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WINTER HEAD LETTUCE IN THE SALT RIVER VALLEY

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INTRODUCTION

In response to a demand for experimental work on methods of growing and marketing lettuce, a field survey has been made and experiments have been begun. However, until the results of the experimental work are known it will be impossible to publish more detailed information on this subject than this circular, which is in the nature of a summary of the reports received from a number of men who have grown or marketed lettuce in the Salt River Valley. The recommendations made herein are by no means the last word on the subject and are intended only to serve as a guide to those who desire to raise lettuce during the coming season.

LOCATION

Lettuce, although possessing considerable frost resistance, makes little or no growth in the coldest weather in the Salt River Valley. Then too, severe frost injures the outside leaves of the plant, detracting from its appearance. For these reasons it is advisable to grow the crop on high ground so that the air drainage will reduce frost damage to a minimum.

SOILS AND FERTILIZERS

Most growers are of the opinion that the heavier types of soil are best adapted to lettuce. If this is true, the Salt River Valley is very different from other lettuce growing regions. Lettuce growers in general prefer a loam soil containing enough sand to make it work easily. To this soil at least 10-20 tons per acre of manure should be added. One farmer did this and raised the best lettuce grown in the Salt River Valley. The reason why the heavy adobe soil generally gave the best results last year was because practically none of the land was fertilized and the adobe being stronger (more fertile) grew the largest and best heads. However, these heads were at least three weeks later than they would have been if the soil had been fertilized. It is useless to plant

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lettuce on unfertilized land and expect to make a profit. Being a leaf crop it needs fertilizers rich in nitrogen. We have this in barn-yard or corral manure, of which large quantities are wasted in the Salt River Valley every year. Gardeners in many sections of the country pay $2 a load and haul several miles in order to secure the same kind of manure which is going to waste in Arizona. Yet there are few other soils in the United States which need manure as much as most of the soils of the arid Southwest. Turning under a crop of cowpeas, sour clover, alfalfa or other nitrogen-fixing crops will partly take the place of manure.

VARIETIES

The variety which has given the greatest satisfaction in the Salt River Valley is the New York. While this is the only variety which can be recommended for commercial planting, yet there are other good varieties which may prove valuable for shipping and are good for the garden. May King is probably the earliest head lettuce. California Cream Butter is good, and so are Big Boston, Denver Market, Iceberg and several others. For leaf lettuce Grand Rapids and Early Curled Simpson are generally grown. These are earlier than the head varieties. White Paris Cos or Romaine lettuce is quite popular in some parts of the country. It forms a long head which should be blanched by tying leaves over it. This variety stands more heat than the ordinary heading varieties.

PREPARATION OF THE SOIL

If coarse manure is applied, or a heavy cover crop is to be plowed under, it should be thoroughly disked into the soil. Thorough breaking, preferably with a two-way plow, which leaves no dead furrows, should follow. Borders should next be thrown up and the land flooded. When dry enough, the soil should be worked down with a disk. Rotted manure may well be applied at this time, and disked into the surface soil. After disking, the land should be harrowed, leveled, dragged and thrown up in ridges 24 inches apart, which seems to be the distance preferred by the majority of growers; those using a beet cultivator sometimes plant closer; others like to plant as far as 30 inches apart. It is well to have the rows run east and west wherever possible. The seed-bed cannot be in too good condition.

PLANTING

Planting should be done on top of the ridge if the row runs north and south. Where the rows run east and west planting on the north side of the ridge gives protection from the sun with the early planting. A hand seed drill (any of the standard makes) may be used for planting. When planting is done in October or November, this protection is not necessary, and it is well to take advantage of the warmer side of the ridge by planting on the south side. This will promote growth during the colder part of the season. The seed being very small should be covered only enough to secure moisture for germination. Water should be given as often as possible during germination in hot weather. Good results may often be obtained by dropping the seed on top of the ground, and covering it with one-half inch of fine manure, threshed alfalfa straw, sawdust or any other fine mulching material. To do this, a hopper for the manure may be placed on the seed drill and the covering done with the seeding. This covering with a mulch will prevent the formation of a

crust over the seed in case of rain and will hold the moisture close to the seed; on the other hand, manure may introduce weed seeds, unless thoroughly rotted. Heat, rain or a poorly prepared seed-bed may often necessitate replanting. If a stand is not secured in a week, providing the moisture supply has been ample, it is time to replant.

TIME TO PLANT

Except on the higher land of the Valley where frosts are light, it probably will not be advisable to try to head lettuce during the months of January and February, for the reason that the frost kills a part of the outer leaf, which detracts greatly from the appearance of the head. The problem then, is to mature the crop before the frosty weather of late December, or as soon after the cold weather as possible. To manure lettuce before cold weather, it is necessary to plant early in September whenever the weather promises to be cool enough to germinate the seed. For lettuce to mature in March the seed should be sown around November 1st. This will bring the plants to a good size to stand the frost With good soil and cultivation, the crop should head up promptly as soon as the weather warms up in the spring. If the land is not fertilized, the crop will probably fail to head early enough to be marketed to good advantage.

Thinning should be done as soon as the plant has three or four true leaves. Twelve inches apart is as close as the plants should be left in the row. Delay in thinning will set the crop back. Thinning should not cost more than $5 an acre if the seed is drilled and not dropped in hills, as many did last year.

IRRIGATION

Care should be exercised to keep irrigating water off of the leaves. For the early crop, it will be best to irrigate as often as possible, not because the plant needs so much water, but because the water reduces the temperature. When the weather cools off, an irrigation every eight days to two weeks will be often enough. During cold weather the plants will grow more if given only a moderate amount of water, since the more water the soil contains, the colder it is. It is well to withhold water preceding cutting. This will give the heads better shipping quality.

CULTIVATION

Cultivation should follow each irrigation, and should never be less frequent than once in eight days. A good ridge should be maintained at all times to keep the leaves dry when irrigating, but no dirt should be thrown onto the leaves of the plants. A wheel hoe, 12 or 14-tooth or beet cultivator may be used for this purpose.

DISEASES AND INSECTS

As yet there have been no diseases of lettuce reported in the Salt River Valley. This is fortunate and it is to be hoped that this condition will continue. The grower can keep the crop healthy by keeping the heads as dry and free from soil as possible. "Lettuce drop" is a disease favored by damp lower leaves. It is very destructive in many localities in other parts of the country. Aphids or lice are generally numerous on the crop but for some unknown reason have not bothered the lettuce in the Salt River Valley enough to be considered as a serious

pest. Grasshoppers have done a good deal of damage to early plantings, especially when near alfalfa fields. Dr. A. W. Morrill, State and Station Entomologist, recommends a poison bran mash mixed in the proportions of 20 lb. of bran, 1 lb. of Paris green, ½ gal. of molasses and three to five lemons chopped in a food chopper. This mixture should be scattered broadcast over the lettuce as early in the morning as possible so that the hoppers when they begin feeding at daylight will get the poison before it dries up.

HARVESTING AND PACKING

Most growers prefer to cut the heads when they are dry. If the sun is shining, they should be put in the shade immediately. If packing is done in the afternoon and evening, the crates will have time to cool or be precooled before shipment the following day. Last season's results seem to indicate that ordinary refrigeration is insufficient to keep lettuce until it gets to market. It must be precooled in some way, such as putting each crate in cold storage, or ventilating the car for 12 to 24 hours after leaving the shipping point. Heads should be trimmed only enough to remove the bad looking leaves. Crates should be packed heads out so far as this is possible. The standard three-dozen lettuce crate is probably the best crate to use for the time being. After the lettuce from this State is better known on the market, a distinctive pack will be desirable. Only the very best heads should be packed, even if the crop is sold to a cash buyer. High quality will attract other buyers, and competition will advance the price. The climate of this section favors the production of the highest quality of lettuce, which can be raised out of doors. Growers should take every possible advantage of this fact. Cars should be packed so as to leave at least three inches for ventilation between crates. No great success in the industry will be attained until the growers have a uniform pack which can only result from an association packing plant.

SUGGESTIONS

The writer offers the suggestion that lettuce growers try on a very small scale, shipments of other winter vegetables. Small cities are always glad to receive mixed cars of vegetables. The following list is suggested for trial shipments of a few crates in cars of lettuce:

Kale, highly esteemed for greens in the North; cauliflower, difficult to grow, but finds a good market; spinach, requiring similar treatment as for lettuce, but planted closer on the ground; brussells sprouts, a delicate form of cabbage, which requires a longer season than cabbage and which makes a number of small "cabbages" on one stalk.