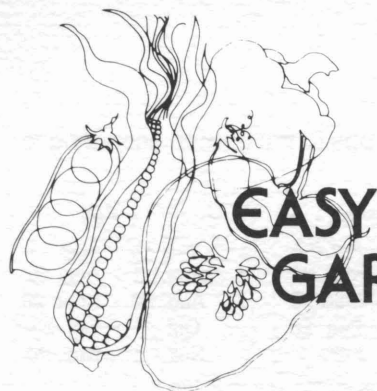


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EASY GARDENING...COLE CROPS

B. Dean McCraw*

Cole crops include *broccoli*, *cabbage*, *cauliflower* and *Brussels sprouts*. All are cool season crops which do not grow well in hot weather. They can be grown successfully in most Texas home gardens if the right varieties are planted at the right time. They do best in full sunlight in early spring or late fall. Brussels sprouts and cauliflower are the hardest to grow; broccoli and cabbage are easier. All are cold tolerant and can be grown all winter in many areas of Texas. For most gardeners broccoli is the best choice because it produces faster, and each plant can be harvested several times.

Soil Preparation

Cole crops do best in loose, sandy loam soils that are well drained yet will hold water. Very sandy soils drain and dry too quickly. Heavy clay soils hold too much water. Add a 3-inch layer of organic matter such as compost, leaves or grass clippings to the garden soil when digging or tilling to make it easier to work.

Dig soil as deep as a garden spade or shovel will reach, usually 10 to 12 inches, well ahead of planting time. Turn the organic matter under the soil as soon as possible so it will have time to rot before planting.

Fertilizing

Have your soil tested every 3 to 4 years to know how rich it is. Soils in East Texas usually are very acid. Soils in South and West Texas usually are alkaline, and soils on the plains usually have plenty of potassium. If you do not have your soil tested, use about 1 to 2 pounds of a complete fertilizer such as 10-20-10 for each 100 square feet or about 30 feet of row to be planted. Spread the fertilizer over the

soil surface after the soil is dug and mix the fertilizer into the soil 2 to 3 inches with a rake or tiller.

After fertilizing pull the soil into ridges 36 inches apart and 6 to 8 inches high. This is called bedding and is necessary for good drainage. It is most important in heavier soils. Bedding the soil also mixes the fertilizer into the row where plants can reach it. Apply more fertilizer as the plants grow during the season.

Planting

Most cole crops need 18 to 24 inches between plants and 36 inches between rows. Broccoli spaced too closely will have small heads and fewer side sprouts. Cauliflower and cabbage can easily spread 2 feet if well fertilized. Space Brussels sprout plants 14 to 18 inches since they grow more upright (figure 1).

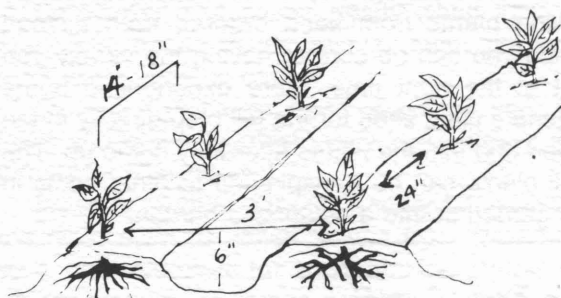


Figure 1. Space broccoli and Brussels sprouts 14 to 18 inches apart. Space cauliflower and cabbage 24 inches apart. Plant radishes or greens between the young plants.

Broccoli, cauliflower and cabbage can be grown in both spring and fall, but fall planting often is more successful since very early spring planting is often delayed by wet or cold weather. Delayed spring planting exposes plants to too hot weather before they mature. Variety selection is very important since early maturing varieties usually are most successful. South of Region II (figure 2) grow Brussels

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Texas gardening regions

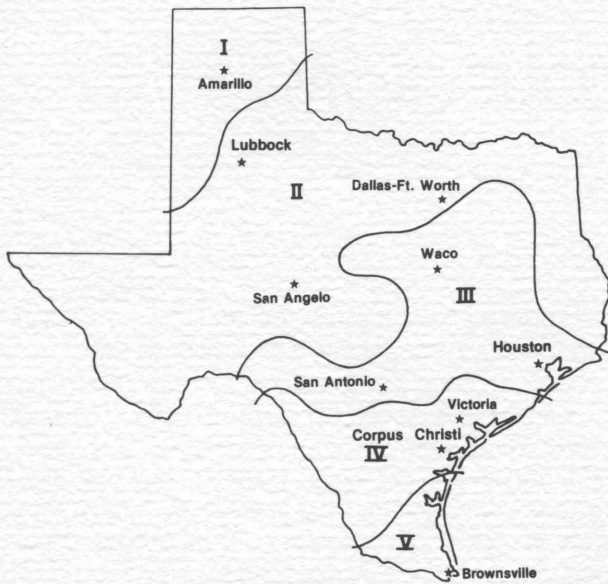


Figure 2

sprouts only as a fall crop since they will not mature before summer temperatures get too hot. Brussels sprouts are the most cold tolerant of the cole crops.

Use good transplants to produce cole crops. They can be bought from a nursery or garden center or grown by the gardener. Plant seed in paper cups, peat pots or similar containers about 6 weeks before the spring crop is to be transplanted or about 3 to 4 weeks before the fall crop is to be transplanted. By growing plants from seed ordered from a seed catalog you can be sure of having the variety you want at the right time. More experienced home gardeners plant seed for the fall crop directly in the garden and thin the plants after they come up. The small plants can be transplanted to other spots in your garden or into a neighbor's garden.

Transplant cole crops to the garden according to the following dates:

Region	Spring	Fall
I	Mar. 1 - Apr. 7	July 15 - Aug. 1
II	Feb. 15 - Mar. 20	Aug. 1 - Aug. 20
III	Feb. 1 - Mar. 5	Aug. 20 - Sept. 20
IV	Jan. 15 - Feb. 20	Oct. 1 - Oct. 20
V	Jan. 1 - Feb. 1	Nov. 1 - Nov. 20

Gardening regions of Texas are shown in figure 2.

Be sure transplants are accustomed to the cold of early spring or heat of early fall before transplanting. Broccoli and cabbage will survive temperatures as low as 25° F. if properly conditioned and Brussels sprouts will survive 20° F. or lower if the temperature drops slowly.

Set the transplant in the garden at about the same depth as it was in the pot. Be sure peat pot is moist and not exposed to air after planting. If cole crops are covered too deeply, stems will rot (figure 3).

Varieties

Broccoli

Green Comet Hyb

Cauliflower

Snowcrown Hyb

Snowking Hyb

Brussels sprouts

Jade Cross

Cabbage

Greenback

Early Round Dutch

Gourmet Hyb

Red Acre (Red)

Drumhead (Savoy)

Care After Planting

Keep soil moist but not soaked. A mulch of dark colored plastic or compost in the spring or white plastic, dried grass clippings or leaves in the fall helps reduce the need for water, controls weeds and regulates soil temperatures.

Do not hoe too closely to the plants or too deeply as shallow root systems will be damaged. About 4

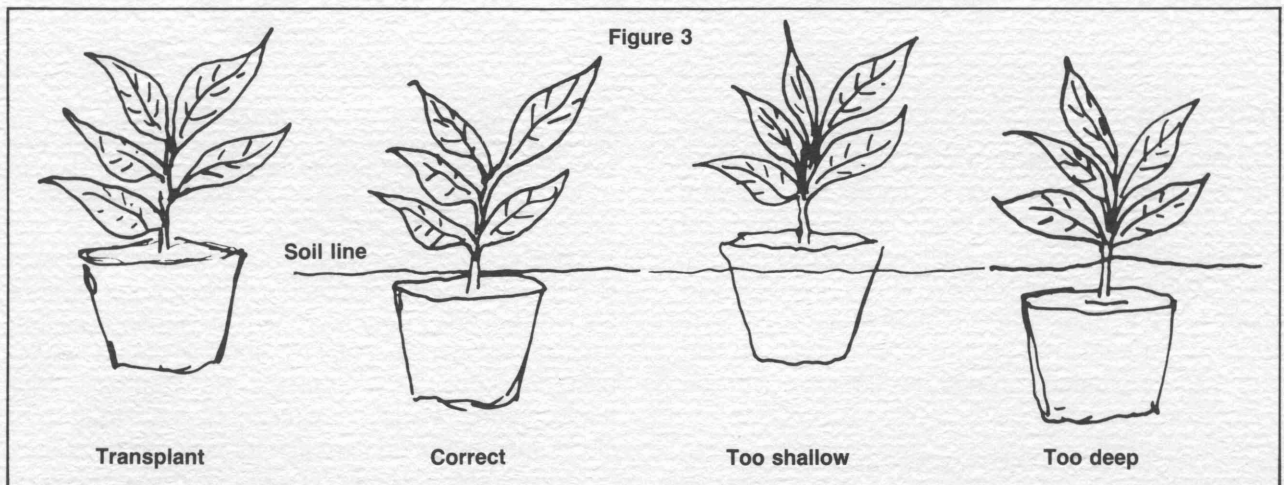
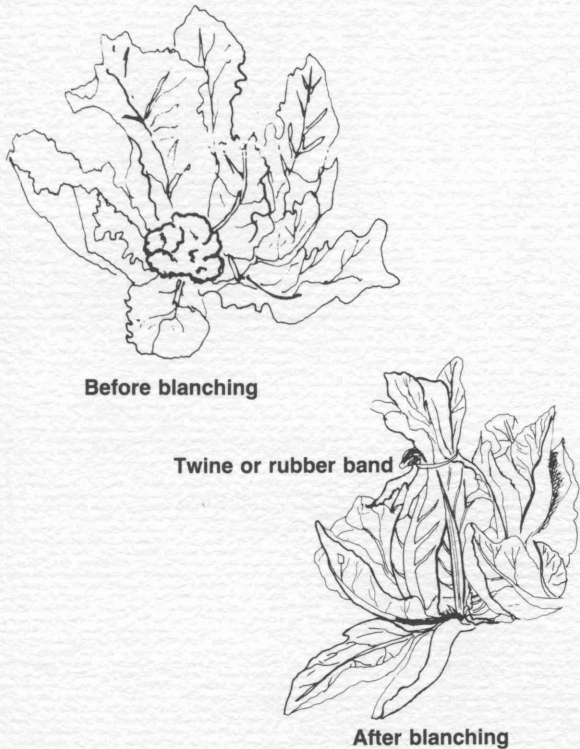


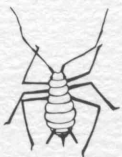
Figure 4



weeks after transplanting apply 1 pound of fertilizer for each 30 feet of row beside the plants. Water the fertilizer into the soil. Another application usually is needed about 4 weeks later. If nitrogen fertilizer such as ammonium nitrate or ammonium sulfate is used, apply 1 cup per 30 feet of row.

When the cauliflower head can be seen easily, gather the longest leaves together over the head and tie with a rubber band or soft twine (figure 4). This is called blanching. It shades the head and prevents it from becoming yellowish green in color. Check plants often for insect damage after blanching. The head should be ready to harvest 8 to 10 days after blanching.

Insects



Name and description

Aphid: 1/8 inch long; soft-bodied; green, pink, red, brown or powdery blue; usually on underside of leaves; sucks plant juices; may be covered with a fine whitish wax.

Control

Malathion



Harlequin bug: adult and nymph; black and yellow; shield shaped; sucks juices from plant.

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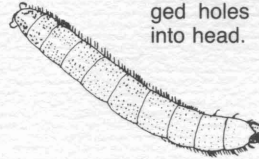


Cabbage looper: up to 1 1/2 inches long; pale green with light stripe down back; doubles up or loops when it crawls; chews leaves.

Bacillus thuringiensis (Dipel, Thuricide, Biotrol, Biological Worm Control, Bacter)

Imported cabbage worm: up to 1 1/4 inches long; velvety green with three faint gold stripes on back; chews ragged holes in leaves; bores into head.

Bacillus thuringiensis (Dipel, Thuricide, Biotrol, Biological Worm Control, Bacter)



Before using a pesticide read the label. Use strictly in accordance with cautions, warnings and directions.

Diseases

Cole crops are attacked by some diseases. Do not plant any of these crops in the same place more than once every 3 to 4 years. Leave plenty of space between plants. If you have trouble with diseases on cole crops, ask your county Extension agent about disease control.

Harvesting

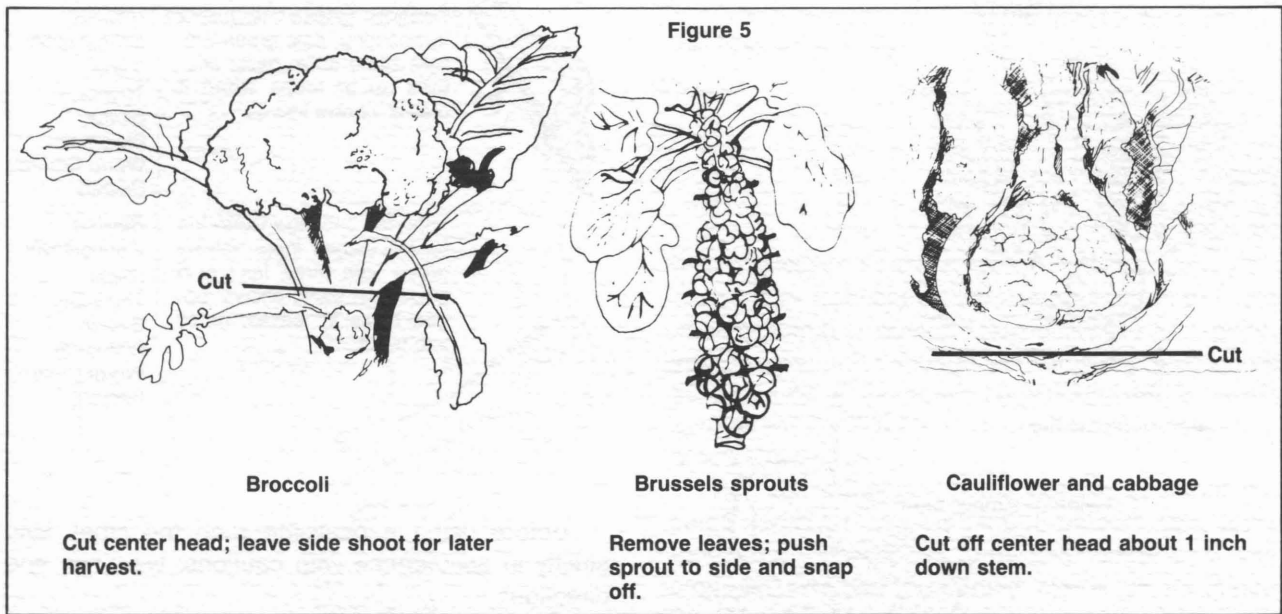
Cauliflower. Cut center heads when they are tight. Over mature heads become open and loose and flowers begin to open.

Broccoli. Cut center head when the very first flower shows the slightest yellow color. Leave side sprouts for later harvest.

Brussels sprouts. Sprouts appear between leaf and main stem on lower leaves first. They must have cool weather for best quality. When the sprouts are about 1 inch in diameter and the lower leaves begin to turn yellow, cut off lower leaves and remove sprout with fingers or knife. New sprouts form higher up the stem as the plant grows.

Cabbage. Harvest when the head becomes firm. This can be tested by pressing with the thumb in the center of the head.

Broccoli, cauliflower and Brussels sprouts must be harvested as soon as they are ready (figure 5). Delayed harvest results in tough, poor quality produce. Cabbage holds longer in the garden after maturity. Cabbage plants left undisturbed after harvest sometimes develop small sprouts similar to Brussels sprouts beside the cut surface. This usual-



ly is not enough to justify leaving the plants especially in small gardens.

Serving

Broccoli, cauliflower and Brussels sprouts are served raw in salads or cooked. They are a good source of protein, minerals and vitamins when properly prepared. Cabbage is served cooked or raw in cole slaw. It is often processed into sauerkraut. Ask

your county Extension agent for information on preparing and serving cole crops.

Cleanup

Spring cole crops can be followed by summer crops such as southern peas, okra, beans, cucumber and cantaloupes. Turn leaves and trimmings from cole crops under the soil. Compost large stems.

Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas Agricultural Extension Service is implied.

The author acknowledges Garland McIlveen, Extension entomologist, for providing information on insect biology and control.

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