CABBAGE AND CAULIFLOWER.

Cruciferous crop plants as a class, including cabbage, cauliflower, collard, kales, radish, turnip, mustard, and rape, grow during the winter season in the warmer parts of the Southwest. Cabbage and cauliflower, representing this class of plants, endure well the winter temperatures of altitudes of 2500 feet and less, and mature crops for marketing from January to May, inclusive. Occasionally, the coldest weather will check the growth of small plants, transplanted late to the field; but the cold weather alone is rarely responsible for the loss of a crop.

The seed bed: It is important that cabbage and cauliflower be given an early start in order (1) that the plants be well developed before the cold weather of December and January arrives, and (2) in order that the crop may be harvested early, if possible before increasing numbers of cabbage lice embarrass the grower. For the same reason early varieties have an advantage over late ones.

To this end the seed should be sown in the first half of August in Southern Arizona, in order that transplanting to the field may take place early in October. An excellent seed bed may be prepared by spading in about an inch of fine well rotted manure with the surface 3 inches of a sandy garden soil. The seed may then be sown, either broadcast or in rows, and covered to a depth of a fourth of an inch. The surface of the bed is then mulched with a layer of pure coarse horse manure, and well sprinkled twice a day from a watering pot, till plants are up, and frequently thereafter. To protect the young plants from the August and September sun, a shelter constructed of willow poles and brush, or similar material, must be built over the bed. With the precautions in seed bed and shelter a fine stand of strong plants may be made ready for transplanting early in October.

Layout of the field: When ridge culture is used the rows may be prepared by plowing twice to right and twice to left in the same furrow,
manuring heavily in the trench thus formed and plowing back to make a ridge over the manure. The ridges are then planted lengthwise, the furrows irrigated, and plants set 18 inches apart in rows at the water line on either side.

With perfectly level ground, flat culture has certain advantages. Irrigation and cultivation are easier, and a larger number of plants may be placed in the ground. For an intensively cultivated garden crop, rows 22 inches apart with plants 14 inches apart in the rows is about correct for small, early varieties.

Since cabbage and cauliflower are winter crops, a comparatively small amount of water is required, from one to two irrigations a month being ample. Cultivation should follow each irrigation, less on account of weeds, which make little trouble in the winter season, than to keep the soil in good tilth.

Enemies of the crop: Cabbage lice and nematode worms are the two chief difficulties associated with cabbage culture in this region. The lice may usually be found in scattered colonies on the plants in the Fall, increasing to a pest with the recurrence of mild weather in Spring. This pest seems not to be controlled, however, by temperature conditions, being numerous or almost absent during seasons not essentially different in this respect. Lice frozen solid on a frosty morning in December have been observed to thaw out and become active, indicating their indifference to occasional cold snaps. It is more likely that their parasite enemies are responsible for the varying numbers of lice observed from year to year. Whale oil soap at the rate of one pound to five gallons of hot water, used as a spray, is but partly effective, as the lice find their way between the leaves of the plants, and, especially, into the convolutions of cauliflowers where the spray cannot reach them.

Nematodes attack the roots of cabbage and cauliflower, less, however, in cool than in warm weather. During the season of 1910-11, at Yuma, a patch of cabbage was grown on ground badly infested with nematodes and observed from time to time. No nematode galls were found as late as February 13. The galls were just beginning to appear on roots near the warm surface of the ground, April 26, and were very numerous on some plants observed June 17. It, therefore, seems probable that nematodes are controlled by cold weather and that nematode infested ground may be used to advantage for the culture of winter growing crops.

Varieties: Small early cabbages have several advantages over the larger and later kinds. Such varieties as Early Jersey Wakefield, Large Charleston Wakefield, Nicholson's Extra Early, Henderson's Succession, and Winningstadt, sown in August and transplanted early in October, will yield heads for the high priced markets of January, when, at Yuma, 2
to 3 cents a pound has been received for the crop. Moreover, grown during this period, the crop will for the most part escape both cabbage lice and nematodes. Later varieties give larger yields of lower priced heads and frequently entail the cost of spraying to restrain the lice.

Burpee's Dry Weather cauliflower does well in the Southwest, making large heads of good quality. However, the absurd local custom of selling cauliflowers by the dozen ($0.75 to $1.00 a dozen at Yuma) rather than by the pound, puts size and quality at a disadvantage, and for this reason, as well as the high cost of seed and the labor of tying leaves over heads to bleach them, this excellent vegetable is little grown here.

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