

OREGON AGRICULTURAL COLLEGE EXTENSION SERVICE

BOYS' AND GIRLS' INDUSTRIAL CLUBS

Oregon Agricultural College, United States Department of Agriculture,
and State Department of Education, cooperating.

Club Circular No. 5

Corvallis, Oregon.

March, 1915

PLANNING AND PLANTING THE GARDEN.

by

ARTHUR G. B. BOUQUET.

PLANNING THE GARDEN.

Pleasure and Profit. Home vegetable gardening has been, and always will be, a source of delight, pleasure, and profit to thousands of boys and girls in Oregon. Hundreds of city and farm homes derive their vegetable supply for the table from the efforts of diligent and industrious children. No more praiseworthy work could be imagined; for every Oregon home should have a vegetable garden so that the living of the family may be made more economical and better, and the tasks of the housewife lightened through having at all times an abundance of fresh vegetables. No farmer should ever have to buy his vegetables, unless he lives under peculiar soil or climatic conditions that make it difficult for him to produce them; and yet not long ago, I saw a farmer drive into town and unload some vegetables at a store, followed very soon afterwards by another farmer who purchased some of these and took them back to the farm.

Every boy and girl contestant in the vegetable gardening project should feel it his or her especial privilege to be able to have a share in adding to the family income by taking care of a vegetable garden. Moreover, it very often happens that the young gardener can sell the surplus of the garden products at the local farmers' market or possibly to the neighbors or other buyers.

For the gardener who is to conduct his or her vegetable growing in city or town, it is important to note that one seldom finds quality vegetables in the market at just the time they are in prime condition. So it becomes both a delight and a source of economy to grow one's own products, and to have them in such abundance and such variety, at the right time, as will make the home garden greatly appreciated.

The Garden With the Drudgery Left Out. The garden will be the least fraught with care, worry, and toil where it is carefully

The bulletins of the Oregon Agricultural College are sent free to all residents of Oregon who request them.

planned, and then systematically cared for each day for just a short time. If this is done, the tending of the vegetable garden will be no more of a task than the care of any other part of the farm, and will yield much more than the average piece of land of the same size. Too often the farm vegetable garden is started in the spring with a vim, but is soon left to its own resources in the rush of other farm operations. This practice ought to give way to systematic and regular attention given the work by some member or members of the family. When this is done, the garden will be both a pleasure and a profit.

Growing and Exhibiting. Every young vegetable farmer should have his mind made up to stay with the work with enthusiasm, so that his vegetables will be properly grown to maturity and in fine condition for exhibition. This will be one of the goals at which to aim. Remember that it is better not to start a garden at all, than to plant one and let it be choked with weeds through lack of attention. This year we want a very large percentage of those who started gardens, to have their products ready for exhibition when the proper time comes.

Stick to your work in spite of discouragements and failures. Some of you will be able to profit by your mistakes of last year. Come back strong in 1915 and beat the old records.

Locating the Garden. In choosing a place for the garden, consider all the factors that will cause the best growth of the vegetables. Conditions as near ideal as possible will be more liable to produce vegetables that will approach the ideal of the judge. There are a great variety of good soils all over the state, but with any of them, good drainage, warmth, and sunlight will be three main factors. The early morning sun is especially good, and so you will choose preferably a piece of ground that slopes toward the east or south-east. You will not forget, moreover, to select a piece of ground that is convenient to the house, and also near water, for this will be one of the important features later on.

Sandy loam soil is the best; select this if possible. If it is not, select any soil that has more or less sand. Avoid soils that are hard, cloddy, wet, or poorly drained.

Kinds of Crops to Be Grown. The gardener has a variety of crops from which to choose, so that those most desired may be grown. To prevent possible misunderstanding, here they are: beans, carrots, cabbage, celery, corn, cucumbers, lettuce, melons, onions, parsnips, pumpkins, radishes, spinach, squash, tomatoes. Amongst those most desirable for fall use for exhibition are the ones mentioned in the plans together with melons, celery, cucumbers, and peppers. I should like to see more boys and girls growing celery and good melons, both muskmelons and watermelons. Celery is not difficult to grow, and there will be sent to you complete directions

for caring for the crop so that all of you who try should have success with it. Very little celery was shown at the fairs last year, so there is a big opportunity for many in this field. Do not attempt to grow too many crops. Better grow a few well than a number moderately so.

Beans, spinach, and radishes are so perishable as to be difficult to ship any distance for exhibition without spoiling; but they will be suitable for local fairs, and a sufficient quantity should be grown for home use.

Choose Crop Suited to Your Soil and Climate. While a number of the vegetables in the plans are suited to a wide range of soils, there are some which are a little particular as to their requirements. Cabbages, tomatoes, sweet corn, beets, and squash are more adapted to the average soil than onions, melons, cauliflower, and peppers. Beans, cucumbers, melons, and tomatoes prefer a warm sandy loam soil, while the rest of the crops prefer a cooler soil. This will be explained more fully in a later circular.

Where the garden is to be grown in a high altitude and the summers are not very long nor warm, it would be better to grow such crops as lettuce, cabbage, cauliflower, onions, celery, and one or two of the roots, rather than the warmer crops such as beans, sweet corn, melons, cucumbers, etc.

Companion-Cropping and Succession-Cropping. Except where the amount of ground is quite limited, it will probably not be necessary for the gardeners to practice methods of growing one crop between the other. A large amount of space such as exists between winter squash, melons, etc., can often be profitably filled up with some quickly maturing crop, such as string beans, or dwarf peas, or lettuce. Companion-cropping, however, is more suited to the garden which is not to be horse-cultivated but, instead, tended by hand.

In some instances, succession-cropping, *i. e.*, the following of one crop by another, can be very nicely used without adding to the work in caring for the garden. In the foregoing plans spinach, lettuce, string beans, radishes, might precede late cabbage, cauliflower, or celery.

Garden Record. One of the most valued parts of the gardener's work will be keeping a record of the progress of the garden and the cost of the various items in growing the products. This will be of great value in seasons to come, as a guide in planting and caring for the crops. Don't make the notes lengthy, or of such a character as to make the work wearisome. They should be plain, neat, and accurate. The contestant should remember that the record book counts for a great deal in the final judgment.

Other Circulars. Watch for other circulars on gardening. One circular has already reached you telling how to make a hot-bed and cold-frames; how to care for these forcing devices; and how to grow the finest tomato and celery plants.

PLANTING THE GARDEN.

Seed. The foundation of good crops is good seed. The question arises with the gardener as to the kind of seed to get and where to get it. The cost of the seed is slight compared with the other items in the production of the crop, but good seed, at any cost, is of the greatest importance. Hence, especial care should be taken in purchasing it.

There are so many seed firms in the United States that there is some hesitancy in deciding to whom the order should go. Most of our large mail order houses and local state houses of good repute will be as careful in filling a small order as a large one, and it is better to deal with those who have a reputation for reliability, than to purchase the "ready" packets offered for sale with attractive colors on the envelope.

The best seed is none too good. It will be necessary to demand the best in order to avoid disappointment, and to produce strong plants that are true to the type of variety represented.

Seed Testing. The young gardener may easily make a seed test early in the spring, to determine as far as possible the percentage of germination. In a small box from 10 to 25 seeds may be counted out and sown in shallow rows; afterwards the percentage of these that germinate and make vigorous seedlings may be noted.

Varieties. In choosing varieties of vegetables for home use, one should consider the question of quality, time of maturity, and adaptation to other factors such as season, soil, etc. The well known and tried varieties are usually the best to plant. While the following list might be somewhat modified, the kinds stated represent standard sorts for the home garden.

Asparagus—Palmetto, Argenteuil.

Beans, bush

Wax—Wardwell, Davis Wax, Kidney Wax.

Green—Valentine, Refugee, Stringless Green Pod.

Pole—Kentucky Wonder.

Beets—Crosby's Egyptian, Detroit.

Cabbage—Early Jersey Wakefield, Copenhagen Market, Glory,

All Seasons, Danish Ball Head, Giant Green Savoy.

Carrot—Chantenay, $\frac{1}{2}$ Long Danvers.

Cauliflower—Snowball, Danish Giant.

Celery—Golden Self-Blanching.

Corn—Portland Market, Golden Bantam, Evergreen.

Cucumbers—White Spine, Davis Perfect, Long Green.

Lettuce—Tennis Ball, May King, Big Boston, New York, Salamander, Hanson, Grand Rapids (leaf).

Melons—Rocky Ford, Emerald Gem, Osage.

Onions—Yellow Globe Danvers, Southport Red Globe, Portugal.

Parsnips—Hollow Crown.

Pumpkins—Winter Luxury, Sugar.

Radishes—Scarlet Globe, Hailstone, White Icicle, French Breakfast.

Spinach—Victoria, Longstanding.

Squash—Boston Marrow, Delicious, Golden Hubbard.

Totatoes—Earliana, Bonny Best, Jewel, Stone.

Soil Preparation. Having purchased reliable seed stock as far as possible, the next important detail is to provide a soil bed that will give quick germination of seed and cause a vigorous growth of plants. The successful gardener knows that all time spent in putting the soil in fine physical condition, is time used to the greatest advantage. Vegetable seeds are small, and in order to have them germinate evenly in the seed bed, thereby producing a uniform stand of plants, the soil must be smooth, fine, loose, free from coarse material, such as rocks, sticks, large clods, strawy matter, etc. Such a soil condition can only be obtained by diligent work in pulverizing the ground thoroughly, and afterwards raking it well. The garden should be plowed or spaded deeply in the spring as soon as the soil is in good working condition.

In home gardens in the various localities there is bound to be a very wide range in the makeup of soils. Some will be largely composed of clay with but little sand. These are heavy garden soils, and it will be necessary to spend considerable time in pulverizing them in order to get them fine. Other soils composed of a large amount of sand will be easier to handle in the preparation of the seed bed. The physical makeup of the soil will determine very largely the proper time at which to do the first early stirring in the spring.

If a hand seeder, like the Planet Jr., or Iron Age machine, can be obtained, it will be very useful in sowing all kinds of seeds. Carrots, parsnips, onions, and other seeds may be sown. It is necessary that there be a smooth seed bed, otherwise these machines will not work to good advantage. For those vegetables having very fine seeds, great care will have to be taken in using one of these machines in order to insure a good stand.

Not only will the thorough preparation of the soil be a great help to the germination of the seed, but it will also later on very much lessen the work of cultivation. The deeper the soil is worked in the spring the better the chance for a fine plant growth and a big saving of soil moisture.

Frequent use of the rake should be made in removing coarse matter and smoothing over the beds before planting.

Fertilizers. Vegetables must grow quickly to be of the best quality; and to this end, the soil must not only be in fine mechanical condition, but it must also be "rich"; *i. e.*, contain plenty of available

plant food. There is not much danger of having the soil over-enriched for vegetable growing, except in possibly one or two cases where too much vine growth at the expense of fruit is sometimes found.

Oregon garden soils are for the most part very rich naturally, but some form of fertilization will have to be used to maintain the supply of plant food. There is no better fertilizer to use than well-rotted stable manure. It is a good plan to apply a fair covering to the soil either in the fall or early spring and turn it under in such manner as to mix it thoroughly with the soil. Horse or cow manure mixed with straw as a litter, is the best to use, and it should be well composted or rotted before being used.

Chicken manure is valuable for gardening, giving a quick stimulating effect to vegetable crops like celery, cabbage, cauliflower, lettuce, etc., but it must be used carefully; otherwise, owing to its concentrated form, it will cause a burning of the plants. It is well to mix up this kind of manure with soil and apply sparingly broadcast or to each individual hill. Leaves, when rotted, are valuable for gardening purposes. Wood ashes is one of the best all-round fertilizers that one can use, spreading them freely when working the ground in the spring.

Just before the garden is plowed, the manure should be spread evenly over the surface and then thoroughly worked in. There is danger of using long, coarse, strawy manure, which will sometimes have an injurious effect on the soil, acting as a barrier to proper soil moisture.

Seed Sowing. As some seeds are hardy, some half hardy, and some tender to frost, it will be impracticable to make sowings of all seeds at the same time. Many hardy vegetables such as peas, radish, spinach, lettuce, can be seeded in the spring just as soon as the ground has been well prepared. This will usually be from the middle of March to the middle of April. The kind of soil found in the home garden will be an important factor in governing the time of early seeding. Tender seeds, such as beans, sweet corn, melons, squash, etc., should not be dropped until the ground is well warmed, usually from the first to the fifteenth of May.

To get an even stand of seedlings, very careful work must be done. The rows must be straight to help the appearance of the garden and also to make cultivation easier. The correct depth of sowing, the proper thickness of the seed in the row, and careful covering will be the important points of the work.

Lettuce, spinach, and radish may be covered $\frac{1}{2}$ inch deep; small seeds, such as carrots and onions, must be lightly covered, from $\frac{1}{4}$ to $\frac{1}{2}$ inch, while peas, beans, melons, cucumbers, and squash may be sown from 1 to $1\frac{1}{2}$ inches deep.

Firming the soil slightly after seeding will be helpful to rapid germination. This can be done by using a narrow board placed on

the row and lightly tramped on. The Planet Jr., Iron Age, and other types of hand seeders can be used to very good advantage, distributing the seed evenly and at the correct depth when properly handled.

It should be the aim of the gardener to sow approximately the proper amount of seed to the row so as to have a good stand of plants and yet in such a way as to avoid much necessary thinning.

For those crops that are grown in hills, such as squash, etc., a liberal amount of seed should be dropped in each hill, so that there be no danger of a poor stand.

INSECTS IN THE GARDEN.

Contestants in the vegetable gardening contests will undoubtedly meet with various common insects that affect garden crops. In order that these may be controlled as far as possible, the following helpful suggestions are included, being excerpts from College Bulletin 91, Extension Series II, No. 4, by A. L. Lovett.

Cutworms. These sleek caterpillars feed on practically all garden crops. They eat the plants off right at the surface of the ground. Remedy. Use a bran mash consisting of coarse bran, 16 lbs., paris green $\frac{1}{2}$ lb., salt $\frac{1}{4}$ lb., cheap syrup 1 quart, and add warm water to make a coarse, crumbly mash. Put a small amount around each plant.

Green Cabbage Worm. This is the common worm that is found on members of the cabbage family. One of the easiest ways to keep the worms from doing damage is to use hot water up to 122 degrees poured over the plants in the field. A strong salt solution will also be effective. The worms may be hand picked if cabbage is grown in small quantities.

Aphis or Green Fly. The small sucking insects that multiply so rapidly are usually found on the under side of the leaves of cabbage, cauliflower, squash, melons, etc. They must be attacked before they appear in large numbers and before they roll up the leaves. As a remedy, use Black Leaf-40, 1 oz. to 12 $\frac{1}{2}$ gallons of water with a little whale oil soap added.

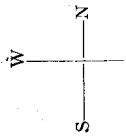
Maggots of various kinds attack cabbage, radish, turnip, onion, etc., and are quite difficult to combat successfully. For the cabbage maggot tobacco dust, 1 part, and sulfur, five parts, worked lightly into the soil at the time of setting the plants will be useful. For the radish and turnip maggot the same mixture can be used right in the seed furrow at the time of sowing.

The Spotted Cucumber Beetle is a serious pest attacking squash, cucumbers, etc. Dust with tobacco dust, using the same mixture as before, shaking over the plants through a cheese-cloth sack; or use arsenate of lead, spraying it upon the plants.

Slugs, which are the slimy, crawling worms attacking all manner of garden crops, may be fought by the bran mash used for cut-worms and also by using traps of boards, pieces of sacking, etc., placed about the plants, under which the slugs will collect at night. Here they may be found and destroyed.

Questions concerning any troubles of this character should be reported to A. L. Lovett, Oregon Agricultural College, Corvallis, Oregon, who will send additional information.

1.	Row No.	Asparagus	Rhubarb	4'
2.	Winter Squash	Pumpkins	Cucumbers	8'
3.	Early Sweet Corn	Late Sweet Corn	Eggplant	6'
4.	Tomatoes	Peppers	Parsnips	4'
5.	Late Beets	Late Carrots	Parsnips	2½'
6.	Dry Onions			2½'
7.	Bush Beans followed by late cabbage	Peas followed by Scotch kale		2½'
8.	Bunch Beans	Kohl-rabi followed by Fall and Winter Cauliflower and Broccoli	Green Onions	2½'
9.	Early Cabbage followed by early and late celery	Head Lettuce	Spinach	2½'
10.	Muskmelons	Watermelons		6'
	Hotbeds	Mint	Horseradish	6'
	Parsley	Sage		
	Coldframes			



PLAN FOR FARM VEGETABLE GARDEN 50 Ft. x 100 Ft.

Provision is made so that all cultivation may be done by horse tools. No intricate companion croppings or successions are used but common rotations following early crops are practised. See descriptive notes elsewhere in bulletin.

To the above suggestive table, which can be modified in many ways according to the likes and dislikes of the individual members of the family, the following notes are added:

- Between rows 1 and 2, if asparagus and rhubarb be just now started, vegetables can be grown such as lettuce, beans, beets, carrots, parsnips, etc.
- Between rows 2 and 3 early in the season may be grown dwarf peas.
- In row 3, after the early sweet corn is finished may be planted bush beans or fall lettuce.
- In row 4, tomatoes may be of three varieties—one early, one second early, and one main or late.
- In row 7, bush beans should be planted in successive sowings.
- In row 9, early head lettuce plants may be set between early cabbage. Space in this row marked "Lettuce" should include lettuce sown from seed at intervals.

The following table will be of help to the gardener in giving detailed notes as to the manner of sowing each crop :

Vegetable	Date of Sowing	Hills or Drills	Distances of planting		Amt. of seed to 100 ft row	Depth of Planting	Remarks.
			Rows inches	Plants inches			
Asparagus	Plants set March or April	H	5 ft.	24-36	1 pt.	8 in.	1 or 2 yr. old plants set in spring; cover crowns only 2 in. when setting. Successional sowings at 2-3 week intervals should be made.
Beans	May 1 onwards	D	30	3-4	2 oz.	1-2	Sow early for bunch beans; later for sack roots; thin before too large.
Beets	April 10-May 20	D	18-30	2-3	¼ oz.	¼	Seed in outdoor bed and transplant or sow right where crop is to stand.
Cabbage (late)	May 10-June 15	H	36	20-24	1 oz.	¼	Radish seed in rows will break the ground for carrot seed.
Carrots	April 10-May 20	D	18-30	3-4	¼ oz.	¼	Broccoli started May or June seeding etc. as late cabbage.
Cauliflower, fall and winter	May 10-June 15	H	36	20-24	¼ oz.	¼	See former bulletin for growing plants. Successional field settings must be made for market.
Celery (late)	April 20-May 15	D	30	6	¼ oz.	¾	Successional seed sowings. Compost in the hill. Liberal seed sowings.
Corn	May 1-June 15	H	36	24	¼ pt.	1-1½	Protect vines from beetles.
Cucumbers	May 10-June 10	H	72	72	½ oz.	1	Valuable as an early bunch crop; thin when young.
Kohl rabi	April 10	D	14-18	3-5	¼-½ oz.	½	Hardy fall and winter greens.
Kale (Scotch)	See late cabbage	D			½ oz.	½	Use spring varieties early—sow successively for constant use, thin 6 in. for leaf, 8 in. to 10 in. for head.
Lettuce	April 10-	D	10-14	6-10	½ oz.	½	Finest seed in hill. Sow after season has settled. or where ground is inferior.
Melons	See cucumbers	D	14-16	3-4	1 oz.	½	Sow successively for constant production. Watch for aphids—see notes.
Onions	April 1-20	D	30	3-4	1-2 pts.	1½-2	Sow successively small areas. Screen seed beds to prevent maggots.
Peas	Mch. 15-Apr. 20	D	30	3-4	1 oz.	½	Use only for early spring and fall sowings. Seed freely.
Parsnips	Ap. 20-May 10	D	See Carrots		½ oz.	1	Compost in hill. Watch for beetle attacks.
Pumpkin	See Squash	D	10-12	1½-2	1 oz.	½	
Radish	Mch. 20-Apr. 20	D	10-12	2-4	1 oz.	½	
Spinach	May 10-30	H	8 ft	8 ft.	½ oz.	1	