



Oregon Cranberries - Leader's guide

Objectives:

Learn about the history and current production of Oregon Cranberries
Discover their nutritional value and versatility in meals

Materials for the lesson:

Oregon Cranberries: Leader's Guide. One per leader

Oregon Cranberries: Participant Handout. One per participant
(Cranberry Matching Game, Crossword Puzzle, Recipes)

Optional Resources:

Oregon Cranberries. PowerPoint presentation. <http://extension.oregonstate.edu/fch/fce-lessons>
This could be shown on a computer if you have internet access, downloaded and saved to a computer, disk or flashdrive to be shown during the lesson or printed for display. The slides in the PowerPoint presentation are numbered to follow the script.

Do **The Cranberry Bounce** activity: Tape to mark table, small cups, 10 fresh or thawed cranberries for every pair of participants.

Nutrition labels from packages such as frozen and canned cranberries, 100% cranberry juice, cranberry juice cocktail, cranberry relish, cranberry sauce.

4 ounces of cranberry juice and ½ cup dried cranberries, measured to show serving size.

Oregon Field Guide: Cranberry Farming. <http://watch.opb.org/video/228425629/>

Notes to the Leader:

The PowerPoint presentation is optional but can help provide interest for the lesson. Some paragraphs have a number at the beginning that corresponds to the number on the slide. There are activities for participants incorporated into this lesson. The instructions for the activities are contained in boxes. The supplies needed for the activities are listed under **Optional Resources** above.

Providing samples of the recipes included in the **Participant Handout** is always appreciated by the participants. You might consider making this possible by distributing the recipes and having members bring dishes they prepare before the meeting.

Introduction

(1) Fresh cranberries are available after the fall harvest, usually September through December. They should be available in the freezer section of your supermarket throughout the year. Cranberries have traditionally been associated with Thanksgiving and Christmas because these holidays are during the season fresh cranberries are available. What are your thoughts and memories about cranberries? (*Give participants time to share their thoughts and memories.*)

Cranberry Production

(2) Cranberries are truly an American fruit. The cranberry is native to North America and was here long before the pilgrims arrived. Indians combined crushed cranberries with venison and melted fat to make a convenience food called *pemmican* that would keep a long time. Over the years, cranberries have been in the news for their nutritional and medicinal properties.

The Oregon cranberry is prized for its deep red color, which growers say puts the red in the juice. The temperate climate along the southern Oregon coast affords a long growing season, giving the berries a darker pigmentation than berries grown in other states. Historically, native cranberries grew in the northwestern region of the state, harvested by indigenous people who shared the fruit with explorers. White settlers later harvested wild cranberries because they were a good source of vitamin C, which prevents scurvy, and the berry's naturally waxy coating allowed for long keeping.

Cranberries are perennials that produce a low-growing, woody vine. Flowers grow on stems or short branches that grow upright. The light pink flowers that develop into individual cranberries grow along or at the end of these stems. They were thought to resemble a sandhill crane's neck and head and provided the original inspiration for the plant's name.

Commercial cranberry farming was started in Oregon by Charles McFarlin, one of the many prospectors who came west looking for gold. In 1885, McFarlin gave up panning for gold, migrated to Coos County, and planted the cranberry cuttings he brought from Massachusetts. Until the mid-twentieth century, harvesting was done by hand, with native people providing much of the labor. Workers carried scoops—baskets with combs on one side of the opening. They swept the comb through the vines to release the berries, which were collected in the basket.

(3) Over the years, cranberry growers have experimented with many ways to improve cranberry crops and make harvesting and handling easier and more efficient. In the 1940's vacuuming the berries and sorting them by hand was attempted.

Today, Oregon's commercially cultivated cranberries account for approximately 4 percent of U.S. production and the cranberry ranks thirty eighth-among Oregon's top agricultural commodities. In 2013, Oregon growers harvested 390,000 barrels of cranberries, with a larger crop expected in 2014 because of favorable weather conditions. Cranberry cultivation in Oregon uses approximately 2,700 acres along the southern coast, in southern Coos and northern Curry counties and a very few acres in Tillamook and Clatsop counties. In 2013, the value of the

cranberry crop exceeded the market value of Oregon-grown strawberries, but 95% of the crop is processed into products like juice and not sold or consumed locally.

(4) West coast growers have developed cranberry varieties that thrive in the sandy marine soil in Coos and Curry counties. Farmers keep bees or contract with regional beekeepers for pollination. Contrary to what many people believe, cranberries do not grow in water, but thrive in sandy soil. Cranberry beds are often called bogs because early eastern farmers cultivated berries in boggy wetlands. Oregon farmers use upland-sloping terrain and a series of tiered fields. A manmade pond or reservoir at the base of the slope collects rainwater for watering throughout the growing season.

(5) Elevated sides surrounding each field allow farmers to flood the beds at harvest time, the only time cranberries are in water. The ripe berries float so that harvesters, machines resembling elevated tractors with a beater bar on the front, roll through the fields, agitating the vines and knocking the berries loose. Cranberry harvesters have such a limited market that they are not available from a commercial manufacturer, but must be custom made.

(6) Once cranberries are loosened from the vine and float to the top of the water, they are gathered together and pushed or pumped into trucks for transport. Berries are cleaned at the farm or after delivery at one of the dozen coastal receiving stations. Little of the harvest is sold as fresh fruit. In the early days of the industry, most berries were canned for sauce. At present, most berries are either juiced or sweetened and dried. U.S. per person consumption of cranberries is 2.3 pounds, almost entirely in the form of juice.

(7) A few cranberries are harvested dry. This gives them a longer fresh shelf life than cranberries harvested in water. These are harvested with a walk-behind rake and packed into burlap bags for sale as fresh cranberries.

Selecting Cranberries

Fresh, ripe, good-quality cranberries bounce when dropped. The firm skin makes a tight seal, holding air pockets in the berry so they bounce like an inflated ball. Legend has it that John “Peg-Leg” Webb, cranberry grower in the late 1800s, discovered this when he decided to pour berries down the stairs of his storage barn rather than carry the baskets down the stairs, a difficult task with his wooden leg. The fresh, whole berries ended up at the bottom, while the damaged, rotting ones stayed on the stairs.

Over-ripe or damaged cranberries do not bounce well, so cranberry harvesters put this characteristic to good use to help with sorting the crops. Mechanized cranberry sorters, including the walk-behind rake, have steps incorporated into them that require the berries to bounce from one level to another before they are captured by the harvester.

Do the Cranberry Bounce

To experience the cranberry bounce, we have developed a game that allows you to test cranberries for freshness.

Find a partner. Place a piece of tape across a section of a table 8 -10 inches from the edge.

Place a shallow cup 8 – 10 inches away from the tape line. Take turns trying to bounce a cranberry on the table top behind the tape so that it then bounces into the cup.

Let each partner attempt 10 bounces. Exchange partners and try again.

Storing Cranberries

Fresh cranberry storage is simple. Fresh berries will keep in your refrigerator for about 4 weeks. Before using, inspect the berries carefully and discard any soft or discolored berries or stems and leaves you find. Rinse thoroughly and drain well just before using them.

Fresh cranberries can be frozen for later use. First, check berries and discard any soft ones. Drain them well after careful rinsing. Put them in a vapor- and moisture-proof bag and freeze. This is one fruit that needs no processing before freezing. Frozen cranberries do not need to be thawed before using. They can also be frozen right in the plastic bags they come in, but adding an additional layer of protection will help them maintain fresh flavor and texture.

When storing cooked cranberry dishes, cover them well to prevent them from drying out or absorbing flavors from other foods.

Cranberries are GOOD for YOU!

Cranberry Matching Game (Distribute Participant Handout)

Cranberries offer many nutrients and health benefits when consumed. This matching game will help you keep track of the benefits they offer as we review them.

Nutrition Facts

Cranberries contain vitamins, minerals, and dietary fiber. One cup of chopped cranberries contains approximately 20% of the Daily Value for vitamin C which helps promote a healthy immune system, healthy teeth and gums, and helps decrease the risk for heart disease.

Cranberries contribute to the daily intake of the mineral potassium, which plays an important role in maintaining healthy blood pressure levels. They contain substantial dietary fiber (5 gm).

Fresh, unsweetened cranberries are also naturally low in calories, although they are not generally consumed in that form, due to their tartness. Many cranberry juices and sauces have added sugars, resulting in additional calories. Moderation is important!

What is a Daily Value (DV)?

Daily Value (DV) is a term listed on food labels based on the Recommended Dietary Allowances (RDAs). It refers to the percent of the DV for a nutrient that a serving of a food provides, based on a 2,000 calorie diet. Foods containing 20% of a DV are considered to be “high” in that nutrient.

Health Benefits from Cranberries

Cranberries contain **phytochemicals**, naturally occurring plant compounds, including **antioxidants**, which protect cells from oxidative stress and the negative effects of **free radicals**.

According to the USDA, cranberries are among the top 5 foods with the highest antioxidant content per serving. Other berries (blueberries, blackberries, and raspberries), along with the cruciferous vegetables (broccoli, tomatoes, leafy greens and sweet potatoes), contain high amounts of antioxidants. These foods, along with others, are often referred to as “superfoods.”

Research suggests that antioxidants consumed in foods are more beneficial for health compared to antioxidants consumed as dietary supplements. As is true for other nutrients, antioxidants work best when combined with other antioxidants and nutrients naturally present in foods.

Free radicals are continually produced in the human body. The processes of breathing, digestion, and physical activity, along with exposure to second-hand smoke or the sun all produce free radicals. Health experts believe that free radicals play a role in promoting coronary heart disease (CHD), certain cancers and other diseases.

The antioxidants present in cranberries include **anthocyanins** and **proanthocyanidins**:

- **Anthocyanins** give cranberries their brilliant red color. They may help reduce the risk of CHD by helping to prevent LDL-cholesterol from being oxidized
- **Proanthocyanidins (PACs)** are the most abundant antioxidant present in cranberries. PACs may prevent disease-causing bacteria (*E. coli*) from sticking to the walls of the urinary tract and multiplying, thus decreasing the risk of developing **urinary tract infections (UTIs)**.

UTIs are the second most common type of infection in the body, and *E.coli* bacteria cause 80-90% of UTIs. Women are more likely to develop UTIs than men, due to anatomical differences.

Research from institutions all around the world have shown that regular consumption of cranberry juice helps promote a healthy urinary tract system. It is not clear, however, as to amount or dosage or in what form (fresh, juice, tablets, capsules) is considered optimal for health benefits.

Regardless, given all of the other health and nutrition benefits, adding a serving of cranberries to your plate during the holiday season (and beyond) makes good sense!

According to the USDA MyPlate guidelines, a 1-cup serving of fruit is equal to 4 ounces of cranberry juice or ½ cup dried cranberries. Show examples of serving sizes.

Emerging Health Research

The positive research findings on cranberries with respect to heart and urinary tract health have prompted additional research in the areas of dental health, and cancer prevention and treatment.

Because research shows that PACs interfere with bacteria's ability to adhere to cells lining the bladder walls, researchers in Canada and Japan are investigating the effects of cranberry extracts on bacteria that cause tooth decay and gum disease. Tissue and cell culture studies show promising results, however, human studies have yet to be performed.

Studies suggest that cranberry products may reduce the incidence of stomach ulcers the same way cranberries promote urinary tract health. Stomach ulcers are caused by a type of bacteria called *H. pylori*. Cranberries may prevent of *H. pylori* from attaching to the stomach wall, thus reducing the risk of stomach ulcers and stomach cancer. Again, further research is needed.

Answers to Cranberry Matching Game

1.b, 2.d, 3.j, 4.h, 5.f, 6.a, 7.g, 8.e, 9.i, 10.c

Cranberry Crossword (Refer to Participant Handout)

By now, you have heard a lot of information about cranberries. Here is a crossword puzzle to put your new knowledge to work.

Cranberries are Versatile

They can be added to many dishes to freshen the flavor and add interesting color and texture. Chopped cranberries can be thrown into most baked products, rice dishes, stir-fried foods and sauces. Dried cranberries are a delicious addition to salads and turkey stuffing. Mixing equal parts canned whole cranberry sauce and dijon-style mustard makes a memorable topping for baked salmon or chicken.

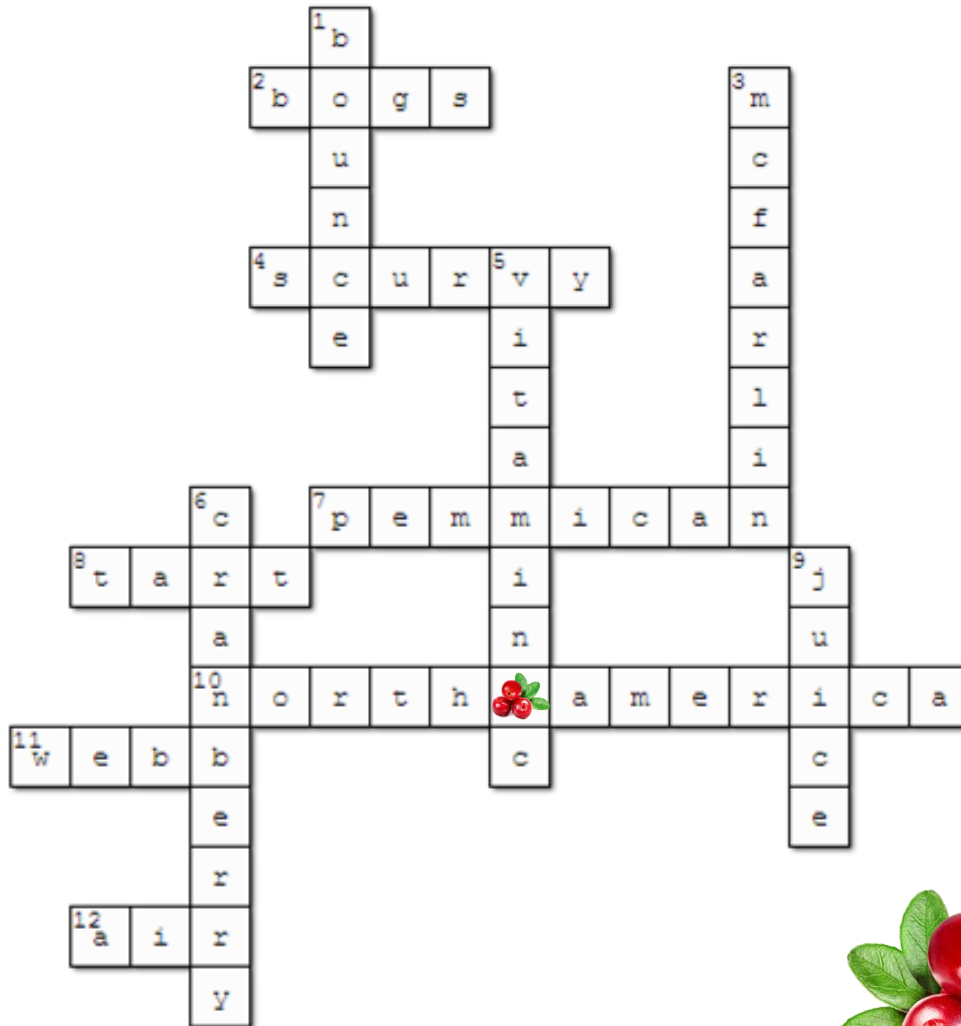
We have included a few recipes to give you a chance to try cranberries and consider ways to add them to your menu. (Refer to Participant Handout.)

Crazy for

Cranberries



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Across

- The wetlands where cranberries are grown are referred to as _____ (**bogs**)
- Cranberries were used to prevent _____ (**scurvy**)
- High protein meal ate by natives (**pemmican**)
- The taste of cranberries is sweet and _____ (**tart**)
- Cranberries are native to where? (**North America**)
- John _____ sorted his cranberries by pouring them down the stairs (**Webb**)
- Cranberries have an extended shelf life because of the layer of _____ trapped inside (**air**)

Down

- One way to determine if cranberries are fresh and firm is to see if they _____ when dumped down the stairs (**bounce**)
- Farmer who started commercial cranberry farming in Oregon (**McFarlin**)
- Cranberries are high in vitamin _____ and fiber (**vitamin C**)
- First named because the appearance of the blossom on the stem resembled a coastal bird (**cranberry**)
- 95% of Oregon's cranberry crops are processed into _____ (**juice**)

References:

Oregon Encyclopedia: Cranberry Industry. Portland State University and The Oregon Historical Society. Author, Geneva Miller. Materials used by permission.

http://oregonencyclopedia.org/articles/cranberry_industry/#.VE_kO2MhBsI

The Cranberry Through Time. Cape Cod Cranberry Growers' Association. Materials used by permission. http://www.cranberries.org/exploringcranberries/into/av/cran_through_time.pdf

Cranberries Profile. http://www.agmrc.org/commodities_products/fruits/cranberries-profile/
Ag Marketing Resource Center, Iowa state University.

Cranberry Health Research Library, <http://www.cranberryinstitute.org/>

The Cranberry Marketing Committee. <http://uscranberries.com/>

Cranberry storage instructions <http://umaine.edu/publications/4308e/>

Preserving Cranberries, OSU FFE 2008.

http://extension.oregonstate.edu/lane/sites/default/files/documents/SP_50-929_Cranberries.pdf

This lesson was developed in November 2014 by Jeanne Brandt, Family and Community Health, OSU Extension Service, Washington County and Kelly Streit, Family and Community Health, OSU Extension Service, Clackamas County.

Photo credits:

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