



# Cole Crops or Brassicas

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All of the following crops belong to the cabbage family. It is best not to plant cabbage family crops in the same spot year after year, as diseases and insect pests will build up. Rotate crops within your garden.

## Broccoli

### Environmental Preferences



**Light:** Sunny.

**Soil:** Well-drained, high organic matter, sandy loam to clay loam

**Fertility:** Rich.

**pH:** 5.8 to 6.5

**Temperature:** Cool (60 to 65°F).

**Moisture:** Keep moist, not waterlogged.

### Culture

**Planting:** Start seeds indoors for early spring transplants. Seed in beds or flats for fall transplants.

**Row spacing:** 15 to 24 inches by 24 to 36 inches.

**Hardiness:** Hardy annual.

**Fertilizer needs:** Heavy feeder. In the absence of a soil test use a starter fertilizer when transplanting. Sidedress three weeks later and again as needed with 3 tablespoons of 10-10-10 per 10-foot row.



Photo of broccoli by nightsky, iStock.

### Cultural Practices

There are two types of broccoli, heading and sprouting. Most garden broccoli is of the heading type, which is closely related to cauliflower, and forms a large central head. When this is removed, side branches will form throughout the summer. Sprouting or Italian broccoli forms many florets or small heads, but these do not produce a solid head.

Broccoli Raab or Turnip broccoli is not a true broccoli but, in fact, a type of turnip cultivated for its flower head. It can be sown in spring to raise as an annual or sown in fall to raise as a biennial. Harvest leaves in fall and flower shoots in spring before they open. Cook and eat like asparagus. Most turnips grown for their greens can also be treated this way. Refer to [publication 426-408 - Leafy Green Vegetables](https://pubs.ext.vt.edu/426/426-408/426-408.html) for Broccoli Raab or turnips (pubs.ext.vt.edu/426/426-408/426-408.html).

To grow broccoli, buy transplants locally or grow your own and set out in spring or fall. Transplants for a fall setting can be produced along with cabbage and

cauliflower transplants, taking about 4 weeks from seeding to setting in the garden. Sprouting broccolis are sown directly into the garden in spring. Follow the packet directions. Broccoli has a relatively shallow, fibrous rooting system. Cultivate carefully or, even better, mulch.

The heads of broccoli are really flower buds. These must be harvested before the flowers open or show yellow. Mature heads measure 3 to 6 inches across. Lateral heads that develop later are smaller.

## Common Problems

**Diseases:** Clubroot, blackleg, blackrot, downy mildew, and *Alternaria* leaf spot.

**Insects:** Cabbage root maggots, cutworms, cabbageworms, cabbage looper, flea beetles, aphids.

**Cultural:** Poor heading from buttoning (premature formation of heads); early flowers from interrupted growth due to chilling, extremely early planting, drying out, or high temperatures.

Refer to the current year's version of Virginia Cooperative Extension's Pest Management Guide - [Home Grounds and Animals, Home Vegetable Chapter](https://www.pubs.ext.vt.edu/456/456-018/456-018.html) for current control recommendations (pub <https://www.pubs.ext.vt.edu/456/456-018/456-018.html>).

## Harvesting and Storage

**Days to maturity:** 60 to 100 days.

**Harvest:** Large terminal bud cluster before flowers open, then small side bud clusters as they develop over the following weeks. Harvest with 6 to 8 inches of stalk. Harvest sprouting and other types according to packet instructions.

**Approximate yields:** Six to ten bunches (about 4 to 6 pounds) per 10-foot row.

**Amount to raise:** Three to five plants per person.

**Storage:** Very cold (33°F), moist (95% relative humidity) conditions for 10 to 14 days.

**Preservation:** Freeze.

# Brussels Sprouts

## Environmental Preferences

**Light:** Sunny.

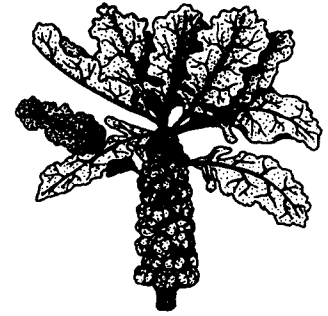
**Soil:** Well-drained loam, high organic matter.

**Fertility:** Rich.

**pH:** 5.5 to 6.5

**Temperature:** Cool (60 to 65°F).

**Moisture:** Keep moist, not waterlogged.



## Culture

**Planting:** Sow seeds early to mid-summer.

**Spacing:** 18 to 24 inches by 30 to 34 inches.

**Hardiness:** Hardy biennial.

**Fertilizer needs:** Heavy feeder. In the absence of a soil test, sidedress 1 tablespoon ammonium nitrate per 20-foot row, two to four weeks after planting or when plants are 12 inches high.



Photo of Brussels sprouts by Carmen Hauser, iStock.

## Cultural Practices

Brussels sprouts are grown for harvest in the fall because cool weather during maturity is essential for good flavor and quality.

Brussels sprouts are tall (sometimes 2 to 3 feet) erect, biennials that are grown as annuals. The sprouts develop in the leaf axils and mature along the stalk. The lowest

sprouts mature first and should be harvested when firm, 1 1/2 to 2 inches in diameter. The lowest leaves may be removed to permit sprouts to mature. Plants started in spring, and maturing sprouts in hot weather are more susceptible to aphids and other damage to the loose heads that form, giving very poor quality.

## Common Problems

**Diseases:** Clubroot, black rot, downy mildew, and *Alternaria* leaf spot.

**Insects:** Cabbage root maggots, cutworms, cabbageworm, cabbage looper, flea beetles, aphids.

**Cultural:** Sprouts have loose tufts of leaves instead of firm heads because sprouts developed during hot weather; crop failures can also be due to water stress.

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## Harvesting and Storage

**Days to maturity:**  
80 to 100 days from seed.

**Harvest:** When sprouts are hard, compact, and deep green, about 1 to 1 1/2 inches in diameter, after frosty weather for the best flavor. Twist or snap off the stalk. The lowest sprouts mature first.

**Approximate yields:** 4 to 6 pounds per 10-foot row.

**Amount to raise:** Two to five plants per person.

**Storage:** Cold (33°F), moist (95% relative humidity) conditions for three to five weeks.

**Preservation:** Freeze.

# Cabbage

## Environmental Preferences

**Light:** Sunny.

**Soil:** Well-drained, high organic matter.

**Fertility:** Rich.

**pH:** 5.5 to 6.5



**Temperature:** Cool (60 to 65°F).

**Moisture:** Keep moist, not waterlogged.

## Culture

**Planting:** Start seeds indoors for early spring transplants. Seed in beds or flats for fall transplants.

**Spacing:** 15 to 18 inches by 30 to 36 inches.

**Hardiness:** Hardy biennial.

**Fertilizer needs:** Medium feeder, in the absence of a soil test, use a starter fertilizer when transplanting, sidedress 3 weeks later with 3 tablespoons of 10-10-10 per 10-foot row.



Photo of green cabbage by Focus Photography, pexels.com.

## Cultural Practices

Cabbage grows from March to December. It will withstand temperatures as low as 15 to 20°F.

Buy locally grown transplants or produce your own. Start them in growing structures four to six weeks before the first date when plants can be set out, or sow a few seeds in the cold frame or garden every month in order to have cabbage plants thereafter. It takes about three weeks to get plants ready from seeding to set during the summer months. Plant only the earliest varieties after July 1.

Plant spacing affects head size. Close space (12 inches apart in the row) produces small heads. Average spacing is 15 to 18 inches apart in rows 30 inches apart.

For a small family, the dwarf varieties may be ideal. The heads are about the right size for a generous bowl of cole slaw, and the fast maturity makes these varieties excellent for succession planting.

Cabbage is harvested when it reaches an adequate size, depending on variety and growing conditions. Firm heads are preferred, especially for storage. Heads can be left on the plant in the garden for about 2 weeks in the summer and 3 to 4 weeks in the fall.

## Common Problems

**Diseases:** Clubroot, blackleg or black rot, downy mildew, and *Alternaria* leaf spot

**Insects:** Cabbage root maggots, cutworms, imported cabbage worms, cabbage looper, flea beetles, aphids.

**Cultural:** Head cracking or splitting from excessive water uptake and growth near maturity, root prune with a spade or trowel, or twist the stalk to break some roots and reduce water uptake.

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## Harvesting and Storage

**Days to maturity:** 70 to 100 days.

**Harvest:** When heads become firm, size will vary with variety, fertility, and spacing. If unable to harvest at maturity, bend over to break part of the roots to reduce head splitting.

**Approximate yields:** 10 to 18 pounds per 10-foot row.

**Amount to raise:** Four to eight plants per person.

**Storage:** Very cold (33°F), moist (95% relative humidity) conditions for four to five months.

**Preservation:** Can as sauerkraut, freeze for use in soups.

# Cauliflower

## Environmental Preferences

**Light:** Sunny.

**Soil:** Well-drained, high organic matter.

**Fertility:** Rich.

**pH:** 5.8 to 6.5



**Temperature:** Cool (60 to 65°F).

**Moisture:** Keep moist, not waterlogged.

## Culture

**Planting:** Plant after the danger of frost is past. Start seeds indoors for early spring transplanting. Seed in beds or flats for fall transplanting.

**Spacing:** 15 to 24 inches by 24 to 36 inches.

**Hardiness:** Hardy annual.

**Fertilizer needs:** Heavy feeder. In the absence of a soil test, use starter fertilizer at transplanting, sidedress three weeks later, and apply as needed with 3 tablespoons of 10-10-10 per 10-foot row.



Photo of cauliflower by Couleur, Pixabay.

## Cultural Practices

Spring seedlings should be transplanted after the danger of frost is past. Fall cauliflower should be sown in late June to July. Many gardeners experience buttoning of cauliflower heads in the spring. This is a failure of the cauliflower head to grow in size after it reaches about an inch or less in diameter. It is usually due to transplant stress or heat stress during the head formation period. Some cauliflower varieties require a longer growing season than is available for fall production in colder areas of Virginia. Use short-season types or season extenders in these areas.

Cauliflower should be blanched when the curd flower head is about 2 to 3 inches. Three to four large outer leaves are pulled up over the curd and fastened with a rubber band or are broken over the top of the cauliflower and tucked in on the other side of the curd. The normal blanching time is 4 to 8 days and may take longer in the fall. Self-blanching types that have leaves that grow up over the head may eliminate the need for this practice.

If the weather is warm during the blanching period, tie the leaves loosely to allow air circulation. Harvest while the curd is still firm. If it gets too mature, it will become grainy or ricey.

## Common Problems

**Diseases:** Club root, blackleg and black rot, downy mildew, and *Alternaria* leaf spot

**Insects:** Cabbage root maggots, cutworms, cabbageworms, cabbage looper, flea beetles, aphids.

**Cultural:** Poor heading from interrupted growth due to chilling from extremely early planting, drying out, or high temperatures.

Refer to the current year's version of Virginia Cooperative Extension's Pest Management Guide - [Home Grounds and Animals, Home Vegetable Chapter](https://www.pubs.ext.vt.edu/456/456-018/456-018.html) for current control recommendations (<https://www.pubs.ext.vt.edu/456/456-018/456-018.html>).

## Harvesting and Storage

**Days to maturity:** 55 to 120 days from transplanting.

**Harvest:** Cut before curd or head sections begin to separate. The curd should be compact, firm, white, and fairly smooth. Leave a ruff of leaves surrounding the head when harvested to prolong keeping quality.

**Approximate yields:** 8 to 12 pounds per 10-foot row.

**Amount to raise:** Three to five plants per person.

**Storage:** Very cold (33°F), moist (95% relative humidity) conditions for two to four weeks.

**Preservation:** Freeze, pickle.

## Kohlrabi

### Environmental Preferences

**Light:** Sunny.

**Soil:** Well-drained loam, high in organic matter.

**pH:** 6.0 - 7.0

**Temperature:** Cool (60 to 65°F).

**Moisture:** Keep moist, not waterlogged.



## Culture

**Planting:** Sow seed when the danger of frost is past. Transplants well.

**Spacing:** 4 inches x 15 to 18 inches.

**Hardiness:** Hardy annual.

**Fertilizer needs:** In the absence of a soil test, preplant broadcast 2 lbs. 10-10-10 per 100 sq. ft., sidedress at the same rate after thinning.



Photo of kohlrabi by Urszula, Pixabay.

## Cultural Practices

Kohlrabi is a fast-growing vegetable that likes cool days for best results, but will grow equally well in hot or cold weather. The edible portion is a "bulb" or enlarged stem just above ground level.

The soil should be high in humus, manure, compost, or other organic matter. Good texture and flavor are dependent on the proper amount of water. Always keep the soil moderately moist. Dry soils will produce woody, strong-flavored "bulbs."

Due to kohlrabi's fast-growing nature, you should be able to make several sowings throughout the growing season.

## Common Problems

**Diseases:** Club root, Black leg and Black rot, downy mildew, and *Alternaria* leaf spot.

**Insects:** Flea Beetles, cabbage root maggots, cut worms, cabbageworms, cabbage looper, aphids.

**Cultural:** Woody bulbs (dry soil, picked too late)

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## Harvesting and Storage

**Days to maturity:** 80 days.

**Harvest:** Pick the bulbs when they are young, tender and no more than 2 1/2" in diameter.

**Approximate yields:** 1 "bulb" per plant (approximately 30 per 10-ft row).

**Amount to raise per person:** 3-6 plants per person.

**Storage:** Store extra harvests in a cool basement.

**Preservation:** Freeze.

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