



Champaign County Juvenile Detention Center Master Gardener Community Garden

Broccoli Lesson

Time

15 – 30 minutes

Overview

Broccoli is a popular vegetable grown in the United States. This lesson explores the broccoli plant.

Objectives

Students will:

- Discover how to plant, care for, and harvest broccoli.
- Learn about the nutritional value of broccoli and how to prepare it in tasty ways.

Supplies

- Broccoli
- This lesson is done as a part of the cabbage family, so use other supplies with other vegetables in this family.

Snack

- Broccoli
- Other vegetable
- Ranch dressing
- Juice/water

Activity

Planting, harvesting, and tending broccoli

Sources

<http://urbanext.illinois.edu>

Broccoli

DO: Begin by introducing yourself and the other Master Gardeners by first names.

SAY: Good afternoon. We are a group of Master Gardeners of Champaign County here to provide a gardening program today at JDC. In the fall and winter months we come every other week to give a lesson on plants, eating right, and taking care of the planet. In the spring and summer we work together with you to plant and maintain a vegetable and flower garden in the outside rec area. (depending on time... I became interested in gardening because... Does anyone else have gardening experience or a relative who gardens?)

Today's lesson will be... I am... with other volunteers...(introduce themselves).
(Participants may introduce themselves also.)

Today we are going to talk about broccoli.

Broccoli is a hardy vegetable of the cole or cabbage family. It develops best during cool seasons of the year. When broccoli plants of most varieties are properly grown and harvested, they can yield over an extended period. Side heads develop after the large, central head is removed. Two crops per year (spring and fall) may be grown in most parts of the country. New heat tolerant varieties allow broccoli to be produced in all but the hottest parts of the season.

When to Plant

Transplants are recommended to give the best start for spring planting, because transplanting gets the plants established more quickly. Thus they can bear their crop with minimal interference from the extreme heat of early summer. It is best to plant young vigorously growing plants in early spring. Plants that remain too long in seed flats may produce "button" heads soon after planting.

For fall crops, buy or grow your own transplants or plant seeds directly in the garden. For fall planting, start seedlings in midsummer for transplanting into the garden in late summer. To determine the best time for setting your fall transplants, count backward from the first fall frost in your area and add about 10 to the days to harvest from transplants. Remember that time from seed to transplant is not included in this figure.

Spacing and Depth

Plant seeds 1/4 to 1/2 inch deep or set transplants slightly deeper than they were grown originally. Plant or thin seedlings 18 to 24 inches apart in the row and allow 36 inches between rows. Broccoli plants grow upright, often reaching a height of 2 1/2 feet. Space plants one foot apart in all directions in beds.

Care

Use starter fertilizer for transplants and side-dress with nitrogen fertilizer when the plants are half grown. Provide ample soil moisture, especially as the heads develop.

Harvesting

The edible parts of broccoli are compact clusters of unopened flower buds and the attached portion of stem. The green buds develop first in one large central head and later in several smaller side shoots. Cut the central head with 5 to 6 inches of stem, after the head is fully developed, but before it begins to loosen and separate and the individual flowers start to open (show bright yellow).

Removing the central head stimulates the side shoots to develop for later pickings. These side shoots grow from the axils of the lower leaves. You usually can continue to harvest broccoli for several weeks.

Store the broccoli, unwashed, in loose or perforated plastic bags in the vegetable crisper of the refrigerator. It tastes best and is highest in nutritional value when storage time is brief.

Common Problems

Aphids - Watch for buildup of colonies of aphids on the undersides of the leaves
Cabbage worms - Three species of cabbage worms (imported cabbage worms, cabbage loopers and diamond back moth worms) commonly attack the leaves and heads of cabbage and related cole crops. Imported cabbage worms are velvety green caterpillars. The moth is white and commonly is seen during the day hovering over plants in the garden. Cabbage loopers ("measuring worms") are smooth, light green caterpillars.

The cabbage looper crawls by doubling up (to form a loop) and then moving the front of its body forward. The moth is brown and is most active at night. Diamondback worms are small, pale, green caterpillars that are pointed on both ends. The moth is gray, with diamond-shaped markings when the wings are closed. The damage caused by diamondback larvae looks like shot holes in the leaf.

The larval or worm stages of these insects cause damage by eating holes in the leaves and cabbage head. The adult moths or butterflies lay their eggs on the leaves but otherwise do not damage the plants. The worms are not easy to see because they are fairly small and blend with the cabbage leaves.

Cabbage worms are quite destructive and can ruin the crop if not controlled. They are even worse in fall plantings than in spring gardens because the population has had several months to increase. About the time of the first frost in the fall, moth and caterpillar numbers finally begin to decline drastically.

Nutritional Value and Health Benefits

Broccoli packs more nutrients than any other vegetable. It has large amounts of Beta carotene which is a type of pigment found in plants, especially carrots and colorful vegetables. Beta-carotene is converted to vitamin A by the body.

Vitamin A is needed for good vision and eye health, for a strong immune system, and for healthy skin and mucus membranes. Broccoli is also high in vitamins D and C, broccoli

has become the most favored vegetable of the cole family (cauliflower, Brussels Sprouts, and all forms of cabbage).

Researchers have concluded that broccoli and other cruciferous vegetables should be included in the diet several times a week. Consuming foods high in antioxidants can reduce the risk of some forms of cancer and heart disease.

Preparation and Serving

Fresh broccoli is delicious raw or cooked. Trim and peel the stalk, it is high in fiber. Cut the florets into uniform pieces for even cooking. Overcooked broccoli develops a strong sulfur odor. Steam broccoli for 3-4 minutes or simmer in about one inch of boiling water for the same amount of time or less. Cooked broccoli should be bright green and tender-crisp. Overcooked broccoli turns dark green and suffers nutrient loss, especially vitamin C. Broccoli is very tasty in stir fried dishes.

Home Preservation

Freezing is the best way to preserve broccoli. Broccoli, as well as all other broccoli vegetables, must be blanched (scalded) in boiling water before freezing.

Unblanched vegetables contain an active enzyme which causes toughening and severe flavor and nutrient loss during freezing. Blanching retards the enzyme activity.