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BERMUDA ONIONS

by

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While it is customary to think of this type of onion being grown only in the southern part of the United States, as it is commercially produced in Texas and adjoining states as well as in certain parts of California, nevertheless some excellent Bermuda onions have been grown in various parts of Oregon, and there is increasing interest in the problems pertaining to the planting, maintenance and harvesting of this crop.

One of the chief concerns of the grower is that of obtaining a satisfactory supply of plants. This circular discusses the growing of these plants in hotbeds as well as other factors concerned with the care of the crop, including harvesting, grading and preparation for market.

Soil Types. It is customary to grow Bermuda onions on land that is lighter and warmer than that commonly used for the storage type of onions, the Yellow Danvers. Consequently, well drained and fertile sandy and silt loam soils make excellent soils for the growing of Bermuda onions. These soils are also adapted to irrigation, which is desirable in growing the crop. The land should be in a good state of fertility for this type of onion should grow rapidly, and a good yield of number one grade bulbs cannot be obtained from land that is in any way impoverished.

Plant Growing. There are two sources of plants for use in growing the Bermuda onion crop, which is almost exclusively grown by transplanting young plants instead of growing the crop by the direct seeding method, as in the case of the Yellow Danvers. The onion grower can either buy plants from a plant dealer who purchases them from a southern state or he can make up a hotbed of one type or another and grow his own plants. In all probability the deciding factor as to whether he will do one or the other is the number of plants required. If a very large number of plants are to be set out, it is probable that the grower will buy his plants, but if only a reasonably small amount are to be transplanted, then home production of plants might be possible.

In the purchasing of seedlings, these young plants have been grown in outdoor beds in a southern state such as Texas and are shipped to the northern states in bundles of 100, with sixty bundles to the crate. These plants are usually from 5 to 7 inches in height and may or may not be in good condition on arrival. Complaints have been made by growers at various times that these plants are wilted due to having heated in transportation, or in some cases they have grown too long in the field before being pulled. In other cases mention has been made that quite a large percentage of these southern grown plants following

transplanting have made seed stalks instead of commercially sized bulbs, a condition probably which was brought about by the plant having been grown under fairly warm conditions in the south and then being checked when transplanted into the ground under the conditions prevailing in western Oregon during March or April. The percentage of seeders in this respect will be dependent largely upon the condition of the plants on arrival and the weather conditions following the time of transplanting. The price of plants bought from a company handling them is usually 30¢ for a single bundle of 100 plants, or $1.75 for ten bundles, or $8.50 for a crate holding 60 bundles.

The growing of plants at home is not difficult and can be carried on quite satisfactorily provided some kind of a hotbed can be made up, either a bed heated by manure, hot air, as in the case of the flue hotbed, or heated by some other method as by hot water pipes, which may be connected with the heating system of a greenhouse, house or small hotwater heater. Electric hotbeds are also useful.

Approximately two pounds of seed will grow sufficient plants for one acre, and the plants should be started about 8 to 10 weeks before the favorable time of transplanting them to the field.

Following the making up of a hotbed, the rows of seed are sown from two to four inches apart with the seed dropped about 4 to 5 to the inch. The furrows should preferably be an inch or so wide, so as to allow proper development of each plant in the furrow. A bed 6 feet by 12 feet should grow between 5,000 and 7,500 plants if the rows are 3 inches apart. A good temperature for onion plants to grow satisfactorily in the hotbed is between 60 and 65 degrees. Towards the latter part of the growth of the young plants they should be given less water, more air and a lower temperature and be hardened for a week or ten days previous to transplanting. Care will have to be taken that no insects such as slugs or cutworms injure the young plants in the seedbed. Several hours before lifting the plants for transplanting they should be well watered.

Transplanting. This should not be done until conditions have shown a decided turn for warmer weather, for although these plants will stand a light frost, it is best to transplant them after such frosts have discontinued. The more quickly the plants begin to grow after transplanting, the less danger there will be of "seeders" or seed stalks to appear. These are usually caused by checks in the growth of a plant, because of unfavorable conditions after transplanting. Late March and early April are normal times for transplanting the plants.

Before setting the plants in the field, the tops should be cut off down to the ends of the tip of the central blade, and the roots should also be trimmed to be from one-half to one inch long. The latter will facilitate the transplanting of the plants, while the removal of the top will balance the plant in lessening the shock of removal from the seed bed to the field.

There are three ways of getting the plants into the ground following removal from the seedbed. One method is to make a shallow furrow about 2 to 2 1/2 inches deep in which the plants can be set and soil later pulled over the roots and the plants made firm. Another method is to set each plant individually with a dibber, setting the plants at the correct depth, depending on the type of soil. In some cases the plants are set by a machine which will naturally set them more rapidly than by any other method. It is desirable to separate out the

small plants from the normal sized ones and set them separately. Small plants set among large ones will not be able to maintain themselves, but if they are set in a separate group they will be able to make a satisfactory bulb. In some cases plants that are poor will have to be thrown out entirely, and it pays to practice definite culling in order that the unproductive plants may be eliminated. Plants are usually set in the field from three to four inches apart in rows 16 inches apart or about 100,000 to 125,000 to the acre. On the lighter soils the depth of setting should not exceed two inches and should not be less than an inch and a half, while on the heavier soils the depth should not exceed 1 1/2 inches. Too shallow planting may result in onions forming too close to the surface soil and thereby suffering from possible sun scalding. The roots of the plants should be well firmed when they are set in the ground so that there will be a tendency for the larger roots to start fine feeding roots as quickly as possible.

Seedlings are usually transplanted when they are somewhat less than lead pencil size or about slate pencil size. If plants are grown from good fresh seed they will be well rooted when the size of large oats or wheat straw and about sixty days old. At this age there will be the least delay in starting roots after transplanting has taken place, provided the seedlings are not allowed to remain long enough to develop many of the successive sets of roots which vigorous seedlings will produce. Seedlings from 65 to 75 days old should be the size of a slate pencil. From that grade up to lead pencil size is the ideal plant for transplanting. There are always some which are smaller and these should be thrown out or transplanted in a row by themselves.

Maintenance of the Crop. Following transplanting there are two important factors in caring for the crop; first, cultivation for the purpose of eliminating weeds and keeping the soil in proper physical condition; and second, irrigating the plants, which should be done, if possible, especially if the crop is being grown on a light soil. Irrigation should be given only frequently enough to provide for a consistent amount of soil moisture. Later on, towards maturity of the crop, watering should be discontinued entirely.

Maturing the Crop and Harvesting. Bermuda onions grown from transplanted plants are earlier in maturity than the main crop of Danvers onions. The first indication of the proper ripening or maturity of Bermuda onions is recognized by the feeling of the necks of the plants. If they are softening and gradually shriveling the tops will soon begin to fall. When the necks have shriveled or softened normally and the tops have fallen, the crop may be harvested, though the tops may yet show some green. In a patch of onions probably one area will start to mature before another and, therefore, the onions may have to be pulled independently. The maturity of the crop may always be hastened by withholding irrigation once the onions have begun to make a fair sized bulb.

Bermuda onions should never be permitted to start a second growth once they have formed a good sized bulb. If they do, they will not have good keeping qualities. If the tops are very green at harvest time and harvesting has to be done at that time, the onions may have to remain in small windrows and be allowed to cure in the sun, but if so, they must be prevented from sun scalding, which is especially dangerous in the case of the Crystal Wax variety. The onions should be left in the sun only long enough so that the soil may dry and the onion clean readily from trash and dirt. If the weather is moderately warm such as not to cause sunburn or sun scald, the onions will benefit from lying out of doors and

curing in a windrow rather than to be taken immediately into a storage place.

If the onions are fully matured and dry the tops may be clipped off very shortly after pulling, and the onions themselves should be gotten under cover away from the hot sun as quickly as possible. If the topping is done under warm conditions, only a short time will be necessary to dry over the cut ends, and then the onions can be crated and put in storage.

Bermuda onions grown from transplanted plants mature during the summer and therefore are offered as a late summer and fall onion before the regular late or storage onions are offered in any large quantities. The Bermuda is essentially not a storage onion. It does not have the long keeping qualities of the Danvers.

Grades. U. S. standards for Bermuda onions call for the following characters of U. S. No. 1's: Bermuda onions should be of one variety which are mature, well shaped, free from soft rot, doubles, splits, bottle necks, seed stems, and noticeably pink onions, and free from damage caused by dirt or other foreign matter, moisture sunburn, sun scald, cuts, disease, insects, or mechanical or other means.

As used in these grades, "one variety" means onions which have the same characteristics - all white or all yellow and not a mixture.

"Mature" means having reached the stage of development at which the onions are firm, not soft or spongy.

"Well shaped" means having the characteristic shapes, not three, four, or five sided.

"Doubles" means onions which have developed more than one distinct bulb joined only at the base.

"Splits" means onions which have developed more than one distinct bulb.

"Bottle necks" means onions which have thick necks, usually with poorly developed bulbs.

"Seed stems" means any seed stems which are tough or woody or which are more than one-quarter of an inch in diameter.

"Sunburn" means discoloration due to exposure of the sun where there is no injury to the tissue.

"Sun scald" means either dry, wet or soft injury of the tissue of the onion due to exposure to the sun.

"Soft rot" means any soft or mushy condition of the tissue, such as slimy soft rot or break down following sun scald.

A complete copy of grades of Bermuda onions can be obtained from the Portland office of the United States Department of Agriculture, Bureau of Agricultural Economics. This is located in U. S. Court House, Portland, Oregon.

Containers. Packages for marketing Bermuda onions usually consist of the 50 pound folding wooden crates or the standard lug box. Practically all of the California crop is marketed in the 50 pound folding onion crate.

Varieties of Bermuda Onions. Crystal Wax. This is the variety which is grown on a large scale in Texas and the Imperial Valley, California. The true type is a clear white, very flat, medium large, and early. The skin is thin and the flesh white and waxy. It is not a long keeping variety but is early, mild and sweet.

White Bermuda. This is not a pure white onion but is light straw color with a suggestion of pink tint. It is of medium size, flat, early, and does not keep well. The skin is thin and the flavor mild and sweet.

Red Bermuda. Color is not a definite red but rather a light yellowish pink. Medium size, flat with coarse, mild sweet flesh. Early and not a keeper.

Other Publications Regarding Onions and Plant Growing

The flue-heated hotbed. Extension Circular No. 274.

The manure-heated hotbed. Extension Circular No. 275.

Electric hotbeds and propagating beds. Station Bul. No. 307.

Growing early vegetable plants under glass. Extension Circular No. 251.

Growing and marketing onions. Extension Circular No. 259.

These publications are available at the office of your County Agricultural Agent or from the Clerical Exchange, Corvallis, Oregon.