Cole Crops

“Cole crops” is a general term used to describe several vegetables in the mustard family, including broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale, and kohlrabi. All cole crops are cultivated varieties of the species *Brassica oleracea*. They are cool-season vegetables that prefer 60°-70°F temperatures for optimal growth and can withstand light frosts without injury.

**Suggested Cultivars for Iowa**

**Broccoli**

Days to harvest: 60-75. (Days from planting seedlings in the garden to harvest.)

- **Arcadia** – late (fall production); small domed heads
- **Goliath** – large, tight heads
- **Green Magic** – medium-size, blue-green heads; good heat tolerance
- **Gypsy** – mid-season; heat tolerant
- **Imperial** – late maturing; dark green heads; good heat tolerance
- **Marathon** – late maturing; blue-green heads
- **Packman** – early to mid-season; uniform, large heads

**Brussels Sprouts**

Days to harvest: 85-110. (Days from planting seedlings in the garden to harvest.)

- **Diablo** – tall plants; late maturing cultivar
- **Franklin** – early maturing cultivar
- **Gustus** – dark green sprouts
- **Hestia** – medium-size sprouts; plants are shorter than other cultivars
- **Jade Cross** – large, dark green sprouts

**Cabbage (green)**

Early season cultivars mature approximately 60-65 days after planting. Late season cultivars may require 100 or more.

- **Blue Vantage** – mid-season; blue-green, round heads
- **Caraflex** – small, teardrop-shaped heads
- **Early Thunder** – mid-season; blue-green heads; excellent holding ability
- **Quick Start** – early season; medium green heads
- **Savoy Blue** – mid-season; dark blue-green, heavily savoyed heads
- **Stonehead** – early season; small heads
- **Thunderhead** – mid-season; dark blue-green heads

**Cabbage (red)**

- **Red Jewel** – mid-season; deep red heads
- **Ruby Perfection** – late season; medium-size, reddish purple heads

**Cauliflower**

Early season cultivars mature approximately 50-60 days after planting. Late season cultivars mature in 70-80 days.

- **Aquarius** – mid-season; pure white heads; good heat tolerance
- **Cheddar** – mid-season; orange heads; poor heat tolerance
- **Fremont** – mid-season; white heads
- **Graffiti** – late season; purple heads; color turns bluish purple when cooked
- **Snow Crown** – early season; white heads; uniform and reliable
- **Vitaverde** – light green heads; best as fall crop
- **White Sails** – mid-season; white heads
It is possible to harvest late spring/early summer and fall crops of broccoli, cauliflower, cabbage, and kohlrabi. Brussels sprouts perform best as a fall crop.

Plant broccoli, cauliflower, and cabbage transplants in early to mid-April in central Iowa for late spring/early summer crops. Plants can be purchased at garden centers or seeds can be sown indoors 4-5 weeks before the intended outdoor planting date. Before planting, harden transplants outdoors by gradually exposing them to longer periods of sunlight over several days.

For fall crops, start broccoli, cauliflower, and cabbage transplants indoors or sow seeds directly outdoors in mid-June.

Sow Brussels sprouts seeds indoors in early May. Plant seedlings in the garden in mid-June.

Collards and kale are usually direct seeded in the garden in April for a summer crop and in mid-July to early August for a fall crop.

Kohlrabi is usually direct seeded in early to mid-April for a late spring crop and July for a fall crop.

**Spacing**

Broccoli, Brussels sprouts, cauliflower, and cabbage transplants should be spaced 18-24 inches apart in rows that are 24-30 inches apart.

Collard seedlings should be spaced 12 inches apart after thinning. Rows should be spaced 2-2.5 feet apart.

Thin kale seedlings so plants are 8-12 inches apart. Rows should be spaced 2-2.5 feet apart.

After thinning, kohlrabi seedlings should be spaced 6-8 inches apart within the row. Rows should be spaced 18-24 inches apart.
**Fertilization**

If a soil test has not been done, apply 1-2 pounds of an all-purpose garden fertilizer, such as 10-10-10, per 100 square feet and incorporate it into the top 4-6 inches of soil before planting.

About 3-4 weeks after planting, broadcast a small amount of an all-purpose garden fertilizer in a band along one side of each row.

**Care during the growing season**

Most cole crops have shallow root systems and require weekly irrigation if rainfall doesn’t provide one inch of water per week. Control weeds to prevent competition for water, nutrients, and light. Shallow cultivation, hand pulling, and mulching are the best weed control options. A 2-3 inch layer of mulch, such as straw, dry grass clippings, or shredded leaves, helps control weeds and also conserves soil moisture.

Cauliflower heads exposed to sunlight are usually cream-colored. If white heads are desired, the developing heads may need to be blanched. Blanching eliminates light penetration to the heads, keeping the heads white. When the heads are two inches across, loosely tie the inner leaves over the heads with large rubber bands, cloth strips, or twine. The heads develop rapidly after tying and are generally ready to harvest within 1-2 weeks. Self-blanching cultivars don’t require tying as their inner leaves naturally grow over their heads.

**Potential problems**

**Buttoning**

Broccoli and cauliflower plants exposed to stressful growing conditions may form heads prematurely. This development is called buttoning. Stressful conditions that may lead to buttoning include exposure to prolonged periods of temperatures below 50°F, dry conditions, and infertile soils. Also, large (older) transplants that are root-bound are more likely to button than young plants. Plants that button do not form usable heads.

**Cabbageworms**

Cabbageworms are greenish caterpillars that eat large, irregular holes in the foliage of most cole crops. Treat when caterpillars are first noticed with products containing *Bacillus thuringiensis* (Bt). When consumed by cabbageworms, this bacterium produces toxins which destroy the insects. Synthetic and other organic pesticides also can be used.

**Estimated yield**

With good management practices, average yields per 10-foot row are as follows:

- **Brussels sprouts** – 7-10 pounds
- **Broccoli and cauliflower** – 8-12 pounds
- **Cabbage** – 5-6 heads
- **Collards** – 7-8 pounds
- **Kale** – 8-10 pounds
- **Kohlrabi** – 7-8 pounds

**Harvest and storage**

**Broccoli** – Cut heads when they are blue-green, about six inches across, and before the buds start to open and yellow flowers begin to appear. Cut the central stem just below the head. Many cultivars produce side heads after the main head is removed. Broccoli can be stored in perforated plastic bags in the refrigerator for up to one week.

**Brussels sprouts** – One or more light frosts improve the flavor of Brussels sprouts. Harvest individual sprouts or buds from the base of the plant as they become solid. Buds should be 1-1.5 inches in diameter and tender and green. Remove buds higher up on the plant as they become firm. Do not strip the lower leaves from the plant because they are necessary for further growth.
Alternatively, the growing point (the very top of the plant) can be removed 6-7 weeks before the average first hard frost and then the entire plant harvested and the sprouts removed later in fall.

**Cabbage** – Cut heads when they feel solid and heavy. Large heads are prone to splitting if not harvested promptly. Split heads are a sign of over maturity or excessive water uptake. To reduce the incidence of splitting and delay or stagger harvest, pull the plant upward and gently twist to break some of the roots and reduce water uptake. After harvest, remove the loose cover leaves and store in perforated plastic bags in the refrigerator for 2-4 weeks.

**Cauliflower** – Harvest when the heads are 6-8 inches across, but still compact and smooth. Over mature heads begin to open up and become grainy in texture and appearance. Cauliflower can be stored up to two weeks in perforated plastic bags in the refrigerator.

**Collards and Kale** – Both can be harvested periodically over time by removing the fully mature leaves and allowing the young leaves to continue to grow. If preferred, the entire plant head can be harvested about 60 days after germination. Leaves can be stored in perforated plastic bags in the refrigerator for up to 14 days.

**Kohlrabi** – Flavor is mildest when the thickened stems are 2-3 inches in diameter. Remove leaves and roots and store in perforated plastic bags in the refrigerator for up to three weeks.