



## Gardening

# Growing Cole Crops

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The cole crops — including broccoli, brussels sprouts, cabbage, cauliflower, collards, kale and kohlrabi — can bring unique and distinctive food value to family meals. These cabbage family crops are named “cole” from the German word for “cabbage.” These vegetables can be prepared many appetizing ways to add diet variety.

- **Broccoli** was developed in southern Europe and brought to America by immigrants. The 3- to 5-foot tall plant has a loose flower head that forms both terminally and laterally on a green, branching stalk.

- **Brussels sprouts** originated in Europe around Brussels, Belgium, and grows to about 2½ feet tall, bearing small cabbages from the bottom to the top of the plant in the axil of each leaf. Each plant may contain as many as 100 1- to 2-inch ball-like sprouts.

- **Cabbage**, one of the most important homegrown crops, was developed from wild leafy nonheading plants that grow in Europe and may be either green, red or purple.

- **Cauliflower**, the most low temperature-sensitive member of the cabbage family, grows about 2 feet tall and has blue-green leaves. The edible portion of cauliflower is the flower buds that are clustered in a head or curd.

- **Collards**, a nonheading relative of cabbage, form a large rosette of leaves rather than a head. Collards, considered a southern vegetable, will grow well in Idaho gardens.

- **Kale**, like collards, is a leafy, nonheading cabbage which is also occasionally known as “borecole.”

- **Kohlrabi** is a cabbage with a turnip-like enlargement of the stem above ground. This swollen or enlarged stem is the edible part, and its flavor is like that of a mild, sweet turnip.

### Climate

Cole crops are, by nature, cool season crops and develop highest yields and quality under cool, moist conditions during the spring and fall. In many areas of Idaho, only one crop per year is normally possible. However, gardeners in warmer areas of Idaho may plant one cole crop in the early spring and another later for fall harvest and winter storage.

Two-time planting works especially well for cabbage and broccoli where the cool but frost-free growing season is 150 days or more. Cauliflower will usually not withstand as low or high temperatures as cabbage. Broccoli is not as sensitive to hot weather as is cauliflower. Brussels sprouts will withstand considerable freezing and can be harvested late into the fall. Quality brussels sprouts are produced during sunny, fall days with frosty nights.

### Soils

Cabbage and its relatives grow on a variety of fertile, well-drained soils. Seedbed preparation should start when the soil has sufficient moisture to form a mud ball that crumbles into medium-sized fragments. Cultivation should mix crop residues and organic matter in the top 7 to 8 inches. The ideal pH for cole crops is from 6.0 to 7.0, but they do well in southeastern Idaho's soil that ranges from pH 7.0 to 8.0.

Soil tests are the best indication of fertilizer needs. In the absence of a soil test, use a preplant fertilizer of .2 pounds of actual nitrogen for each 100 square feet. When the plants are one-third grown, side-dress with 1½ ounces of ammonium sulfate per 10 feet of row.

### Cultural Practices

Begin with transplants of broccoli, brussels sprouts, cabbage and cauliflower 4 to 6 inches tall. (Direct seeding is a common practice in commercial plantings of these cole crops but is not used commonly in home gardens.) When starting plants at home, the best time to seed broccoli, brussels sprouts, cabbage and cauliflower is 5 to 7 weeks before transplanting. Before transplanting homegrown plants, be sure to gradually harden them off by placing them outdoors a few hours each day, extending the period as you approach planting time. A cold frame is especially useful for the final growth and hardening of the cool season, cole crops.

Large cabbage transplants may produce seed stalks if subjected to 3 to 4 weeks of 40 to 50 degree weather. To lessen this problem, get transplants whose main stem is about the size of a pencil lead. Seed planted in the garden for later-maturing plants should be inserted into the soil 6 to 8 weeks before the last killing frost.

Select varieties of broccoli, brussels sprouts, cabbage and cauliflower developed for weather conditions in your area. Maturity date after transplanting should be 60 to 80 days for broccoli, 80 to 90 days for brussels sprouts, 65 to 95 days for cauliflower and 65 to 95 days for cabbage.

## Spacing

Brussels sprouts should be spaced 18 to 24 inches apart, in rows 24 to 30 inches apart. Plant broccoli 20 to 24 inches apart in rows 24 to 30 inches apart. Cabbage plants should be spaced 15 to 20 inches apart; row width should be 24 to 30 inches wide. Plant cauliflower plants 18 to 20 inches apart along the row with a row width of from 30 to 36 inches.

Collards and kale are almost always sown directly into the garden, 8 to 12 inches apart and in rows 18 to 24 inches wide. Also, seed kohlrabi directly into the garden in rows 14 to 16 inches wide with plants at 6-inch intervals.

Cultivation should be shallow when necessary. Remember, deep cultivation close to the plants will destroy much of the root system and reduce yield and quality. Hilling soil up around the main stem of the broccoli, cabbage and cauliflower may stimulate early heading.

Watering of the cole crops must be managed. Root depth of about 2 feet should be supplied with adequate moisture.

## Pest Control

Keys to successful, cole crop production are good insect and disease control. Principal insect problems in growing these crops are aphids, cutworms and imported cabbage worm. Contact your local University of Idaho Cooperative Extension Service for a copy of insect control recommendations in CIS 226, *Garden Vegetable Insect Control*. Diseases can best be avoided by buying resistant varieties and rotating the location where you grow your cole crops.

## Harvest

**Broccoli** should be harvested when the head is 4 to 6 inches across but before the buds separate. Smaller, lateral heads of excellent quality will develop after cutting the terminal head. A properly harvested head is cut 3 inches below the flower buds.

With **brussels sprouts**, remove lower leaves as sprouts start to enlarge. Then harvest sprouts as they become

solid, 1 to 2 inches in diameter. The lowest sprouts will mature first. To speed up sprout maturity, pinch off the tip of each plant in late August or early September; however, this may reduce the total yield of the plant by one-third. Break the sprouts from the stalk. The tastiest sprouts will be those that mature after the first fall frost.

**Cabbage** is ready to harvest in 50 to 65 days after transplanting. The head should be solid and picked before it cracks. Soft heads are of lower quality. An over supply of water will cause heads to split in hot weather. This may be minimized by limiting soil moisture or by twisting the mature head part of the way around to sever some of the roots. Small heads will often develop on the stem next to the base of the leaves after the first or principal head is removed.

When the **cauliflower** head reaches golf ball size, tie the leaves above the head to shade it to prevent discoloring. Remove the head 4 to 6 days later depending upon the temperature but before the curd starts to separate.

**Kale** harvest can begin 55 to 65 days after seeds are sown. The entire plant or only the larger leaves may be harvested young. Old leaves are tough and stringy.

Harvest the entire young or mature **collards** plant at ground level, or strip off the bottom leaves periodically. The latter method lets you harvest continuously through the season. If you want to harvest entire plants, you should make successive plantings at 2- or 3-week intervals. Cool weather or frost improves collard flavor.

**Kohlrabi** should be harvested when the swollen stem is 2 to 4 inches in diameter. Harvest before the flesh becomes woody.

## Storage

1. **Broccoli** — store in perforated plastic bags in the refrigerator for about 1 week.

2. **Brussels sprouts** — Dig up the plants with a little soil remaining around the roots when nighttime temperature drops to 20°F on a regular basis. Put the

plants in a deep cold frame or in an unheated garage where they will probably continue to grow until all the sprouts mature.

3. **Cabbage** — Freezing point is 30.4°F. Place mature heads in a pit, trench or outdoor cellar where the temperature is between 32°F and 40°F and the relative humidity is high. Stored cabbages will last through late fall and early winter.

4. **Cauliflower** — Store under ideal conditions for 6 to 8 weeks in a cellar with a temperature as near 32°F as possible and a relative humidity that is moderately high. Storage under ideal conditions may last up to 6 to 8 weeks.

## Food Preservation

Broccoli, brussels sprouts and cauliflower can be frozen successfully.

• **Broccoli** — Select compact, dark-green heads. Wash, peel and trim leaves and woody ends. If necessary to remove insects, soak 30 minutes in salt brine (4 teaspoons salt to gallon of water). Rinse and drain. Cut through stalks lengthwise, leaving heads 1 inch in diameter. Blanch 3 minutes in water or steam-blanch 5 minutes. Cool. Pack heads and stalk ends alternately in container.

• **Brussels sprouts** — Select green, firm, compact heads. Wash and trim outer leaves. Soak 30 minutes in salt brine. Rinse and drain. Blanch medium heads 4 minutes; large heads 5 minutes. Cool.

• **Cauliflower** — Select firm, white heads. Wash and trim. Split heads into pieces 1 inch across. If necessary to remove insects, soak 30 minutes in salt brine. Rinse and drain. Blanch 30 minutes. Cool. Make extra cabbage into sauerkraut. See USDA Bulletin 92, *Making Pickles and Relishes*, at your UI Extension county office.

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