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Vegetable Gardening Contests for Oregon Boys and Girls

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HOTBEDS AND COLDFRAMES FOR THE GARDENER

BY

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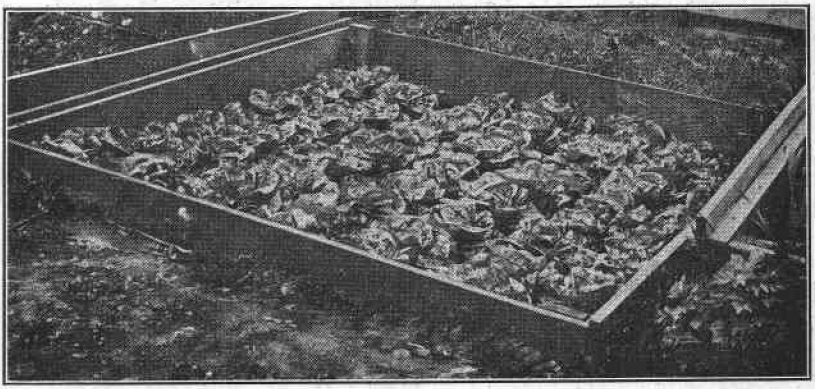

FRAME OF EARLY-HEAD LETTUCE, GROWN TO MATURITY IN MANURE-HEATED BED

FEBRUARY, 1914

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Introduction. To get the greatest pleasure and profit out of the home garden, the aim should be to have the soil producing continually as long as the growing season will permit. In order to take advantage of the limited time in which it is possible to grow vegetables, work must be begun early in the spring. Following the lull of winter, which puts an end to outdoor work, the opening of spring will always be hailed with delight by the amateur gardener, for whom it can never come too quickly.

The first early products of the Garden! The first sugar peas, the crip red radish, the fine succulent head of lettuce! All these are much more appreciated in the early spring than later in the season when vegetables begin to be more plentiful.

The first piece of work for the gardener to do before spring actually opens, is to make preparations for the growing of his young vegetable plants.

The Hotbed and Its Purposes. Hotbeds are, as the name implies, beds of heating material which furnish artificial heat for the growing of seedlings during early spring. Under suitable temperatures, provided by the heat of the bed, the plants are brought along from small seedlings to strong plants, which are later transplanted to their place in the garden.

Some slowly maturing plants, such as tomatoes, celery, peppers, and eggplants, can only be grown by first using the hot-bed to forward the plants, and later by transplanting them to the field. This is necessary in order that the crop may mature before the end of the growing season.

Again, by growing cabbage, cauliflower, lettuce, onions, and often melons, in the hotbed, and afterwards transplanting them, a gain of from two to six weeks may be obtained, depending upon the crop, over starting the crops directly in the field. In this way, the season for growing plants of various kinds is considerably lengthened.

The second purpose of the hotbed, is to produce early vegetables, such as lettuce, radishes, bunch onions, carrots, etc., by having them mature directly in the bed. This is a very satisfactory way of having vegetables during the cool months of spring and fall. By this method there will be no transplanting to the field, the plants reaching full development in the bed.

Young Oregon gardeners should know that the hotbed is one of the indispensable features of the commercial vegetable garden of today. While it is possibly being displaced by the more efficient greenhouse, yet the manure-heated bed will be

found always useful and even necessary for the garden of the farmer or the city man.

Satisfaction in Growing One's Own Vegetable Plants. After a little preliminary experience in vegetable growing, the gardener, if he has the proper equipment with which to work, will get the greatest satisfaction by growing his own plants. He will find satisfaction in his work primarily by having plants of the right variety—not often obtainable by purchase; and by being able to give each plant the necessary amount of room to prevent over crowding. Plants that are grown in large numbers are too often given so little room that they become spindling and weak. He will find satisfaction, also, in having properly hardened plants, (that is, plants that can endure a certain amount of cold,) and in having them at the right time without fear of disappointment. Since the cost of buying all the lettuce, tomatoes, celery, cabbage, cauliflower, both early and late, and one or two other vegetables, that are consumed at his table during the year, would amount to a considerable sum, he will find much satisfaction in saving this expense, to say nothing of the crisp, fresh quality of the newly-gathered viands. Above all, the gardener will get the fullest satisfaction through observing the growth of his plants under proper care, and noting the response that springs from diligent attention to the work.

Locating the Hotbed. In order that the plants in the hotbed may make the fullest possible growth, the bed should be located where the plants will have well-drained soil, where the morning sun will fall longest upon them, and where cold draughts or heavy winds cannot strike them. It is therefore best to have the bed facing the east or south-east, on land that is slightly sloping, and protected by a fence, house, barn, or hedge, which is not so near, however, (less than six or eight feet) as to cause undue shade. The bed should be located so that it can be easily approached for the dumping of manure, and also for watering. Since the plants will need constant attention, moreover, the beds should be placed where they can have the quickest service of the gardener.

Necessary Materials for Hotbed Making—Manure. The heating material which gives the best results for this kind of a bed is fermenting horse manure. It decomposes very readily and will therefore give more heat in a short time than any other kind of animal manure. For the city garden, any nearby stable will form a source of supply. The solid manure should never be used alone in the hotbed, but should always

contain some litter. Straw is the best material for mixing with the manure, while leaves are next in value. Straw will have a tendency to moderate the rapidity with which the heat is given off, and is valuable, besides, for its organic material when the manure from the spent hotbed is put on the garden soil for fertilizing. Sawdust and shavings should not be used.

An important item in using the manure to the best advantage is that of getting it ready to be put into the bed. As it comes from the stable it is in an irregular condition, heating in spots. It must therefore be handled a week or so before it is ready to be put into the pit in order that it is evenly heating throughout. The manure must be hauled ten or twelve days before the proper time for making up the beds. Care must be taken to see that it does not begin to burn or firefangle, in which case quite a bit of heat would be lost. So it should be completely turned over every two or three days. If the manure is somewhat dry it should be moistened with warm water. Exposure to heavy rains will greatly impair its efficiency and it is best therefore to cover the pile if it rains hard.

Another point is important to note; namely, that to have the manure in the best condition when put in the bed, it should be moist enough to maintain a gradual and even heating, and yet not be wet enough to show water when it is being tramped.

Digging the Pit. Some hotbeds are built above ground, but inasmuch as quite a lot of heat may thus be lost, the method of excavating the pit for the manure is recommended here. The depth of the hole for the manure will depend upon the kind of a crop that is to be grown, and the time of the year at which the bed is made up. The pit should be deep enough to hold the specified amount of manure and about six inches of soil, the top of which will be level with the ground.

In some cases the inside of the pit is lined with boards, especially where there is intense cold, but in this mild climate the precaution is unnecessary. It might be suitable, however, for keeping out rodents to some extent.

Amount of Manure. From 14 to 18 inches of the heating material is ordinarily sufficient. In the bed which is to be made up for early cabbage, cauliflower, lettuce, etc., there need not be so much manure as in the bed for tomatoes, peppers, and eggplants. More manure is needed for these crops inasmuch as they need more heat, and need it for a longer time, than the former group. It is a good plan to make up a hotbed for each class of plants, using one frame for each group. For later hotbed making, from the middle to the last part of

March or the first part of April, 10 to 12 inches of manure will probably be enough.

Filling the Pit. The manure, on being put into the bed, should be packed in layers of from four to six inches at a time, each layer being well firmed before the next is put in, and so on, until the required amount is put in.

Six inches of well composted soil is then placed over the manure. This soil should be loose and light, and previously sifted. A desirable soil mixture is made up of one part garden loam, one part leaf mould, or well rotted manure, and one part sand. This should be raked over the bed smoothly.

The Frame and Sash. The frame for holding the glass sash is shown in Figure 2. The frame may be made to accomodate 1, 2, or four sashes, the two sash frame being quite

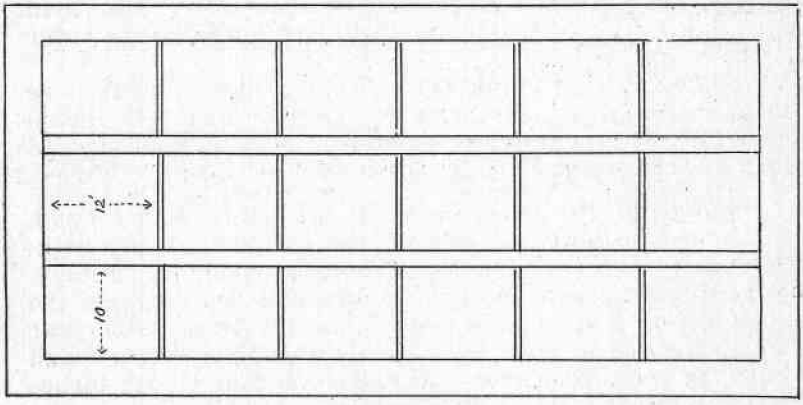

Fig 1.—Plan of 3X6' sash. See details elsewhere

largely used. This may be satisfactorily used for the two groups of plants spoken of before, by putting a division board in the center of the frame so that the two beds may be managed individually.

A frame of two inch material is best; but as a matter of fact any rough lumber that is on the farm will serve the purpose, if it is made according to the plan here shown. The sides of the frame will be seen to fit against the two-by-four pieces, which are nailed to the back and front boards respectively, and they are hooked to these so that the frame may be taken apart after the season is over. The dimensions of the frame are as follows:

Back—2″x12″x6′
Front—2″x8″x6′ 2″
Sides—2″x12″ tapering to 8″x5′
Outside strips—¾″x6″x5′ 10″
Middle strip—1″x1″x5′ 10″
Middle—2″x4″x5′ 10″

Note. Outside and middle strips are for the purpose of holding the sashes when being raised for ventilation.

Width of 5′ 10″ will permit of 1″ at each end for easy lifting of sashes.

Length of 6′ 2″ will permit of ½″ between middle and outside strips.

Sides will be 5′ 6″ to include 4″ of extra wood in back and front boards, making 5′ 10″ over all.

The Sash. Glass sashes are most satisfactory for the proper protection of plants. If they are properly made at first and cared for afterward they will last a very long time. A good light sash is one made of cedar which will last as long

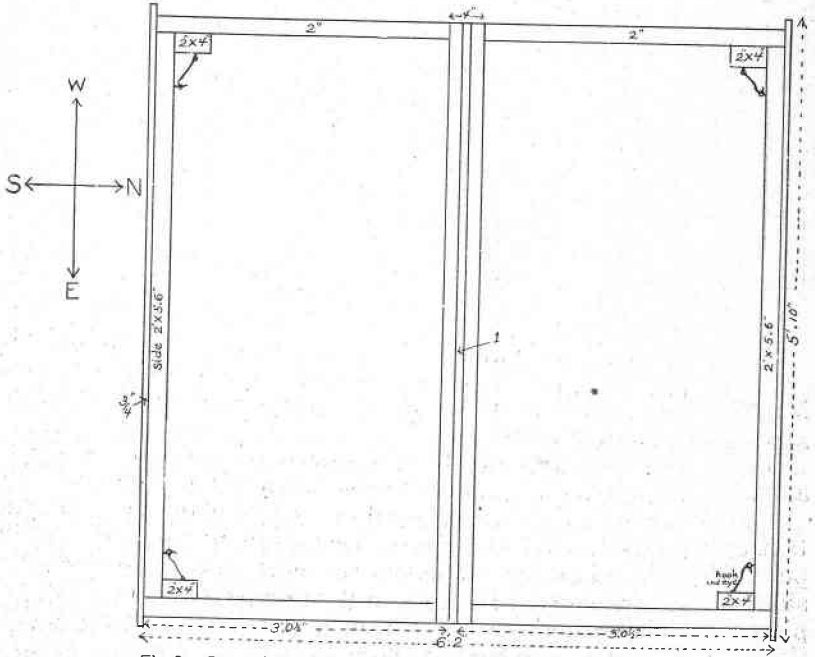

Fig. 2 Plan of home constructed frame for accommodation of two 3X6 sashes used in hot-bed and cold-frame operations. See description elsewhere.

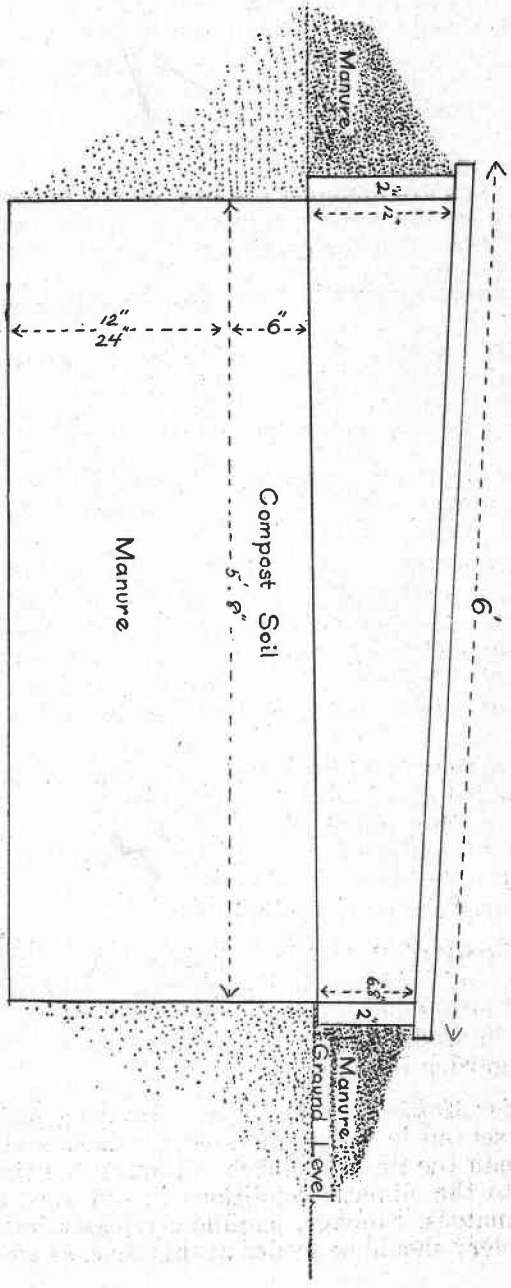

Fig 3.— Cross section of manure - heated hot - bed.

as any, with the possible exception of cypress. Three by six feet is a desirable size. The sash can be bought glazed or unglazed or the separate parts can be milled out according to the plans here set forth and the work completed by the gardener. The glass should be of the best grade and double thickness. The sash should be morticed and pegged tightly at the corners and given one coat of paint before and after glazing. Siebert's glazings are amongst the best on the market. The glass should be lapped no more than ¼ inch, and firmly imbedded in putty. (See plan for details).

The diagram showing the details of the sash gives the following:

Top piece—1⅝″x3″x3′
Side pieces—1⅝″x3″x6′
Bottom—1″x4″x3′
Sash bars—1⅝″x1¼″x5′

The cost of the sash will be from $2.75 to $4.50 according to the amount of work done by the gardener himself, the glass being the most expensive item.

Cloth sash are also useful where the weather is not at all severe and can be used where there is but little frost. They can be made of ½-inch by two inch strips for the frame, which is 3x6 feet; and cheap cloth at eight cents per yard can be tacked on the frame, which should be braced in the middle. A good coating of raw linseed oil should be worked into the cloth.

Cloth sashes furnish protection inferior to glass, and they have the added drawback of shutting out a lot of light during the daytime, thus making the plants drawn and spindling. They are, on the other hand, valuable for shading when setting plants in the frame in hot weather. Twenty-five cents will probably cover the cost of a 3x6 sash.

Miscellaneous Materials. Besides the above, the following will be used: old matting or straw for added protection at night; ventilating devices as shown in Figure 4; furrow marker for use in seeding rows in beds; marker for transplanting seedlings; garden hose and fine sprinkler.

Time for Making Up the Beds. For the growing of plants to be later set out in the garden, most beds should be made up not later than the first of March, although the time will vary according to the climatic conditions in different parts of the State. Tomatoes, cabbage, cauliflower, early lettuce, onions, and early celery should be seeded at this time, as well as peppers

and eggplants. Thus the manure for the beds should be hauled about February 15 to 20.

Seed Sowing in the Bed. Rows in the bed should be marked off with the furrow marker. Cabbage, cauliflower, lettuce, and tomato seed should be planted about 6 to 8 to the inch and covered about ¼ inch. After the soil is carefully firmed, the seed rows should be watered with the sprinkler and tepid water.

Note. In sowing celery seed different methods must be pursued. The ground in the bed should be raked level and flattened. The seed is then sown broadcast—a space of a foot square being ample—and covered with no more than one eighth of an inch of soil, gently sifted through a fine seive. Cover with a piece of gunnysacking and water through this with tepid water.

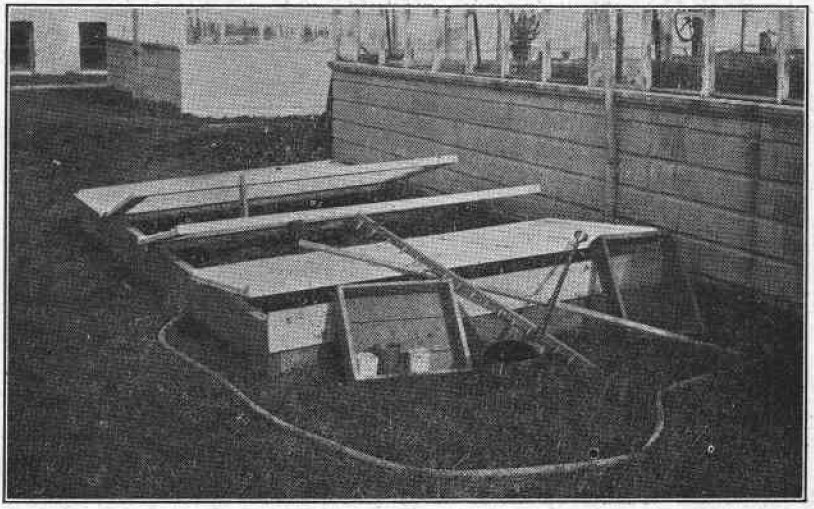

Fig. 4. Range of Frames and Sashes Suitable for Home Garden. Note Various Materials Useful in Frame Practice.

Instead of sowing the vegetable seed in the beds, as directed above, it may be sown in a flat, or plant box, and the flat then put into the hot bed. The flat should have the following dimensions:

Sides—½″x3¼″x18″
Ends—¾″x3¼″x14″
Bottom—½″x4″x18″—two pieces
½″x5¼″x18″—one piece

Use same kind of soil as in the hotbed and sow seed in the same manner.

Ventilating and Watering the Bed. Even if the beds are made up with the greatest care, the work will be in vain if very careful attention is not given them later on, in ventilating and watering them.

The seedlings should at first be kept at a temperature of 70 to 75 degrees, which will be lowered gradually as the plants get larger and the weather becomes warmer.

Constant attention and watchfulness during spring days will be necessary. When opening the sashes, it is a good plan to ventilate in the opposite direction from which the wind is coming.

The temperature will vary from 70 to 75 degrees for tomatoes, eggplants, and peppers, and from 60 to 65 degrees for cabbage, cauliflower, and lettuce. These temperatures will be somewhat decreased as the plants grow larger.

Transplanting the Seedlings. When the seedlings in the beds first show their true leaf, which will be between the seed leaves, they should be transplanted to their parts of the beds, the cabbage, lettuce and celery plants being transplanted 2½ inches apart each way and the tomatoes, eggplants, and peppers into paper or card-board pots or strawberry boxes.

The young gardener will note that the tomato seedlings will germinate more slowly than the cabbage and lettuce. The peppers and eggplants will be slower yet, and celery will probably be five and a half weeks old before it is ready to be set into the beds.

Use the marker as shown in Fig. 4, so that the seedlings will be the proper distances apart.

The paper or card-board pots are shown with tomato plants in Fig. 5.

Hardening the Seedlings. As the plants grow larger and the weather increases in warmth, more air should be given the sashes during the day and some air at night. The frost should be kept from the plants, however, especially cauliflower, tomatoes, and such like. When the severe frosts are over and days are warmer, the sashes on the early cabbage and lettuce may be taken off entirely and also left off at night. The cauliflower, tomatoes, peppers, etc., must be kept covered until all danger of frosts is over.

Setting Plants in the Field. The time will vary considerably at which these different vegetable plants should be put in

the garden. For cabbage and early lettuce, the approximate date will be about April 1 to 10, or when the cabbage plants are about 6 inches high and the lettuce covering the soil in the bed. The tomato and cauliflower should not be set into the garden until weather is well warm and there are no more frosts at night. The celery plants will be ready for their place in the garden when they are about 6 inches high, which will be from the middle of May up until the middle of July, if successful sowings are made every week or so. Before these plants are lifted from the beds to go into the garden, they should be

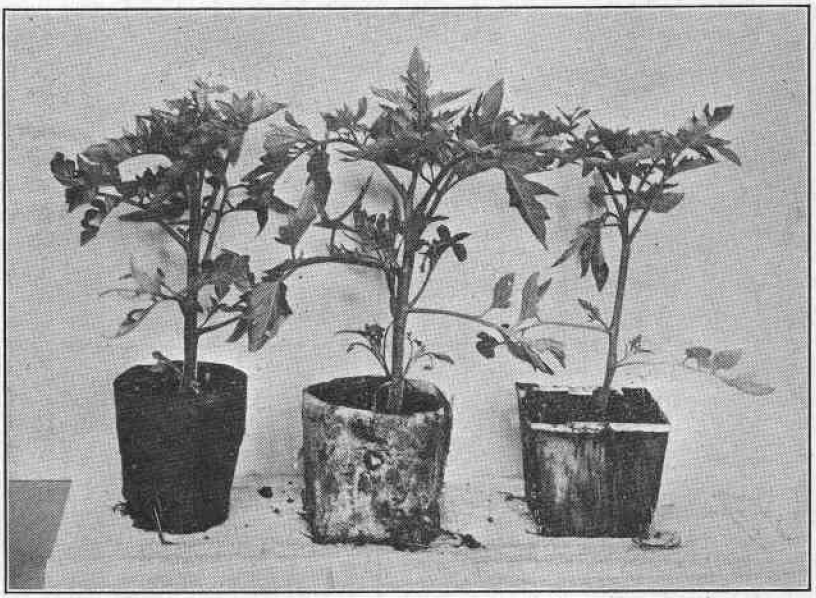

Fig. 5. The Kind of Tomato Plants that Produce Early Tomatoes. Left, in Cardboard Pot. Centre, Cosby's Paper Pot. Right, Strawberry Box.

thoroughly soaked down with water so that they will be able the better to stand the change from one bed to the other.

Other Crops in Hotbeds. Melons, sweet corn, cucumbers, pole beans, and lima beans may be started in paper or card board pots or dirt bands to advantage, sowing four to six seeds in the pots about April first and thinning to one or two strong plants a little later. They may be set in the field from the middle to the last part of May. In this way, quite a considerable gain is obtained over seeding directly in the field at the same date.