



Vegetable Gardening Tips

Growing Information for the Home Gardener Series



Growing Cole Crops

Broccoli, Brussels Sprouts, Cabbage and Cauliflower

Broccoli, brussels sprouts and cauliflower are members of the cabbage family, or cole crops. These cool season crops are somewhat hardy and will tolerate various degrees of frost. They grow best in the fall when the weather turns from warm to cool. When these crops mature in cool weather, they are of the highest quality. A spring crop is possible, but you should select varieties that are heat resistant and mature early.

When these crops are grown in the fall, they are often direct-seeded into the warm soil from July through early September. Cabbage and cauliflower may be seeded slightly earlier. Don't seed cauliflower after August. The plants also may be seeded in a lightly fertilized nursery bed area or in pots and then transplanted into the garden about four weeks after seeding. Spring-grown crops of cabbage, cauliflower and broccoli can be started as early as six weeks before the average last frost in your area, then transplanted into the garden about two weeks before the average last frost. Since brussels sprouts are such a long season crop, it may be best to plant them up to a late September planting for harvesting in early spring.

Soil Preparation and Fertilization

The best soil for cole crops is one which is rich with humus, well drained and able to supply plenty of soil moisture. Select an area where these or cabbage crops were not grown the previous year. Average soils in Louisiana will require about 3 pounds of an 8-24-24 fertilizer or about 6-8 pounds of 8-8-8 drilled in a strip 6 inches deep for each 100 feet of row. This amount may also be broadcast over 300 square feet of garden area. When applying fertilizer, especially compost, it's best to do so several weeks before planting the garden.

If the soil is very acidic, it needs an application of lime, based on soil test recommendations. Apply lime several months before the planting season, because it

acts slowly. The best soil pH for these crops is about 6. High pH can cause head browning.

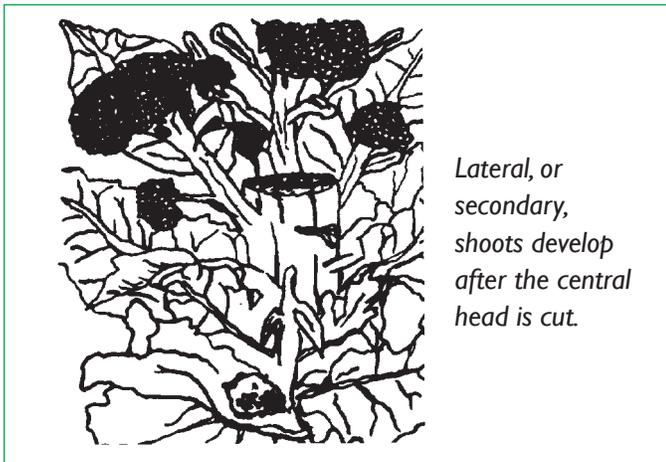
When preparing the seed bed or garden row, rake all the soil into high beds for good drainage. In areas where drainage is adequate, lower beds may be formed. Just before planting the seeds, rake or drag off the top of the row to expose fresh, moist soil. Plant the seeds 1/4 inch deep. Firm the loose soil over the seed with a rake. When you are planting in soils that tend to form a crust after rains, seed a little heavier. The germinating seed is at a delicate stage and must receive adequate soil moisture. If the moisture is sufficient, the seeds should sprout in about four days.

Set out transplants at about the depth they were originally grown. Plants grown in full sun from the start are short and healthy green. Plants grown in some shade will stretch and be a little lighter green. Young plants and transplants will quickly run their tap roots deep into the ground even though they may look very poor during the late summer heat. When the cooler fall weather arrives in late September, they'll take on life and grow like weeds. Allow 12 to 18 inches between plants.

Sidedress young plants with fertilizer about three to four weeks after transplanting, and then again in two to three weeks. Most soils need only nitrogen as a sidedressing. About 1 pound of ammonium nitrate or 1 pound of ammonium sulfate per 100 feet of row is the recommended rate. On light, sandy soils, sidedress with about 3 pounds of 8-8-8. This sidedressing placed 4 to 6 inches away from the base of the plant, along with good moisture, will keep the plant growing vigorously until harvest. Such growth is very important for a top quality head or sprout.

Broccoli

Broccoli, also called sprouting broccoli, is less demanding than cauliflower. It requires no special treatment to maintain its color or quality and will



Lateral, or secondary, shoots develop after the central head is cut.

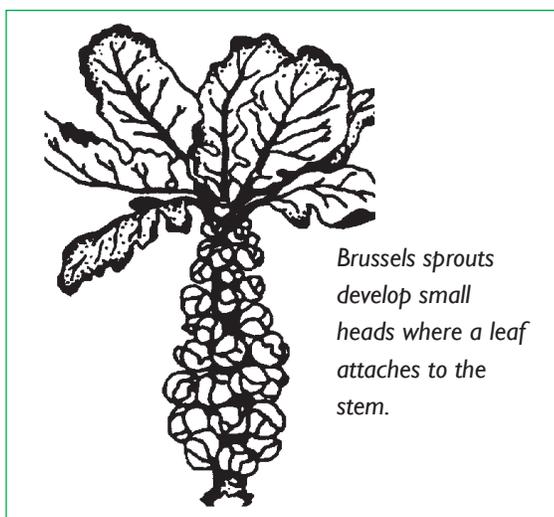
tolerate more heat and cold. It freezes well and is a good source of vitamins C, A, B₂ (riboflavin) and potassium.

Early maturing varieties recommended for Louisiana include Packman, Everest and Premium Crop (AAS). Marathon, Gypsy, Patriot, Arcadia and Green Magic are good late maturing selections. For your spring crop, choose an early maturing variety.

Broccoli heads are harvested at or near full size, but before the flower heads have begun to open and show a yellowing. Overmaturity tends to cause a woodiness in the outer tissues of the stem. The head is cut out of the plant with about 6 inches of stem remaining (or as desired). The plants may be left in the garden for a second or third cutting of broccoli. Lateral shoots develop after the central head is cut. These shoots are not as large as the central head but are fine for fresh table use or freezing.

Brussels Sprouts

Brussels sprouts are a form of nonheading cabbage that develops small heads (called sprouts) where a leaf attaches to the stem. Some varieties form dozens of



Brussels sprouts develop small heads where a leaf attaches to the stem.

sprouts and terminate in a small cabbage head on top. The young and tender leaves of all cole crops may be eaten as greens. This vegetable is a good source of potassium and vitamin C.

Brussels sprouts have a long growing season, requiring about three months from transplanting to first harvest. They are the most cold hardy of these three crops. For best quality they should not be grown so that the sprouts mature in very warm weather.

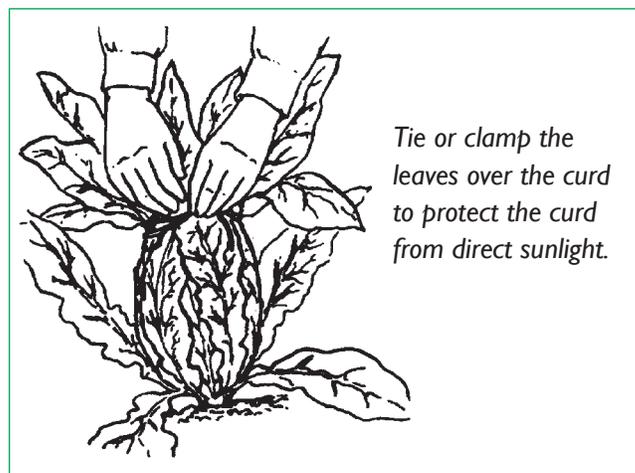
Hybrid varieties recommended for Louisiana include Jade Cross and Oliver.

Harvest the sprouts when they are 1 inch or larger in diameter. Harvest while they are still firm and before their companion leaf turns yellow. De-budding the top bud forces sprouts to mature more quickly and evenly. Sprouts maturing in very warm weather are usually looser and stronger in flavor. At harvest, the companion leaf is normally snapped off as the sprout is pulled to make harvesting easier. To ensure a longer harvest season, keep sprouts picked regularly, including overmature sprouts.

Cauliflower

Cauliflower also is called "heading broccoli." It's harder to grow than broccoli or brussels sprouts but is a good source of vitamin C. It needs rapid and continuous growth, especially in the early stage, for proper head development. If growth is checked by a lack of moisture or fertilizer or by insect and other problems, the head, or curd as it's called, will be small or fail to develop. Intense heat from planting too early or too late may also cause a failure of the curd to form.

Cauliflower will mature in about two months, depending on varieties. Recommended early hybrids are Snow Crown and Majestic. Candid Charm is a large-head, early hybrid that self-wraps. A good open-pollinated variety is Self Blanch (fall only). Good late varieties include Freedom, Incline, Cumberland, Wentworth and White Passion.



Tie or clamp the leaves over the curd to protect the curd from direct sunlight.

Cauliflower is harvested by cutting out the curd when it is about 6 inches or larger in diameter. Curds left on the plant too long will loosen and become “ricey.” It’s better to cut a little early than a little late. Even slight overmaturity reduces the quality.

When the curd is about 3 inches in diameter, it is usually blanched. Blanching is tying or clamping the leaves over the curd to protect the curd from direct sunlight. Blanched curds are snowy white, more delicate in flavor and smooth in appearance. The time from blanching to harvesting depends on the temperature. In warm weather, cauliflower may reach harvestable stage in three to four days after being tied. In cool weather, growth is slower and may take a week to 10 days. Check as needed to avoid overmaturity.

Cabbage

Cabbage is an ancient vegetable with many uses. It is low in calories and is a well-balanced food value. Production of highest quality heads depends on rapid growing conditions and good fertility through head maturity. Cabbage requires 2 to 2 1/2 months from transplant to maturity.

Cabbage is usually ready to cut when the green cover leaves begin to curl back slightly, exposing the white leaves beneath. At this stage cabbage is about as hard and heavy as it will become without bursting and without being too crisp and brittle for good handling. Cabbage may be harvested as soon as it is large enough, regardless of its stage of maturity. The quality of the produce is also inferior when harvested soft. If the head is carefully cut, leaving as many leaves as possible often develops several small heads around the cut center.

Varietal selection is important. This determines disease resistance, earliness, leaf color and texture.

Highly recommended early maturing hybrids include Green Cup, Blue Vantage, Green Boy, Stonehead, Quick Start, Savoy Ace (AAS) and the reds of Red Dynasty and Red Jewel. Best main season hybrids have been Blue Dynasty, Blue Thunder, Cheers, Platinum Dynasty, Quista, Solid Blue 780, and Rio Verde in fall or winter only.

Mature heads will split if high moisture and good growing conditions persist after head maturity. If these conditions persist, harvest heads or twist heads to prune roots and slow growth.

Bolting or premature formation of seed can be a problem with the over-wintering crop grown in Louisiana. Bolting is caused when plants are exposed to temperatures around 40 degrees F and below for several weeks. Plants are especially sensitive when the largest leaves are 3 to 4 inches wide or wider. To reduce this problem, plant varieties that are most resistant to bolting during the part of the growing season where these temperatures are most likely to occur.

The size of the transplants also influences bolting. With all other factors equal, the larger the seedling at the time it is transplanted, the more likely it is to bolt if exposed to the 40 degrees F temperature range for several weeks after transplanting. Holding plants because of inclement weather can present a problem. The gardener at some point must decide to discard oversized plants. Cabbage seed of poor quality will also show a higher percentage of plants bolting than will high quality seeds.

A physiological disorder known as “tip burn” has been observed in cabbage that did not receive ample moisture. Reports indicate that because of low soil moisture, insufficient calcium is translocated to the growing tips of the leaves. Tip burn is not visible until the heads are cut open. The center of the head will have leaves that are dark and appear as brown streaks in a cross section. Usually the problem develops as the crop approaches maturity. Tip burn resistant varieties are Quisto and Solid Blue 780.

Pest Control

Weeds can damage these crops, but since they’re grown in the cold season, weed pressures are usually less of a problem and can be controlled with mulching and shallow cultivation. If herbicide is needed, use preplant treatments of Roundup, Goal, Dacthal or Treflan. Poast will control grasses anytime. Contact your parish Cooperative Extension Service office for specific information on their use.

Blackleg, black-rot and soft-rot are three diseases associated with cole crops. The blackleg fungus forms ashen gray spots which have tiny blackened dots on leaves and stems. Stems become girdled, and the plants wither and die. The black rot bacteria blacken the veins and central areas of the stem. Leaves will yellow at the margins and drop. Both diseases are carried on or in the seed and may live in fresh refuse in the soil. Bacterial soft rot can develop in heads nearing maturity. The center of the head turns mushy and usually exhibits a foul odor. To control these diseases, buy clean western-grown seeds and rotate garden areas growing cole crops from year to year. Spray fixed copper.

Downy mildew produces small yellowish splotches on leaves with a white-to-purple downy growth on the lower surfaces. This fungus can be controlled with chlorothalonil, maneb, Ridomil or fixed copper fungicidal sprays. Apply at first appearance and then every seven to 10 days. Wash off residue if you spray within a week of harvest.

Consult your county agent for information on other recommended pesticides. See also LSU AgCenter Publication No. 3050 Disease Management in Home Vegetable Gardens.

The most common insect pests of these crops include aphids and various caterpillars. Caterpillars are controlled with a biological spray formula containing *Bacillus thuringiensis*. Apply alone or with Permethrin, Spintor, Diazinon or Thiodan as needed. Aphids are easily controlled by sprays containing Malathion, Thiodan or Diazinon. Apply as needed. Foliage sprays do better with a spreader-sticker added.

Read all labels before applying pesticides, and follow directions. The proper use of pesticides will benefit you, your crops and their environments. Proper timing of application and amount used are important for the safe use of pesticides. Be sure to wait the recommended time between applying and harvesting. See also LSU AgCenter Publication No. 2341 Insect Management in Home Vegetable Gardens.

Mole crickets can be a problem on young plants. They feed on the roots and dig up the plants, causing the roots to dry out. Diazinon granules may be used to control them either before or after planting.

Note

1. Make dust application when the air is calm, preferably in the late afternoon, night or very early morning. Don't dust when it is windy.
2. Destroy all old crop remnants and you will kill the insects present and prevent further breeding. Collards and other cruciferous crops growing in the summer supply breeding grounds for cabbage caterpillars that will damage fall plantings.

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Imported Cabbage Worm — Order *Lepidoptera*

Length: 1 1/4 inches.

Light-green larva covered with fine down attacks cabbage, crifers, other plants.

Adult - white cabbage butterfly.



Cabbage Looper or Inchworm — Order *Lepidoptera*

Length: 1 1/2 inches.

Light-green, white- or yellowish-striped caterpillar feeds on cabbage and related plants.

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