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HORTICULTURAL DEPARTMENT.

Oregon Agricultural Experiment Station.

CORVALLIS, OREGON.

A Continuation of Bulletin No. 74 on Onions, Also Notes on Strawberries and Varieties of Vegetables.

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A Continuation of Bulletin No. 74 on Onions, also Notes on Strawberries and Varieties of Vegetables.

By GEORGE COOTE.

THE subject matter of this bulletin is to a great extent a repetition of Bulletin No. 74 of this Station, and is designed to give the more complete results of experiments in growing the onion from plants raised in hot beds and set out in the open ground in early spring, and at the same time sowing the seed of the same varieties in the open ground under like conditions and giving to each the same general cultivation. The growing of the onion from plants raised in hotbeds has been practiced by the Portugese for a great number of years. But with us in Oregon it is practically quite new; therefore, for the purpose of demonstrating the advantages of this method on our dry soils, this experiment was begun in 1900, and has been carried on each year in succession without the aid of irrigation. The soil is what is termed a basaltic loam, which is well adapted to the growth of the onion.

In continuing this experiment, the past year, the plants, were set out on land that had not been previously fertilized in the Fall, and had not been manured since 1897, but had been constantly producing other crops of vegetables, such as peas, beans, lettuce, squash, parsnip and cabbage. The object in not manuring was to demonstrate what success could be obtained in as natural a way as possible without the plants being forced into growth by the aid of a fertilizer. Better results no doubt would have been had in the size of the onion and yield per acre had manure been applied in the Fall.

TREATMENT OF THE SOIL PREVIOUS TO PLANTING.

In the early Fall the ground was plowed very deep and laid up as roughly as was possible. This was done for the purpose of giving every chance for the surface of the soil to dry out at the earliest

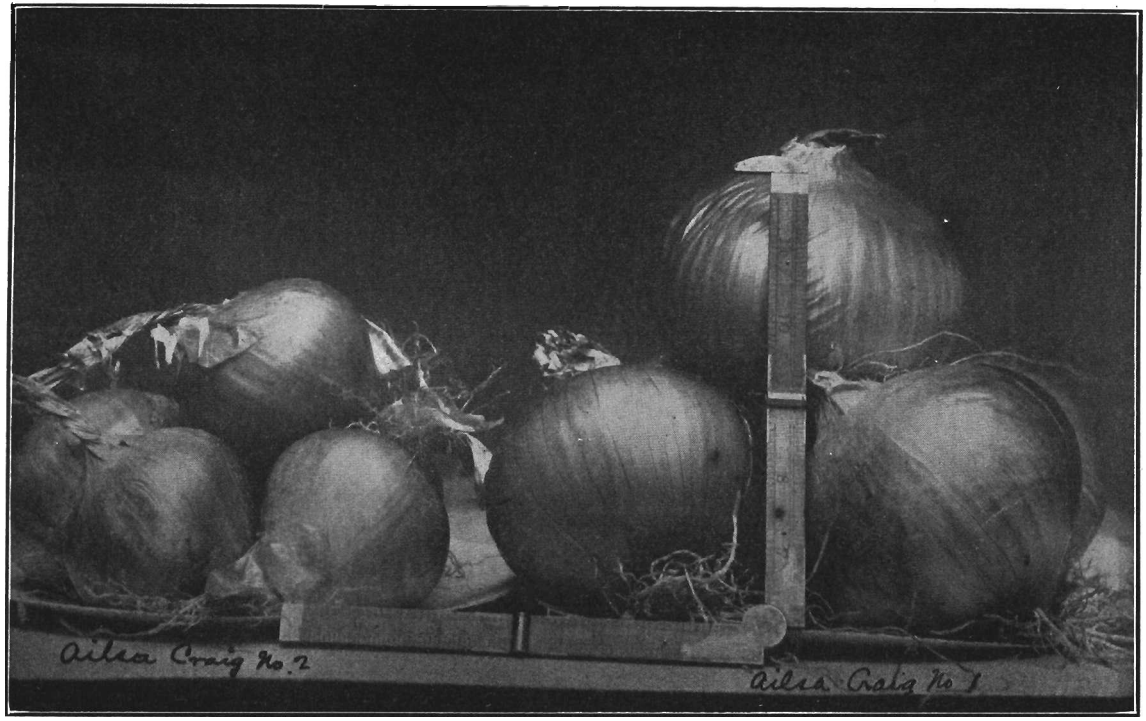

Plate No. 1.

possible time in early Spring, for when the surface of the ground lies smoothly it will not dry out as rapidly as when laid up in a rough state.

In the climate of the Willamette Valley, one should be constantly on the watch for the opportunity to plant early, for the delay of only two or three days might be the cause of having to wait six or seven weeks perhaps for suitable weather to plant, and this means a great difference to the growth of the crop.

The same treatment has been given in the matter of raising the young plants, as stated in Bulletin No. 74, with the exception that that they were not given such a high temperature, but merely setting the boxes containing the seed in cold frames, protected from frost, when necessary, by covering the glass with hay, on the top of which boards were placed, so as to prevent the hay from being displaced by wind, and to protect it from moisture. When frosts occurred the covering material was not removed until ten o'clock the following morning. At no time during the season was the frost severe enough to prevent light and air being given to the plants every day while growing in the frames.

The plants did not receive the usual pricking out from the seed boxes, which is the general custom when sown in this manner, but remain as sown. This was done to see if the plants would make a good average growth without the expense of so doing, thus saving a good deal of time and labor.

The sowing of the first batch of seed of each variety for setting out was made in boxes on the 22d of January, and the plants grew, as mentioned, until they were large enough to set out in the open ground, which was on March 25th.

For testing the difference in the two methods of cultivation, seed was sown in open ground February 28th; as the young plants advanced, they received in both methods the same attention in every respect. Notes were carefully taken during the growing season, also the yield per acre, the date of harvesting, and the keeping qualities. The accompanying cuts give the difference in the growth of each variety, being as near the average size as could be obtained.

Plate No. 2.

NAME AND DESCRIPTION OF VARIETIES,

SUTTON'S AILSA CRAIG (Plate No. 1).

A variety introduced by Sutton & Co., England, a very large growing onion, resembling the giant Rocca in many respects, quite mild in flavor, and is of excellent keeping qualities. Matures well, and is an all-round variety both for market and general use:

Sown in boxes; date of sowing, Jan. 22d; date of planting, Mar. 25th; date of harvesting, August 24th; Yield per acre, 992 bushels.

AUSTRALIAN BROWN (Plate No. 2).

Grown from seed raised by the Oregon Experiment Station, a variety that is becoming well known, being of medium size and even in shape, flavor somewhat strong; maturing early; a long-keeping variety, and very firm in texture. Can be highly recommended:

Sown in boxes; date of sowing, Jan. 22d; date of planting, Mar. 21st; date of harvesting, Aug. 24th; yield per acre, 648 bushels.

WEATHERFIELD (Plate No. 3).

Color dark red, medium to large. Not as good a keeper as the above, and does not mature so well; inclined to be strong, and very easily excited to growth during damp, warm weather throughout the winter season:

Sown in boxes; date of sowing, Jan. 22d; date of planting, Mar. 21st; date of harvesting, Aug. 24th; yield per acre, 515 bushels.

SILVER SKIN (Plate No. 4).

Medium to large; flesh white and mild, resembling Silver King, but not so large; matured well under this method, and is a good keeping variety:

Sown in boxes; date of sowing, Jan. 22d; date of planting, Mar. 25th; date of harvesting, Aug. 24th; yield per acre, 432 bushels.

YELLOW GLOBE (Plate No. 5).

Large, firm, roundish in form, slightly tapering at the neck, in color resembling the Yellow Danver; a good mild flavor, also good keeping qualities:

Sown in boxes; date of sowing, Jan. 22d; date of planting, Mar. 21st; date of harvesting, Aug. 24th; yield per acre, 770 bushels.

The varieties of onions noted below are duplicates of the above, sown in open ground and cultivated as already indicated:

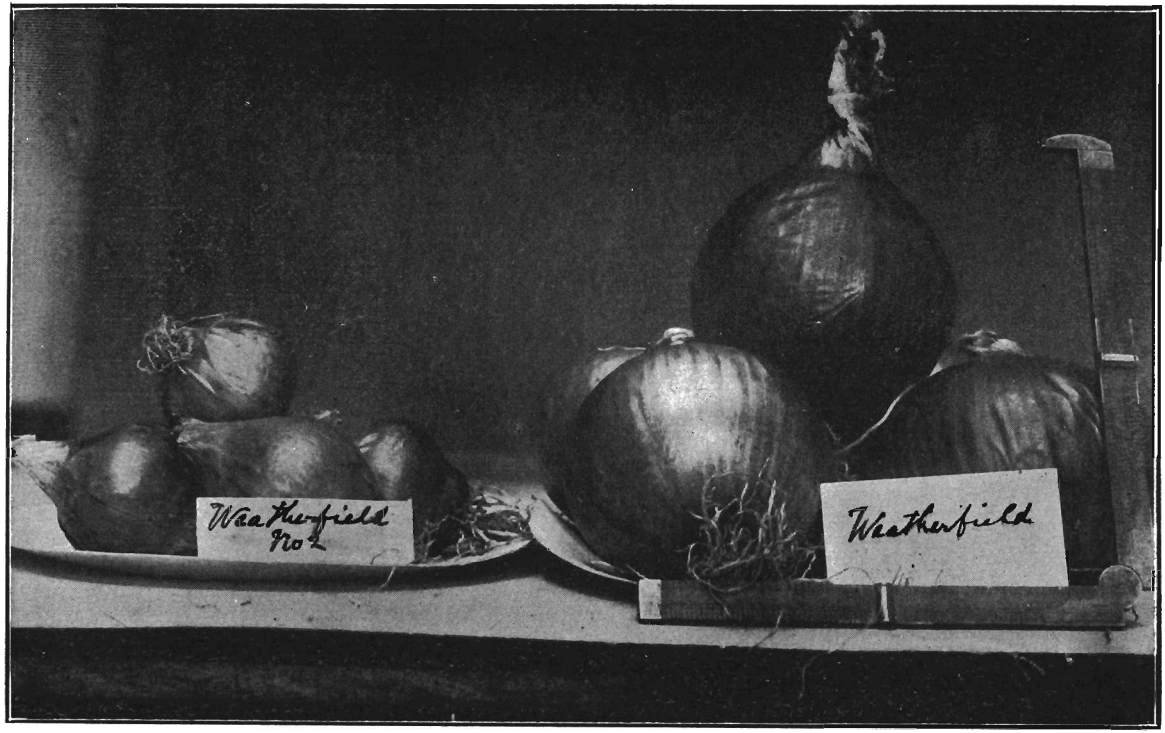

Plate No. 3.

	How sown.	Planted.	Harvested.	Yield per acre.
Sutton's Ailsa Craig...	Open field	Feb. 28	Aug. 28	393 bush.
Australian Brown.....	Open field	Feb. 28	Aug. 28	525 bush.
Red Weatherfield.....	Open field	Feb. 28	Aug. 28	263 bush.
Silver Skin.....	Open field	Feb. 28	Aug. 28	280 bush.
Yellow Globe.....	Open field	Feb. 28	Aug. 28	485 bush.

(The following three varieties received too late, consequently are not in competition with the above):

SOUTHHAMPTON LARGE YELLOW GLOBE.

Resembles the Yellow Globe in every respect, but did not mature well; is not a good keeping variety.

Sown in open ground; date of planting, Feb. 28; date of harvesting Aug. 28th; yield per acre, 87 bushels.

WHITE SPANISH.

Seed received from U. S. Department of Agriculture. Bulb greenish white, quite mild; not an extra good keeper.

Sown in open ground; date of planting, Feb. 28th; date of harvesting, Aug. 28th; yield per acre, 485 bushels.

BURPEE'S NAMELESS.

Bulb made only small growth, being a good second in productiveness; has the qualities of being a good keeping variety. Needs further testing to speak fully of its merits.

Sown in open ground; date of planting, Feb. 28th; date of harvesting, Aug. 28th; yield per acre, 160 bushels.

The following four varieties of peas were tested on the experiment grounds during the summer of 1903, and proved a valuable addition to the already long list of varieties:

CARTER'S MODEL TELEPHONE.

Averaging two feet in height; plant making a very strong growth and branching out a great deal; leaves quite broad, in color dark green; producing thick heavy pods, measuring from three and one-half to four inches in length, well filled, six to eight large peas in pod, of good quality.

Sowed, Feb. 28th; germinated, Mar. 27th; blossomed, May 24th; edible maturity, June 22d; marketable maturity, June 28th.

CARTER'S IMPROVED ANTICIPATION.

This may be classed among the dwarf varieties, as it makes a

Plate No. 4.

growth above eighteen inches; is very prolific, producing pods from three to three and one-half inches in length, averaging six large peas in pod, coming in with the late varieties.

Sowed, Feb. 28th; germinated, Mar. 27th; blossomed, May 30th; edible maturity, July 1st; marketable maturity, July 10th.

CARTER'S DANDY STRATAGEM.

May also be classed as dwarf, averaging in height fourteen to sixteen inches; dark green color; very close jointed, or compact growth, producing pod three and one-half to four inches long, containing five to six peas. Fair quality.

Sowed, Feb. 28th; germinated, April 1st; edible maturity, July 10th; marketable maturity, July 20th.

CARTER'S DWARF TELEPHONE.

Resembles Model Telephone, but is somewhat dwarfed, and of a more robust growth; leaves large and heavy in substance; vine stout, producing abundance of pods three and one-half to four inches in length, averaging seven large peas in pod. A variety that can be highly recommended for general cultivation.

Sowed, Feb. 28th; germinated, Mar. 27; bloomed, May 28th; edible maturity, June 20th; marketable maturity, June 27th.

BURPEE'S KELVEDONIAN.

Plant makes a growth of three to four feet, dark green, quite productive. Pods three and a half to four inches in length, containing an average of eight peas in pod of good quality.

Date of sowing, May 5; date of germinating, May 22; date of blooming, June 24; edible maturity, July 16; marketable maturity July 23.

Herewith are presented a few practical remarks on the cultivation of the strawberry. The strawberry will grow in almost any good soil, providing it is not tenacious. Neither will ground that dries out readily be suitable, as the plant requires a great amount of water, in order to bring the fruit to a healthy maturity. Once the plant suffers for want of moisture at the roots, the whole crop will be very much retarded and a great quantity will not come to maturity. A soil that is naturally, somewhat, but not too moist, will answer well.

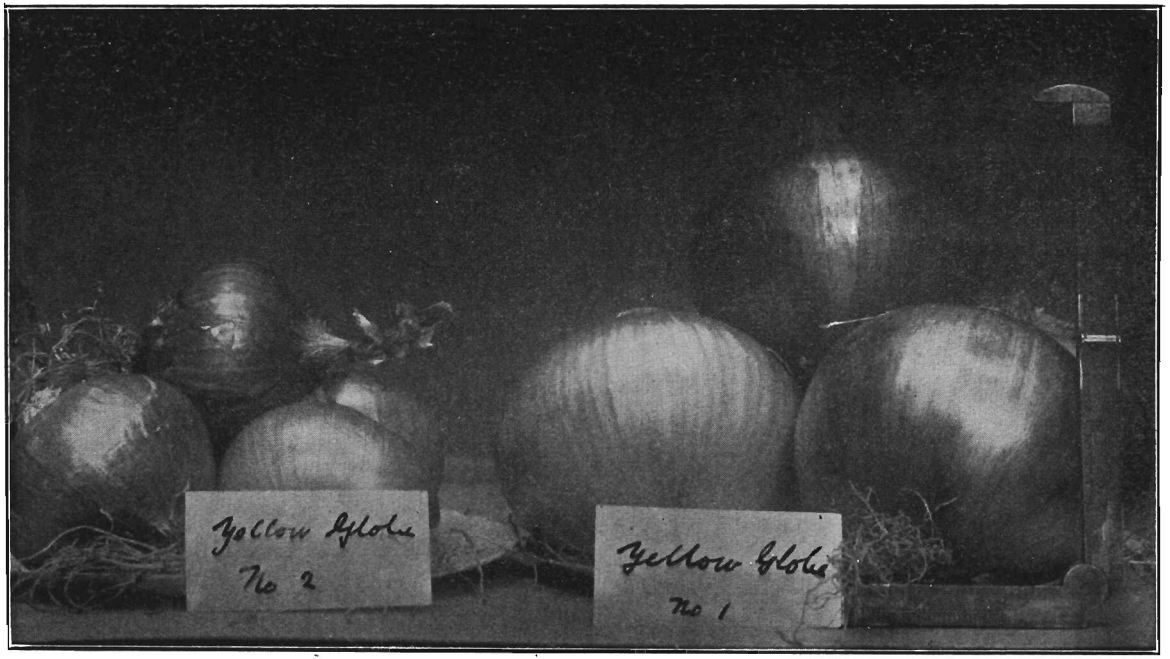

Plate No. 5.

PREPARATION OF SOIL BEFORE PLANTING.

Before planting, the ground should be well manured with well composted stable manure, the latter plowed under as deeply as possible. The object for so doing is, that the roots will penetrate downwards after plant food and thus be in a position to gather moisture from the soil for a much longer period than would be the case if manure were near the surface. In experiments with the deep and shallow plowing in the manure, the former has proved of much more benefit than the latter.

SEASON FOR PLANTING.

The best time for planting new plantings is soon after the first rains in the fall and the young plants have made a good root growth. Great advantage will be derived from early fall planting over spring set plants, inasmuch as the fall plants will become well established in the soil during late fall and winter, and therefore will make stronger and better plants and will be found to be in better condition to withstand the drought of summer.

REMOVING RUNNERS.

The runners should all be removed during the first season, as the young plants will be greatly reduced in vigor if these are permitted to grow. The second year, if the variety is to be perpetuated, three or four runners may be induced to grow and the remainder kept trimmed off. A stone or clod of earth may be placed on the runner near the young plant, in order that it may be encouraged to make root more freely by being kept in close proximity to the soil, and all runners produced by the plant should be removed. By so doing, strong, healthy plants will be produced and will weaken the parent plant but little, producing a much stronger plant for resetting.

The following varieties of strawberries were received from Mr. Mark Thompson, Rio Vista, Virginia, for trial. The plants were set the first week in February and made a medium growth.

BENNET'S SEEDLING (PERFECT).

Berry conical and inclined to be soft for market purposes; a good rich red color; flavor only moderate; on maturity the seeds become dark; plant makes a compact growth; berry medium size.

AUTO (PERFECT).

A very compact growing plant; berry heart shaped, becoming much flattened at the point or apex; rather soft in texture; good flavor; medium size; foliage very dark green.

EXCELSIOR (PERFECT).

Berry round in shape; medium size, quite firm; very deep red; somewhat sour but not too much; has the qualities of making a valuable marketable variety on account of its firmness; plant makes a straggling growth; foliage dark green.

ENORMOUS (IMPERFECT).

Produced large fruit; irregular heart shaped; a good dark red; in texture soft, and only medium in flavor; foliage deep green; has all the qualities of making an excellent berry for home use.

DARLING (PERFECT).

Berry conical, having a rough appearance on the surface; in size medium to large; soft in texture; color dark red; good quality; a valuable variety for home use; plant makes a moderate growth; foliage dark green.

BISMARCK (PERFECT).

The plants made a good, strong growth; berry large, soft; flavor good; color light red; not a heavy producer by any means in this locality.

DROUGH KING (IMPERFECT).

Berry conical, small, good quality; color deep red; somewhat sour; a prolific producer, both as to runners and fruit.

EMPEROR (PERFECT).

Color of fruit, deep red; seed quite red at maturity; berry has a rough appearance and medium in size; plants did not make a satisfactory growth.

MRS. MARK ANNA (PERFECT).

Berry a little irregular in shape pertaining to round, of a beautiful red color and very attractive to the eye; dark green foliage and bright color; is very firm and good quality; has the makeup of a good shipping berry on account of both firmness and color; seeds when fully matured are bright yellow; is worthy of extended trial.

LESTER LOVETT (PERFECT).

Berry large, conical, pertaining to heart shape; rich in quality; large, color red, and quite handsome; has the makeup of being a good shipping variety.

MAMMOTH QUEEN, THOMPSON (PERFECT).

This is an early berry and handsome; moderately firm in texture; quality good; a very promising variety; plants very vigorous in growth.

LADY THOMPSON (PERFECT).

Plants made a vigorous growth and productive; berry quite uniform, roundish in shape, of fairly good size and firm; a little tart but not disagreeably so; makes a spreading growth and produces a great number of runners.

THOMPSON'S EARLIEST (PERFECT).

Berries small, medium, firm; color light red resembling the Alpines to a great extent, but makes a compact growth; not of much value in this locality.

SUNSHINE (IMPERFECT).

Quite a large berry; light red color; firm, quality fair; a vigorous grower; leaves borne on a long leaf stalk; from all indications is not quite well adapted to this locality.

THOMPSON'S NO. 501 (PERFECT).

An early blooming variety; on this account the early bloom were badly cut by late frost; berries small and even, light red, soft; a strong grower producing many runners; fruit matured May 16; not productive here.

THOMPSON'S NO. 502 (PERFECT).

First bloom opened March 29; cut by frost which occurred April 10; not suited to this climate; what few berries matured were quite firm and excellent quality.

THOMPSON'S NO. 503 (PERFECT)

A large, red, oval berry; firm, of excellent quality maturing June 6; plant compact growing; a very promising all round berry.

In the Spring of 1903, the Station received from W. Atlee Burpee

and Co., Philadelphia, two varieties of corn, two of cabbage and one of cucumber, all of which have been grown during the summer on the Station experiment grounds, with the results as follows:

CUCUMBER—FORDHOOK FAMOUS.

Planted, May 27; germinated, June 8; came to marketable maturity, July 20, and proved to be a very prolific variety, giving great satisfaction, producing cucumbers from two to twelve inches in length and from two to three inches in diameter. The vines are short jointed, spread but little and one of the best ever tested on these grounds.

CORN—GOLDEN BANTAM.

Planted, May 5; germinated, May 22; tasseled, July 28; edible maturity, Aug. 20; height of plant when full grown, three feet. The grains of corn were very unevenly set on the cob, some ears as much as half were missing; that which did develop did not mature well. I do not think this to be any fault of the variety and attributed the results to climatic conditions to a great extent.

CORN—WHITE EVERGREEN.

Planted, May 5; germinated, May 22; marketable maturity, Sept. 2; average height of plant, four feet; produced large, well filled ears, maturing fairly well considering locality.

CABBAGE—NEW EARLY BASEBALL.

Sown in flats Feb. 13, in cold frames; planted out in open ground, May 5; edible maturity, July 12; marketable maturity, July 19; produced small, solid heads from one to one and a half pounds. Small as the variety is, it is a very valuable, quick growing variety for home use, if not for market purposes.

CABBAGE—NEW EARLY STONEHEAD.

Sown in flats, Feb. 13; planted in open ground, May 5; marketable maturity, July 16; a splendid early variety, being a few days in advance of Early Baseball, and larger; very solid heads from one and a half to three pounds in weight; an excellent early cabbage both for market and home use.