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Broccoli in the Garden

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Summary

Broccoli is a cool season vegetable that prefers sunny locations and fertile, well-drained soil. Incorporate plenty of organic matter and a complete fertilizer into the area before planting. Plant seeds ¼-¾ inch deep, 2-3 weeks before the last frost in the spring. Thin seedlings or transplant broccoli 12-18 inches apart in the row with rows 2-3 feet apart. Avoid growing during the heat of summer as yield and quality are reduced. After harvest, side-dress with additional nitrogen fertilizer for continued side-shoot development. Irrigation should be deep and infrequent. The use of plastic or organic mulches helps conserve water and reduce weed growth. Control insects and diseases throughout the year. Harvest broccoli when the heads are large and compact, but before the flower buds open.

Recommended Varieties

There are many good broccoli varieties for sale in local gardening outlets and through seed catalogs. Most grow well in Utah. Packman (50 days), Green Comet (55 days), and Premium Crop (65 days) have excellent production and eating quality.

How to Grow

Soils: Broccoli prefers fertile, well-drained soils rich in organic matter for best growth. Most soils in Utah are suitable for broccoli production.

Soil Preparation: Before planting, incorporate 2-4 inches of well composted organic matter and apply 4-6 cups of all-purpose fertilizer (16-16-8 or 10-10-10) per 100 square feet.

Plants: Broccoli can be grown from seed or transplants. Seeds should be planted ¼-¾ inch deep and thinned to the final stand when plants have 3-4 true leaves. Plants removed at thinning can be transplanted to adjacent areas. Transplants are used to provide earlier harvest. Transplants should have 4-6 mature leaves and a well developed root system before planting out. Larger, more mature transplants are prone to form small, early heads (buttoning) which flower prematurely.

Planting and Spacing: Seeded or transplanted broccoli should be spaced 12-18 inches between plants in the row with rows 2-3 feet apart. Closer spacing (1 by 1 foot) can be used, but head size is reduced

and side shoot development inhibited by these arrangements. Broccoli grows best and produces highest yields when temperatures do not exceed 75°F and is not seriously damaged by temperatures down to 28°F. Broccoli grown for transplants should be sown 5-6 weeks before the expected planting date.

Transplants may be planted 2-3 weeks before the last frost free date for the growing area. Seeded broccoli may be planted at the same time. For fall maturing broccoli, select early maturing cultivars and plant 50-75 days before the anticipated maturity date. The maturity date can be several weeks after the first fall frost. High summer temperatures reduce growth, decrease quality, and cause loose heads to form, which taste bitter.

Water: Water broccoli deeply and infrequently while trying to maintain even soil moisture. About 1-2 inches of water are required per week. Use drip irrigation if possible to conserve water. Applying mulch around the plant also helps conserve soil moisture and reduce weed growth.

Fertilization: Apply 1/2 cup per 10 feet of row of a nitrogen-based fertilizer (21-0-0) 4 weeks after transplanting or thinning to encourage vigorous plant growth. Apply an additional ¼ cup of nitrogen fertilizer when the broccoli head is the size of a quarter. After harvesting the main head, apply additional nitrogen fertilizer to encourage side shoot development. Place the fertilizer 6 inches to the side of the plant and irrigate it into the soil.

Mulches and Row Covers: Plastic mulches help conserve water, reduce weed growth and allow earlier planting and maturity, especially with transplants. Hot caps and fabric covers are used to protect seedlings and transplants from frosts. Fabric covers also protect young plants from insect pests. Apply organic mulches when temperatures rise. These will cool the soil and reduce water stress. Organic mulches such as grass clippings, straw, and shredded newspaper also help control weeds.

Problems

Weeds: Plastic and organic mulches effectively control weeds. Be sure to control weeds when plants are small and be careful not to damage roots when cultivating.

Insects and Disease:

Insect	Identification	Control
Aphids	Green or black soft-bodied insects that feed on underside of leaves. Leaves become crinkled and curled.	Use insecticidal soaps, appropriate insecticides, or strong water stream to dislodge insects.
Cabbage Worms and Loopers	Worms are light to dark green. Adult loopers are a gray or brown moth while cabbage worms are white butterflies. Worms and loopers chew holes in leaves and hide in broccoli heads.	Control these insects with appropriate insecticides or biological measures.
Flea Beetles	Small black beetles that feed on seedlings. Adults chew tiny holes in cotyledons and leaves. Beetles can reduce plant stands or may kill seedlings.	Control beetles with appropriate insecticides at seeding or after seedlings have emerged from the soil.

Disease	Symptom	Control
Alternaria Leaf Spot	Damping off of seedlings. Leaf spots on leaves or heads is a more common symptom. Spots form concentric circles and have a black sooty color.	Apply appropriate fungicide. Avoid overhead irrigation. Practice good sanitation. Rotate crops.

Deficiency	Symptom	Control

Boron	Nutrient deficiency which causes brown spotting on the head and hollow, discolored stem below the head.	Avoid excess fertilizer. May occur in high pH soils or where plants have been water stressed.

Harvest and Storage

Broccoli heads should be harvested when the heads are compact but before the flower buds open. Mature heads are 6-12 inches in diameter and should be cut with stems 8-10 inches long. With additional water and fertilizer, broccoli will produce many 4-6 inch long side-shoots. Broccoli can be stored for 1-2 weeks at 32°F and 95% relative humidity.

Productivity

Plant 3-5 broccoli plants per person for fresh use and additional 5-10 plants for storage, canning or freezing. Expect 100 lbs per 100 feet of row.

Nutrition

Broccoli has low sodium, no fat, no cholesterol, high vitamin C, is low in calories, and is a source of folate, calcium, and vitamin A.

Frequently Asked Questions

Some years many of my broccoli plants only produce very small heads and they do this soon after planting. What's wrong? Buttoning is the development of pre-mature flower heads in broccoli and cauliflower. Plants that button have been exposed to cold weather or were stressed for water or nutrients shortly after transplanting. Larger transplants are more prone to button so try to select plants with 4-6 leaves.

Why do the broccoli heads open up and flower during the summer? Broccoli plants are cool season vegetables grown for their immature flower stalks. During hot weather, plants may not get enough water which leads to poorer quality heads that are more open. Keep plants well watered during the heading period. Plants that are stressed often flower prematurely as well.

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