

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
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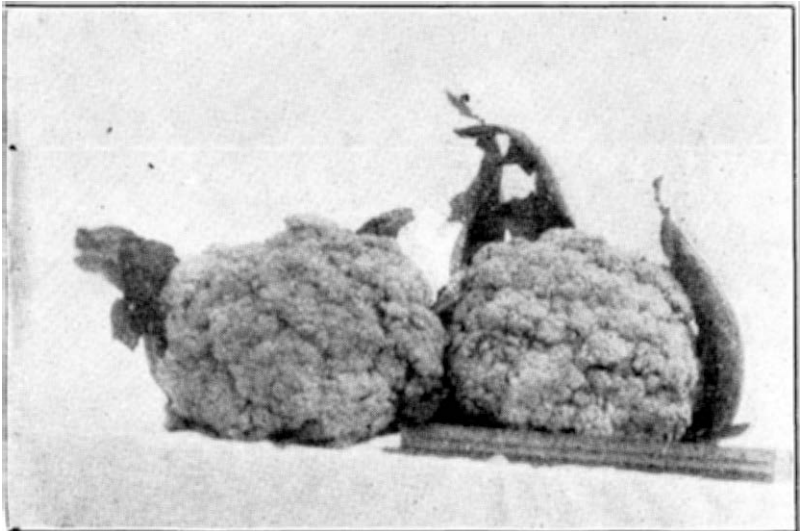
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**Early Cabbage, Cauliflower,  
Head Lettuce and  
Bermuda Onions**

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**Cauliflower Raised in Bryan County, Oklahoma**

# Early Cabbage, Cauliflower, Head Lettuce and Bermuda Onions

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Any one who has had experience in gardening in most portions of Oklahoma appreciates the importance of early gardening. This is especially true in the case of the cool natured plants, among which are cabbage, cauliflower, head lettuce and Bermuda onions. In many portions of the state sufficient cabbage is not grown for home consumption, and good, solid heads of lettuce and cauliflower are not grown at all. All of these plants are comparatively easily grown if properly handled.

Plants raised as suggested in this circular are termed frost-proof plants. The southern frost-proof plants are usually planted in the fall in the open ground.

## CABBAGE

Many advertisements of the so-called "frost-proof" cabbage plants have been seen. In the strict sense of the word there are no such things as frost-proof cabbage varieties. It is very true that the average so-called frost-proof plants will stand more frost than plants started in a box or in the hotbed and transplanted directly to the open ground. The so-called frost-proof plants are grown most extensively on the Gulf and Atlantic coasts, where the climate is comparatively mild. The seed is planted in the open ground and the spring plants, that is, the ones to be set out in the spring, are left unprotected during the winter. The plants carelessly grown are not altogether desirable. In the first place, they are frequently grown very thickly on poor land, which stunts them. They are pulled and packed carelessly and may die after being shipped and set out. Frequently many of the plants that do live run to seed in the spring instead of forming a head. There is no doubt that a home-grown supply is more desirable.

In growing cabbage in this latitude it is important to select early varieties in order that they may mature before the hot, dry summer begins. Such varieties as Jersey Wakefield, Copenhagen Market and Charleston Wakefield have proven to be satisfactory.

Plant the seed in a cold frame from the tenth to the twentieth of October. Prepare the soil in the frame thoroughly. Mark off rows 4 or 5 inches apart and about  $\frac{1}{2}$  inch deep. Drill the seed fairly thick. One ounce of cabbage seed will be sufficient to plant 50 to 60 square feet of surface and produce 2,000 to 3,000 plants.

As a rule there is no difficulty in selling your surplus plants, providing they are good, stocky, healthy ones.

The frames should be watered after the seed is planted and kept moist. The frequency of watering will depend on the weather. However, when water is applied, wet the bed thoroughly and cultivate the soil when dry enough. Naturally, as the plants grow and cover the ground, the cultivation will be discontinued.

It sometimes happens that during a mild winter the plants may grow too large before time to set them out in the spring. This can be avoided by exposing the plants to a colder temperature, which can be done by increasing ventilation, and by less frequent watering.

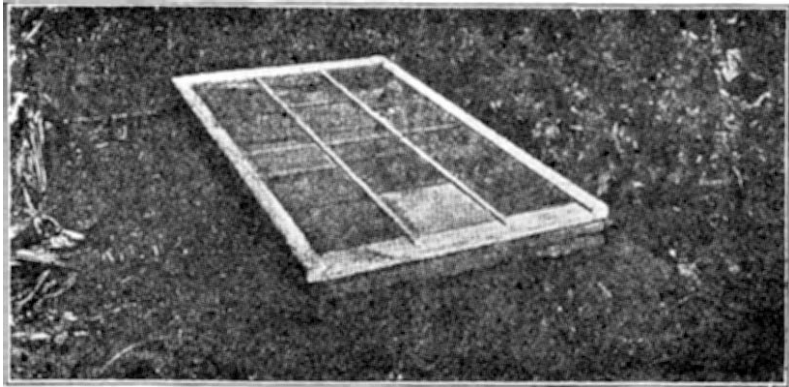
Do not be too quick to cover the plants or they will grow too fast and become tender. Cover during hard beating rains and very cold weather.

Where cabbage plants have become accustomed to the cold gradually they will stand 15° F. of freezing without damage, whereas plants that have been forced would be killed.

### COLD FRAME

A cold frame consists of a frame or box without a bottom, usually shallower on one side than the other, covered with glazed sash or a cloth cover. Place the frame on the south side of some building so the shallower side of the frame faces south. Where the frame is to be covered with regular 6x3 foot sash it is desirable to have the frames about 5 feet 11 inches wide and the length a multiple of 3, say 3 feet, 6 feet, 9 feet or 12 feet. The back or north side should be 4 to 6 inches taller than the front or south side. A 12-inch front and an 18-inch back are convenient heights.

Where the frame is to be covered with canvas it is desirable to have a greater distance between the height of the back and front in order to shed water, that is, assuming that the frame is to be approximately 6 feet wide.



**One-Sash Cold Frame**

For home use, where glass-covered frame is not used, a small frame 2 to 3 feet wide and any desired length may be used. By having the frame narrow it will not be necessary to make such a great difference between the heights of the back and front of the frame. Four inches difference will be all that is necessary.

For the back or north of the frame, use a 12-inch board, and for the front or south side, use an 8-inch board. Box in the ends.

Cover with canvas. Sometimes a light frame is made of 1x1½-inch wood and the canvas tacked on this frame as a cover. In this instance the cover may be attached to cold frame with hinges.

#### ADDITIONAL PROTECTION

During the coldest weather in mid-winter, some additional protection to the regular cold frame cover may be necessary. Manure, straw, old sacks, comforts or carpets will answer the purpose. The soil should be mounded around the sides of the frame, which will afford protection from cold and at the same time give proper drainage.

In case the plants become frozen stiff, leave the cover on with shade so they will thaw out gradually.

#### SOIL

As a general rule in the home garden there is little opportunity for a selection of different types of soils. However, the cabbage thrives upon a large diversity of soils. For extra early cabbage, as well as cauliflower and head lettuce, a sandy loam soil will give best results, as it drains well and warms up early in the spring. Varieties of head lettuce do better on a lighter soil than the leaf varieties.

Since all three of the above mentioned plants are foliage plants, a soil rich in nitrogen is very important in order to give a quick growth of an abundant supply of tender foliage or modified foliage in the form of heads.

#### FALL PLOWING

The cutworm is recognized as one of the most serious insect pests of the cabbage. Fall plowing is one of the surest ways of getting rid of this pest. Where cabbage is to be grown to any extent, the advantage derived from fall plowing in combating the cutworms would alone justify the labor. Previous to the fall plowing, a heavy application of barnyard manure should be scattered over the ground to supply the nitrogen which is so important in growing foliage plants. A fall application of 40 to 50 tons of manure per acre on the average soil in the moister portions of the state will not be too much.

Where practical, disk the manure in the soil in order to thoroughly mix it previous to plowing. Leave the soil rough during the winter in order to catch as much moisture as possible and at the same time expose the soil to the alternate thawing and freezing, which will benefit it.

In case of blowy soils it is desirable to grow a winter cover crop and truck the land in the spring in alternate strips of lands. The rows of the land should run in the opposite direction from the prevailing winds.

As an illustration, after the first, third, etc., lands have become fairly well covered with growth, the second, fourth, etc., lands could be planted in later vegetables. Thus, the blowing of the soil will be minimized.

#### SETTING PLANTS IN THE OPEN

Where cabbage plants have been properly hardened off in the cold frame as described above, the plants can be safely set out in the open ground the latter part of February, or not later than the first 10 days in March. It is true they may freeze stiff or be covered by snow, sleet and ice, but, as previously mentioned, they will stand a temperature of 15° F. to 20° F. The rows should be 30 to 36 inches apart and the plants set 18 to 24 inches apart in the row. In setting the plants, make the opening in the soil sufficiently large to receive the roots without cramping them. Set the plants at least up to the first leaves. In case the plants are tall, pull off a few of the bottom leaves in order to set them deeply. The principal thing is to avoid covering the terminal or end bud. Where plants are set deeply it will check thawing, and they are not so apt to be injured by the stems cracking open following a rapid thawing, which sometimes follows a severe freeze. Firm the soil well around the roots and they will not need watering at that time of the year. In case of a warm day, or one that is a little windy, pinch off a portion of the larger leaves to check evaporation.

#### CULTIVATION

The cultivation of the cabbage is not different from that of any ordinary garden crop. The main thing is to keep up cultivation in order to keep down grass and weeds and conserve moisture.

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#### INSECTS

The principal insects which affect cabbage besides the cutworms are plant lice or aphids and the green cabbage worm.

#### PLANT LICE OR APHIDS

The main reason why many experience difficulty in combating the different kinds of plant lice is because the spray is not applied thoroughly to the under side of the foliage as well as the top. Two or three applications of 1 to 2 teaspoonfuls of Black Leaf 40 to 1 gallon of soapy water at intervals of seven to ten days will destroy the plant lice, or the use of a 2 to 3 percent nicotine dust. Both the spray and dust are most effective when applied in the middle of a clear day when the air is still.

#### GREEN CABBAGE WORM

A serious pest of the cabbage plant is the green cabbage worm, which eats the foliage. On account of its green color, and the fact that it most usually inhabits the under side of the foliage, it is difficult to detect.

As soon as the pest appears, spray the plants thoroughly with arsenate of lead solution, three-fourths of a pound of powder to 25 gallons of water. If paris green is substituted for arsenate of lead, use 4 ounces to 20 gallons of water.

For small home patches, a dust is probably more easily applied. Use 4 ounces of paris green to 7 pounds of air-slacked lime, or 1 pound of powdered calcium arsenate to 7 pounds of air-slacked lime. In case the lime is lumpy, run it through a wire screen. Mix the poison and lime thoroughly and apply early in the morning, while the dew is on, with a muslin cloth sack about 8 inches wide.

By holding to the top of the sack and picking up the bottom with the other hand and dropping the bottom over the plant, the dust will sift out on the plant.

### CUTWORMS

Where fall and winter plowing or forking of the ground is practiced, cutworms seldom are troublesome. However, where cutworms are a pest, an application of the poison bran mash late in the evening will be found effective. The mash should be applied near the plants.

### POISON BRAN MASH

Coarse bran .....	5 pounds
Orange or lemon .....	1
Molasses .....	1 pint
Water .....	3 to 4 quarts
Paris green or white arsenic .....	$\frac{1}{4}$ pound

Mix bran and paris green or white arsenic together. Squeeze the juice of the lemon or orange into the water, chop up the rinds fine, and add them and the molasses. Add this mixture to the bran mixture and stir thoroughly. A moist, crumbly mash is desired. Do not make it sloppy.

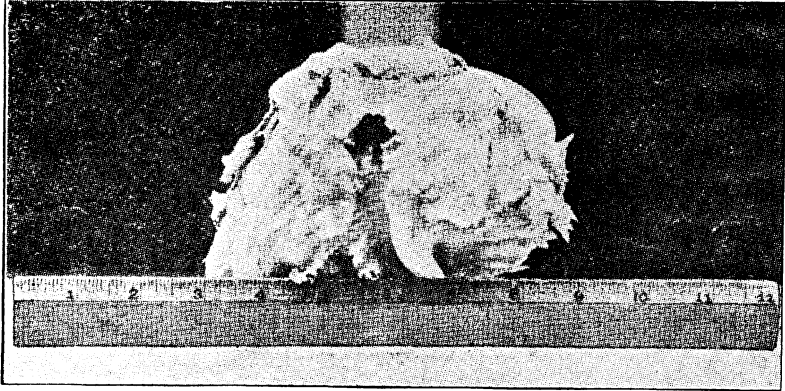
Broadcast near the plants late in the evening. Applications on several evenings may be necessary.

### CAULIFLOWER

Cauliflower seed may be planted at the same time in the cold frame as cabbage seed. The care of the plants would be the same, except, as a rule, they should not be set in the open quite as soon as the cabbage plants. As a general rule, set cauliflower plants about two weeks later. Set the plants the same distance apart as the cabbage plants. Early Snowball and Dwarf Erfurt are two good varieties of cauliflower.

## LETTUCE

As previously mentioned, where seed of head varieties of lettuce are planted in a cold frame in the fall and wintered over and set out in the open ground early in the spring, solid heads are easily raised. However, this does not mean that varieties of leaf lettuce cannot be grown in the same way.



**A Good Head of Lettuce**

Plant the seed in the cold frame about the last of October and care for the plants the same as for cabbage and cauliflower plants.

The plants may be safely transplanted to the open the same as the cabbage plants are set out.

A good way of economizing space and labor, so far as cultivation is concerned, is to transplant a lettuce plant in between the cabbage plants in the row. The lettuce will mature and can be harvested before the cabbage plants will need the space.

Good varieties of head lettuce are Big Boston, Hanson and Iceberg.

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## BERMUDA ONIONS

The growing of the Bermuda onions from seed planted in the spring has not been very successful. A preferable way, where earliness is desired, is to raise the seedlings the same way as the cabbage plants, that is to plant them in a cold frame in early October and winter them over in the frame and set them out in the early spring.

Select a well drained rich sandy loam soil with an abundant supply of organic matter. Such a soil will hold moisture and permit of free development of a smooth onion. If only a rather heavy soil is available, then it is best, at the approach of maturity, to gradually work the soil away from the enlarging bulbs (onions). This permits the formation of a better shaped onion.

The distance apart of the rows will depend upon the method of cultivation. Twelve to eighteen inches apart is desirable for hand cultivation, while in case of horse cultivation a greater distance apart of the rows is necessary. Set the plants 3 to 4 to the foot unless they are to be thinned for green onions while young. Deeper setting is better in order to prevent freezing where very early setting is practiced, however, as a rule, the seedlings lead pencil size or little below as to diameter, are set about one-third their total length.

Clean culture is desirable in order to conserve moisture and keep down grass and weeds.

When the tops begin to turn yellow or begin to dry and begin to lean and fall over, it is time to harvest the crop. Onions that are pulled in the early stages of maturity, that is just when the tops start to fall over, will keep much better than if they have fully matured before pulling. The onions may be pulled or a plow may be used in case the onions do not pull easily. The onions may be left in the sun for four to eight hours depending on the variety. The white onions should not be left in the sun as long as the yellow ones. Bermuda onions do not keep as well as other kinds. Store them in a well ventilated place. They may be hung in bunches or the tops and roots trimmed and the onions stored in slatted bins, or placed on poultry wire supports. The Crystal Wax and Yellow onions are popular sorts. Valencia or Sweet Spanish is growing in popularity in this state.