blue receives a discount. The song "blueberry hill" could to have a spot dance.
- **Wild Blueberry Videos, Songs, Raps, Stories, Poems, Cartoons, Posters & Jingles** - students can have contests on themes that involve wild blueberries.





WILD BLUEBERRY STATISTICS



- The wild blueberry is the Nova Scotia Provincial Berry.
- There are approximately 1000 wild blueberry growers in Nova Scotia.
- There are more than 33,000 acres in production in Nova Scotia.
- Approximately half of this total acreage is in production each year since most growers manage their crop on a 2-year cycle. The first year is the sprout year; the second year is the crop year.
- Some growers have only a few acres, while others have more than one thousand.
- On average, 30,000,000 lbs. of wild blueberries are grown in Nova Scotia, annually.
- In an average year, growers receive \$15 million for their crop. This is called "farm gate" value.
- Each year the wild blueberry crop contributes over \$35,500,000. to the provincial economy.
- The wild blueberry crop is worth more to the provincial economy than any other fruit crop.
- There are more acres of wild blueberries in Nova Scotia than any other fruit crop.
- The wild blueberry leads Nova Scotia fruit crops in export sales.

WILD IDEAS

1. Introduce the Nova Scotia provincial symbols, which include the wild blueberry, to students using the following website below.

<http://www.gov.ns.ca/about.htm>



WILD BLUEBERRY HISTORY



Native Americans were the first people to enjoy wild blueberries. They were used fresh in the summer and were dried for use in fall and winter. Often wild blueberries were used in breads, cakes, stews, teas and meat dishes.

In 1615, Champlain observed Native Americans gathering wild blueberries to make a dish called 'Sautauthig'. The Native people would dry the wild blueberries and beat them into a powder before adding it to parched meat.

Explorers, Lewis and Clark, during their trip to the Northwest Territories, witnessed Natives smoke-drying wild blueberries to use in soups and stews. One dish they made was venison cured by pounding blueberries into the meat and smoke drying it.

As well, the wild blueberries were used in spiritual ceremonies of the Native people. The Maliseet natives valued them because they were believed to bring stamina since they were the food of the bear. Other groups believed that the wild blueberry, with the star shaped crown, was sent by the Creator to feed their children in times of food scarcity.

The first European settlers enjoyed these berries because they were similar to types of berries that grew in their homeland. The Scots associated them with the blaeberry, the Irish with whortleberries, the Danes with bilberries, the Swedes with blabar and the Germans with bickberren and blauberren. The Native North Americans taught them how to prepare them in various dishes in the New World.

WILD IDEAS

1. Study some Native American myths and legends and examine the beliefs surrounding wild blueberries
2. Use the following recipe for dried wild blueberries to provide students with insight into the ways of the Native Americans and early settlers.

Sun-Dried Wild Blueberries

- Spread wild blueberries out on clean cloth that is suspended off of the ground and is portable. This allows air to circulate under the berries and keeps the dew and rain from the wild berries. Stretched curtain cloth on a frame works well.
- Cover the wild blueberries with cheesecloth. This protects the berries from contamination by insects.
- Bring the wild blueberries in from outside before sunset and keep them in a dry place. Place them outside in the morning after the dew has burned off and make sure they don't become shaded during the day.
- Repeat this process for three days to a week. Dried blueberries should be leathery and when squeezed they should not give off juice. They will become much smaller and darker in colour.
- Store in clean dry jars in a dry dark place. Be sure to eliminate as much air as possible from the jars.

Adapted from [The Little House Cookbook: Frontier Foods from Laura Ingalls Wilder's Classic Stories](#) by Barbara M.

Fish with Wild Blueberries

This dish is from the Cree Natives and combines a catch from the bay with the wild berries from the forests.

First clean the fish. Then, cut the fish into 3 or 4 pieces. Then, put the cooking pot on the stove, or in the oven fire, to boil. Put the fish to boil for 1½ hours. After the fish is cooked, take it out of the pot using a wooden spoon. Try to pick all the bones out of the fish. After you take out the bones, put the fish in a mixing bowl. Add wild blueberries and mix the fish into the wild blueberries.

Juliette Iserhoff

Taken from [Traditional Indian Recipes](#). Rev. C. Locke (ed.)



WILD BLUEBERRY GEOGRAPHY



Nova Scotia is a unique geographic area. It is located in the middle latitudes and is a peninsula in the Atlantic Ocean. Weather patterns often meet in this area because the cold, dry air from the northwest, meets warm, humid marine air from the south.

There is a wide variation in temperature across Nova Scotia. This is because the ocean, which borders the province, moderates the temperature. This means that Nova Scotia doesn't usually experience extreme high or low temperatures, but instead remains temperate. Cool temperatures at night, along with long days help wild blueberry growers to produce very flavorful berries.

There is an old saying that if you don't like the weather in the Maritimes, wait 20 minutes and it will change. Unpredictable weather can lead to problems such as late spring frosts that sometimes damage the wild blueberry crop; and drought, which can prevent the berries from growing large.

Nova Scotia usually experiences a lot of precipitation, which is partly due to its maritime location. As well, winds from the west, called westerlies, often bring low-pressure systems and storms. Precipitation is needed in order for the wild blueberry plants to grow. Sufficient snowfall is important in the winter to cover the plants. This prevents the cold winds from damaging the stems and buds. Should this damage occur, it is known as "winter kill".

Nova Scotia soil is generally acidic and well suited to the growth of wild blueberries. Wild Blueberries prefer well-drained soil, with a pH between 4.5 and 5.5.

Generally, the province is divided into five areas when considering wild blueberry production.

Cumberland County produces about 70% of Nova Scotia's wild blueberry crop. It was one of the first areas developed and the soil and climate are almost ideal for production.

The central region of the province has a large acreage base that is suitable for wild blueberries and the climate is favorable. Production in this area is increasing.

The western area of Nova Scotia was the first area developed for commercial production. It has a long growing season but the terrain is rocky and weeds are a major problem. However, development in this area is continuing and appears promising.

Eastern Nova Scotia has rough terrain, and a short growing season. In spite of this, development to improve acreage has taken place during the past years.

In the past, Cape Breton was not believed to be a promising area for wild blueberry production. It was thought that the temperatures in this area were not warm enough. However, recent progress has been made and the industry in Cape Breton is expanding.

WILD IDEAS

1. Use the following experiment on soil pH to determine suitable areas for wild blueberry production.
2. Use this lesson to introduce weather patterns.
Study the counties of Nova Scotia while learning about wild blueberry production in each area.

Experiment: Wild Blueberries & Soil pH



There are many different types of soil. Certain types of plants such as wild blueberries prefer to grow in acid soils with a pH between 4.5 and 5.0. Other plants such as carrots and alfalfa prefer a higher pH, between 6 and 7. The pH (acidity or alkalinity) of soil can be tested using this experiment and areas where wild blueberries would grow best can be determined.

- Collect several soil samples from various places around your community (about 1 cup of each).
- In clean jars, mix each soil sample with 1 cup of distilled water. (Distilled water, available in drug stores, is neutral, having a pH of 7.)
- Shake each sample thoroughly.
- After a few minutes, dip a separate strip of pH test paper (**litmus paper**) into each sample and quickly compare the strip to the colors on the pH chart.

You should be able to see some difference in the pH levels and decide which areas would be most suitable for wild blueberry production.

(Note: pH test paper can be made by using wild blueberries. See the recipe following this experiment)

Adapted from: Fredericks, Anthony. *Simple Nature Experiments with Everyday Materials*. New York: Sterling Publishing Co., Inc., 1995.

Wild Blueberry pH Test Paper

$\frac{1}{2}$ c. wild blueberries
small strips of white construction paper
small bowl
fork
teaspoon
paper towels
water
1 tbsp. vinegar
1 tbsp. bleach

Remove any stems and place the berries in a bowl. Crush them with a fork until they look like jam and add a little water to thin the juice. Dip the paper strips in the juice and make sure they are well coated. Slide the strips between your thumb and finger to remove the excess juice and allow them to dry on paper towels. Once dry; remove any large pieces of pulp or berry skins from the strips.

Now you are ready to see how the colour of the strips respond to a known acid and base, (i.e. alkaline pH is greater than 7 and acid pH is less than 7). Dip one strip into vinegar and note the change in color (it should be red-dish-purple) and this indicates an acid. Next dip a new strip into bleach and note the color change (it should be blue-purple). This indicates a base. Now you are ready to use the very berry litmus strips to test other mixtures and solutions and compare them to the vinegar and bleach strips.





WILD BLUEBERRY BIOLOGY



There are only 6 areas in the world where wild blueberries grow commercially. They are Nova Scotia, New Brunswick, Prince Edward Island, Newfoundland, Quebec, and Maine. They grow wild in the acidic soils of these areas and spread through underground stems called **rhizomes**. As rhizomes spread, new shoots develop, form stems and will bear the wild berries.

Each stem produces leaves and buds. Berries develop from the buds along the top portion of the stem. However, rhizomes are very slow growing and farmers may spend a lifetime in developing fields that will produce high yields.

All of the stems growing from the same rhizomes have the same genetic make up. There are many different groups of rhizomes or wild blueberry families in each field. They are referred to as **clones**. They are distinguishable by the colour, shape and size of the leaves and berries. So the next time you look at a wild blueberry field, try to distinguish the different clones by observing patches that differ in colour, shape and size of the plants. This is most noticeable in the autumn when the plants turn to various shades of red or in the spring when the plants are various shades of green.

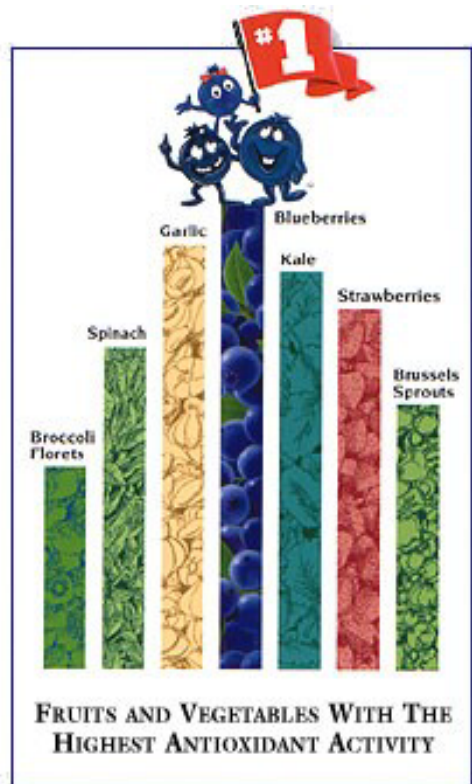
Since wild blueberry plants are **perennial** (that means they return year after year) there is no need for producers to till the soil or seed the ground. In fact, wild blueberries will not grow as quickly if the ground is disturbed. Instead, producers manage the plants by pruning, fertilizing, reducing competing vegetation and controlling pests and disease.

WILD IDEAS

1. Use wild blueberries to introduce annual, biennial and perennial plants.
2. Discuss the importance of a root system to plants.
3. After learning about wild blueberry rhizomes, study other ways that plants reproduce and spread. Examples include seed, runners, tubers and bulbs.

WILD BLUEBERRY HEALTH BENEFITS

Wild blueberries are a nutritious treat that is a good source of Vitamin C and dietary fiber. There is no fat, sodium or cholesterol and only 80 calories per cup of berries. As well, recent studies have shown that the pigments that give the wild blueberries their unique color provide many health benefits.



Anthocyanins are the pigments in the wild blueberries and they contain very important compounds called antioxidants. Antioxidants are needed by the body to fight compounds called free radicals, which are formed as a byproduct of breathing, digesting and exercising. If free radicals are not stopped, they can cause cancer, heart disease, other diseases and premature aging. Wild blueberries were found to have the highest level of antioxidants in a study by the USDA of 40 fruits and vegetables. It is important to make them part of your diet, especially as you age, since your body's defenses weaken and free radicals can cause more damage.

As people age, they often suffer from memory loss and experience a decrease in motor ability. **A study by the USDA has shown that wild blueberries may reverse these problems and help fight the effects of aging.** Aged rats that were fed a diet of wild blueberries showed **improvements in short-term memory and motor skills** when compared with aged rats fed a diet without wild blueberries. The outward signs of aging may be combated by wild blueberries since antioxidants help the skin to maintain elasticity.

Urinary tract infections are a common health problem that may be prevented by eating wild blueberries. Tannins, which are found in wild blueberries and cranberries, **prevent the bacteria**, which cause these infections from attaching to the wall of the bladder and urinary tract. This allows them to pass through the body without causing problems.

In Japan, the wild blueberry is called “the vision fruit” for its ability to relieve eyestrain. Studies have shown that a cousin of the wild blueberry is capable of improving night vision and help the eyes adapt to different levels of light. Further studies will examine the effects that blueberries may have on controlling vision problems related to diabetes.

Studies have shown that a proper diet and eating habits may help to prevent cancer. **Wild blueberries contain compounds that may be able to fight cancer and may keep enzymes responsible for duplicating cancer cells from working.**

Red wine has been proven to lower the risk of heart disease. This is due to the dark red pigments in the wine, which are also called anthocyanins. The same types of pigments are found in **wild blueberries**, so it is reasonable to expect that they **might help to lower the risk of heart disease.**

WILD IDEAS

1. Use wild blueberries to show the link between nutrition and good health.
2. Have students plan meals that fulfill Canada's Food Guide and include wild blueberries.



WILD BLUEBERRY PRODUCTION



In choosing land to grow wild blueberries, producers must consider a number of factors. There must be a good natural base of wild blueberry plants since they are not planted, only managed and encouraged to grow.

Most of the management techniques necessary to grow wild blueberries involve running machinery and equipment over the field. It is important that the land be reasonably flat and free of rocks. For this reason, land that was formerly farmed is very good for wild blueberry production.

Forest and brush land can also be developed to grow wild blueberries. To prepare this type of land for production, the trees, stumps and rocks must be removed. Access roads must be constructed and weeds must be controlled. It may take up to 10 years before the grower receives little, if any, income.

Once the initial development stage has been completed, the developed field is usually placed on a continuous two-year cycle of a vegetative year followed by a cropping year. It is a common practice to divide the fields so that half of the total acreage is harvested in any one year.

Pruning the wild blueberry is very important. It encourages strong, healthy growth. Pruning consists of mowing or burning the fields in the early spring or fall. This is done every second year.

A grower would burn his field in the spring. That summer new stems would grow leaves, but no berries would develop. In late summer and early fall, flower buds develop. The plants become dormant in the late fall. The following spring, the buds open and flowers and leaves emerge. Flowers are in full bloom by late May or early June. The berries develop over the summer.

Wild blueberry fields are sometimes fertilized with nitrogen, phosphorus, potassium, boron, magnesium, lime and other nutrients. These nutrients help the plants to have better growth and produce more berries.

Land leveling of wild blueberry fields allows machinery like mechanical harvesters to work on the field. It is done using excavators to remove the soil from knolls and rises, with as little disruption to the plants as possible. This is often done in fields that were previously forested. The fields that were previously farmland are usually flat and already accessible by machinery.

WILD IDEAS

1. Have students ask local business owners about the impact that wild blueberry production has on their income.
2. Use the pictogram and pie chart on production to facilitate math objectives concerning statistics and find more data at the following website.
<http://agri.gov.ns.ca/pt/hort/wildblue/ptwb9801.htm>
3. Have students illustrate the two-year production cycle of wild blueberries.

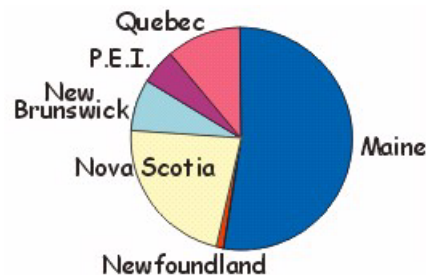


Production Graph

Rank the provinces according to the production from the largest to the smallest. Where does Nova Scotia rank?

Based on your knowledge of fractions and percent, approximately what percent would you estimate that Nova Scotia produces? What about the other provinces and state?

Distribution of Wild Blueberry Production



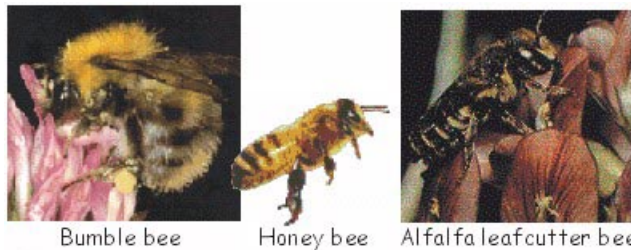


WILD BLUEBERRY POLLINATION



Wild blueberry plants bloom in late May or early June. In order for these plants to produce blueberries, the flowers must be pollinated. **Pollination is the transfer of pollen from the stamens (male parts) to the stigma, the sticky tip of the pistil (female part) of the flower.** Although the pollination process is very brief, it is very important in wild blueberry production. If the blooms are not pollinated, there will be no fruit. Poor pollination is probably the most common cause of poor yields of wild blueberries in Nova Scotia.

Wild blueberry pollination is carried out by insects who transport pollen from flower to flower as they gather pollen and nectar for food. Bees are the most important insects to the wild blueberry crop because they are efficient workers and can pollinate many flowers per day. There are wild bees, such as the bumblebee, which carry out this job but wild blueberry growers rent hives of managed bees to insure a high level of pollination. Honeybees and alfalfa leafcutter bees are the most commonly used types of managed bees for use in wild blueberry fields.



Honeybees were originally from areas of Northern Europe to Southern Africa. They have been the primary pollinators of wild blueberries in the past. They have a distinct social hierarchy that includes queens, workers and drones. The workers are the bees that gather nectar. The colonies continue from one year to the next and some colonies live in the wild but most live in man made hives. Honeybees are able to produce large amounts of honey, unlike bumblebees, and also make beeswax which can be sold and provide income for beekeepers.

Alfalfa leafcutter bees are a relatively new introduction to the wild blueberry industry. These bees were brought from Western Canada where they are used in pollinating alfalfa. These bees are beneficial to use in wild blueberry fields because they stay close to the hives and will collect pollen and nectar almost solely from the wild blueberry flowers. Alfalfa leafcutter bees are solitary bees that tunnel and will tolerate living close to one another in man made shelters. The females choose tunnels in the shelters that are made by drilling holes in wood or another material in which to lay their eggs. They cut leaves and form cocoons lined with pollen and nectar for food for the young.

Bumblebees are wild bees that live in social groups and nest in old rodent tunnels and under clumps of dead vegetation. The queen is relatively large and emerges in the spring to find a suitable place to nest. The queen forages and cares for her young workers until they are old enough to forage for the colony. They have large sacks on their hind legs in which they carry pollen, called pollen baskets. In the autumn, the queen gives birth to new queens and male bees called drones. The new queens and drones will mate and the old queen will die. The new queens survive through the winter and create new colonies the next year.

WILD IDEAS

1. Have students create a board game that illustrates the pollination process.
2. Use the various types of bees as an entry into teaching and learning about classification systems.
3. Have students discuss the interdependence between the wild blueberry industry and the bee industry. What would happen to the bee industry if the blueberry industry had a poor year and couldn't rent as many managed bees as they usually would?



WILD BLUEBERRY HARVEST



Harvest begins in early to mid August when approximately 90% of the berries are ripe. The season lasts about three or four weeks and is probably the busiest time of the year for growers. As the berries ripen, they remain on the plant until most of the berries are ripe. The berries are picked using hand rakes or mechanical harvesters.

In 1883, the wild blueberry hand rake was developed in Maine. The rake is positioned so the tines are parallel to the ground and the rake can be combed up through the wild blueberry plants. As the rake is moved through the wild blueberry stems, it should be tipped back so that the berries fall into the back of the rake and can be emptied into buckets. Problems sometimes arise when the fields have a lot of weeds that become tangled in the rake. Until 1984 the entire wild blueberry crop was harvested by hand raking.



Today, crews of people are still used to hand rake some wild blueberry fields. The field is sectioned off into rows using string so that each person has their own row to rake. The rakers fill plastic buckets and take them to the crew leader who records the amount they harvest per day. Rakers are paid based on the volume or mass of berries they rake.

In the 1940s, efforts to develop mechanical harvesters began and over the next three decades several prototypes were developed. In 1984, the first tractor mounted harvesters were used. The harvesters have large rakes on drums that rotate and are attached to tractors. The wild blueberries move up a conveyor belt from the rake onto a platform behind the tractor where workers empty them into crates.

More than 60% of the crop is mechanically harvested and the remainder is hand harvested. Mechanical harvesters are reserved for areas where the land is reasonably level and free of rocks, while rough terrain and rocky areas are left for hand rakers.

The wild blueberry crop grows for two years before it is harvested. The effects of pests, disease, drought, frost and hard winters can have longer lasting effects than they do on crops that are harvested every year. Therefore, a low farm income from a poor crop may affect wild blueberry growers for longer periods of time than other farmers. Usually, wild blueberry land is divided so that half of their land is harvested each year.



WILD IDEAS

1. Have students discuss the impact that technology has had on the harvest of wild blueberries.
2. Have students relate any raking experience they have had.
3. Discuss the pros and cons of hand raking and mechanical harvesting.



WILD BLUEBERRY PROCESSING



Most of the wild blueberry crop is sent to a processing plant where it is frozen. Less than 2% is sold fresh at local markets.

From the receiving sheds, where growers take the wild blueberries after harvest, the fruit goes to a processing plant. In the past, wild blueberries were usually canned, but refrigeration has revolutionized this.

There are two companies in Nova Scotia where the berries can be frozen. They are Oxford Frozen Foods and Rainbow Farms. The freezing process allows each berry to be frozen separately and it is called Individually Quick Freezing (IQF).

IQF involves placing berries on conveyor belts in an enclosed tunnel. The berries are then agitated and subjected to cold blasts of air, which allow them to freeze individually. Some products made in Nova Scotia using wild blueberries are pies, yogurt, ice cream, jams and syrups.



WILD IDEAS

1. Contact a processor about touring a processing facility.
2. Have a grower who sells fresh wild berries illustrate how the wild blueberries are cleaned, packaged and prepared.



WILD BLUEBERRY MARKETING



Wild blueberries have become the **number one fruit crop** in terms of export sales and value to the economy in Nova Scotia. This is due in part to the marketing strategies undertaken by those involved in the industry.

Markets for wild blueberries exist worldwide. The European market was developed in the 1970s when Nova Scotia growers began to promote wild blueberries overseas. Currently, Germany is the number two market for our berries.

There is a growing interest in Japan for wild blueberries due to the important health benefits associated with them. However, the United States purchases more of our exported product than any other country.

The **Wild Blueberry Producers Association of Nova Scotia (WBPANS)** promotes production, consumption and research concerning the wild blueberry. The organization also gives growers a collective voice so that they may realize adequate returns to management, labour and capital. They participate in exhibitions, festivals and other events to promote wild blueberries.

Another important group is the **Wild Blueberry Association of North America (WBANA)**. This group represents the entire industry, throughout the Canadian provinces and the state of Maine. They serve to promote wild blueberries around the world.

The **Nova Scotia Department of Agriculture and Marketing**, along with **Agriculture and Agri-Food Canada** are government agencies that employ specialists who serve the wild blueberry industry.

WILD IDEAS

1. Have students create some type of presentation that promotes wild blueberries.



WILD BLUEBERRY EMPLOYMENT



There are many areas of wild blueberry production that provide jobs for the people of Nova Scotia

Management of the crop

- Processing
- Office work
- Food industry
- Government
- Associations
- Researchers
- Agricultural machinery and equipment groups
- Transport-related jobs

WILD IDEAS

1. Have students work in groups to create a poster using a mind map, web or flowchart, which shows the jobs that are related to or dependent upon the wild blueberry industry.



WILD BLUEBERRY RECIPES



Wild Blueberry Smoothie

(WBANA)

$\frac{3}{4}$ c. wild blueberries	1 tbsp. honey
$\frac{3}{4}$ c. vanilla or blueberry yogurt	3 ice cubes

Blend well at high speed. Serve immediately. Serves two.

Wild Blueberry Sauce

(WBPANS)

$1\frac{1}{2}$ c. wild blueberries	1 tsp. lemon juice
$\frac{1}{4}$ c. water	1 tbsp. cornstarch
$\frac{1}{3}$ c. sugar	

Mix sugar and cornstarch thoroughly in a saucepan. Add wild blueberries and water. Cook and stir over medium heat until slightly thickened (about 5 minutes). Remove from heat and stir in lemon juice. Serve with ice cream, pancake or over chicken.

Makes about $1\frac{1}{2}$ cups.

Old Fashioned Wild Blueberry Muffins

(WBANA)

2 c. white flour	$\frac{3}{4}$ c. buttermilk
$2\frac{1}{2}$ tsp. baking powder	2 c. wild blueberries
$\frac{1}{2}$ tsp. salt	Topping:
$\frac{1}{2}$ c. sugar	$\frac{1}{2}$ tsp. cinnamon
$\frac{1}{2}$ c. brown sugar	4 tsp. sugar
6 tbsp. softened butter	$\frac{1}{4}$ c. ground walnuts
2 eggs	

Preheat oven to 400 °F. Spray 12-3on-stick cooking spray. In a small bowl, make the topping by combining cinnamon, sugar and walnuts; set aside. In a large bowl, combine flour, baking powder and salt; set aside. In a medium bowl, cream the butter with the granulated and brown sugars until smooth. Beat in the eggs, and then add the buttermilk until blended. Pour the wet mixture over the dry ingredients; stir until moistened. Gently fold in wild blueberries. Divide the batter among the muffin tins; add topping. Bake 20-25 minutes. Makes 1 dozen muffins.

Wild Blueberry Crisp (NSDAM)

3 c. wild blueberries
 $\frac{1}{2}$ c. sugar
1 tsp. cinnamon
1 tbsp. lemon juice
Cornstarch to dust

$1\frac{1}{2}$ c. flour
1 c. brown sugar
 $\frac{1}{2}$ c. margarine
 $\frac{1}{2}$ tsp. almond flavouring

Combine wild blueberries with sugar, cinnamon and lemon juice. Pour into an 8sted baking pan. Sprinkle berries with more cornstarch. Mix flour, sugar, margarine and almond flavouring until mixture resembles coarse breadcrumbs. Spread topping evenly over berries: bake at 400 °F for 25-30 minutes. Cool; sprinkle with icing sugar. Serve with ice cream or whipped cream. Makes 6-8 servings.

Wild Blueberry Pancakes (NSDAM)

$1\frac{1}{4}$ c. flour
2 tsp. baking powder
2 tbsp. sugar
 $\frac{3}{4}$ tsp. salt

1 egg, well beaten
1 c. milk
3 tbsp. vegetable oil
1 c. wild blueberries

Sift together flour, baking powder, sugar and salt. Combine egg, milk and oil. Slowly add to flour mixture, stirring only until dry ingredients are moist but still lumpy. Fold in wild blueberries. Bake on hot greased griddle. Turn pancakes only once during baking (when bubbles form in center of cake). Makes 10 to 12 pancakes.

Wild Blueberry Drop Cookies (WBPANS)

2 c. flour
2 tsp. baking powder
 $\frac{1}{4}$ tsp. salt
 $\frac{3}{4}$ c. vegetable shortening
1 c. sugar

2 eggs
 $1\frac{1}{2}$ tsp. grated lemon rind
 $\frac{1}{2}$ c. milk
1 c. wild blueberries

Sift together flour, baking powder and salt. Cream shortening until soft and gradually beat in sugar. Add eggs and lemon rind and beat until well mixed. Add flour mixture alternately with milk, beating until smooth after each addition. Lightly fold in wild blueberries. Drop teaspoonful onto greased cookie sheet and bake at 375 °F for 10 minutes. Yields about $2\frac{1}{2}$ dozen cookies.

Wild Blueberry Chicken Breasts (WBANA)

$\frac{1}{2}$ tsp. cajun spices	$\frac{1}{3}$ c. red wine
4 halves boneless, skinless chicken breasts	2 c. wild blueberries
3 cloves garlic, finely chopped	1 tsp. grated lemon rind
1 onion, finely chopped	$\frac{1}{4}$ tsp. salt
2 tsp. olive oil	

Dust chicken breasts with cajun spices. Sauté in olive oil until brown and almost cooked through, 7-10 minutes. (If thick, cover and cook 3-4 minutes more.) Remove chicken breasts from pan and keep warm. In same pan, sauté garlic and onion until transparent, scraping remaining bits of chicken from bottom of pan. Add red wine and cook down until most of the liquid is evaporated. Add wild blueberries, lemon rind and salt. Simmer for 5 minutes. (if berries are frozen simmer until heated through.) Add salt and pepper to taste. Let sit for 5 minutes, heat off, for flavours to blend. Spoon over chicken breasts and serve. Serves 4.

Wild Blueberry Buckle (NSDAM)

$\frac{1}{2}$ c. butter or margarine	$\frac{1}{4}$ tsp. ground cloves
$\frac{3}{4}$ c. sugar	$\frac{3}{4}$ c. milk
2 eggs	2 c. wild blueberries
2 c. flour	Topping:
1 tbsp. baking powder	$\frac{1}{2}$ c. brown sugar
$\frac{1}{2}$ tsp. salt	$\frac{1}{3}$ c. butter or margarine
$\frac{1}{2}$ tsp. nutmeg	$\frac{3}{4}$ c. flour

Grease and flour a 9-inch square pan. Cream butter with sugar; add eggs, beat well. Sift flour with baking powder and spices. Add to creamed mixture alternately with milk. Gently fold in wild blueberries; pour into cake pan. To make the topping; blend ingredients until they resemble coarse bread crumbs. Sprinkle evenly over batter. Bake at 375 °F for 60 minutes or until the centre of the cake is cooked. Serves 6-8.



WILD BLUEBERRY REFERENCES



Print Resources

Ismail, Amr. Honey Bees and Blueberry Pollination. University of Maine Cooperative Extension Service. May 1987.

Kalt, W. & Dufour, D. 1997. *Blueberries Hort Technology* 7(3): 216-221.

Kinsman, Gordon. The History of the Lowbush Blueberry Industry in Nova Scotia 1950-1990. Bible Hill, Nova Scotia, Wild Blueberry Producers Association of Nova Scotia, and Nova Scotia Department of Agriculture and Marketing, 1993.

Kinsman, Gordon. The History of the Lowbush Blueberry Industry in Nova Scotia 1880-1950. Bible Hill, Nova Scotia, Nova Scotia Department of Agriculture and Marketing, 1986.

Mackenzie, Kenna. Lowbush Blueberry *Agriscope* v.4 no.2 Fall/Winter 1994 p.1-2.

Mackenzie, Kenna. Berry Pollination. Atlantic Food & Horticulture Research Centre. Kentville, Nova Scotia

McCord, Holly. The Miracle Berry. *Prevention Magazine*, June 1999, p.122-125.

Walker, Barbara M. The Little House Cookbook: Frontier Foods from Laura Ingalls Wilder's Classic Stories. New York: Harper & Row Publishers, 1979.

Wild Blueberry Growers' Handbook, WBPANS and Nova Scotia Department of Agriculture and Marketing

Wolfensberger Singer, Beth. Feed Your Head. *Health Magazine*, May 1999. P.102-104.

Internet Resources

Wild Blueberry Information Network
<http://agri.gov.ns.ca/wildblue/>

Discover the Bumble Bee
<http://hercules.users.netlink.co.uk/Bee.html>

Environment Canada -- The Climate of Nova Scotia
<http://www.ns.ec.gc.ca/climate/ns.html>

Jasper Wyman & Son Wild Blueberry
<http://www.wymans.com/>

Nova Scotia: About Nova Scotia
<http://www.gov.ns.ca/about.htm>

Nova Scotia Department of Agriculture and Marketing
<http://agri.gov.ns.ca/pt/hort/hortfact.htm>

The North American Blueberry Council
<http://www.infrastructure.net/blueberry/>

University of Maine Cooperative Extension
<http://www.umext.maine.edu>

Wild Blueberry Association of North America
<http://www.wildblueberries.com/>

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