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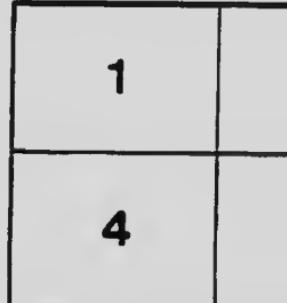
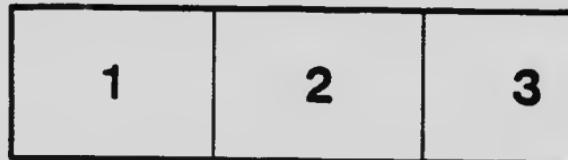
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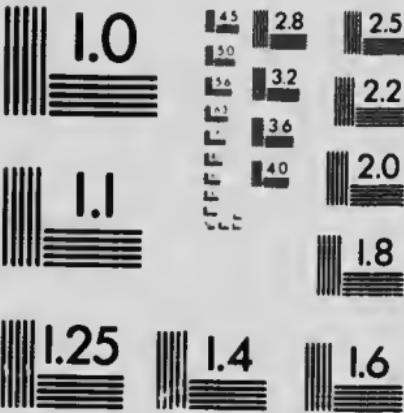
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PROVINCE OF BRITISH COLUMBIA.

DEPARTMENT OF AGRICULTURE
(HORTICULTURAL BRANCH).

The Home Vegetable Garden for Southern Interior Sections of B.C.

By H. THORNBERRY, B.Sc., ASSISTANT HORTICULTURIST.

 INRING 1914 British Columbia imported over \$475,000 worth of fresh and canned vegetables from other Provinces, and over \$418,000 worth from foreign points. With the exception of a few sweet potatoes, melons, etc., the greater portion of the foreign importations, and practically all of the importations from the other Provinces could have been produced within our own borders. While a portion of these importations is consumed by people who are not in a position to grow their own vegetables, a very large percentage is consumed by people who have land available which, with a little attention, could be made to produce enough vegetables for their own use and a market surplus.

Although fresh vegetables can be secured in their season in most towns, neither the farmer nor the man living in the suburbs can afford to pay the prices asked for these vegetables; and, furthermore, it is impossible to secure them as fresh and in such variety as one can from the home garden. Canned vegetables are often substituted where fresh ones cannot be secured, but, besides being more expensive, are neither as palatable nor as healthful as the fresh vegetables.

LOCATION

The home vegetable-garden should be situated as near to the house as conditions will permit. This will decrease the chances of neglect in the care of the garden and permit the fresh vegetables to be gathered without loss of time. If possible, a level area should be chosen. A south slope will produce earlier vegetables than a north slope, but the latter may give the best results with the main crop, especially where there is a shortage of moisture during the latter part of the summer. In windy sections a hedge or wind-break of some kind will be found valuable where early or tender crops are grown.

SOIL.

The ideal soil for a vegetable-garden is a deep, rich, well-drained loam. This cannot always be secured on a city lot or close to the house on a farm. Formerly too much stress has been placed on the soil and too little on its treatment. A heavy soil or a sandy soil may easily be made suitable for gardening purposes by the addition of barnyard manure, lime, or other fertilizer; hence, if the available soil is not just what is wanted, it can be improved by careful handling.

Low, wet soils and alkali soils should be avoided until they have been properly treated, as neither is congenial to young or tender plants.

SIZE.

The size of the garden should be limited to the smallest possible area that will produce the necessary vegetables. If too much land is set aside it will be neglected

and allowed to grow up to weeds, which is worse than having no garden. The size of the family, the kinds of vegetables grown, the fertility of the soil, the season, and the methods used determine to a large extent the proper size of the garden. From observations made by the writer, a garden 50 x 50 feet where irrigation is possible, and 50 x 100 feet in the unirrigated districts, should produce an abundance of vegetables for a family of five. This does not include the area necessary for the main crop of potatoes. The area available on some city lots may be only a few hundred square feet, but even this amount of land, properly handled, can be made to produce enough radishes, lettuce, etc., for the table during the summer.

FERTILIZERS.

Well-rotted stable manure is the best general fertilizer for the garden. While the plant-food content is not as high as in some of the commercial fertilizers, it is of great value to improve the physical condition of the soil. It makes clayey soils lighter, easier, and easier to work, and makes sandy soils retain moisture better, increasing the supply of available plant-food, and preventing them from blowing. Where winter rains are common, and especially on sloping land, manure should not be applied until spring.

Where stable manure is not available, commercial fertilizers should be considered, or they may be used to advantage in conjunction with stable manure. Their main value lies in the amount of nitrogen, phosphoric acid, and potash they contain. They appear on the market in many forms, and before buying any a complete knowledge of their plant-food contents should be obtained. By comparing the guarantee on the label on the sack with the tables in Circular No. 28, "Fertilizers for Fruits and Vegetables," which may be secured upon request from the Department of Agriculture, a knowledge of their actual value may be secured. This will show whether they are really worth the price asked; but careful experimenting with different fertilizers on the garden is the only way to determine whether it will pay you to apply them. Where the elements are applied separately, the potash and phosphoric-acid manures should be applied during the fall or winter, and the nitrate of soda, from which we get our nitrogen in its most available form, should be applied in light applications (usually $\frac{1}{2}$ to 1 lb. per square rod) at intervals of about three weeks to the growing crops.

Crops grown for leaf production, as lettuce and cabbage, require more nitrogen than do the root and tuber crops, potatoes, turnips, etc., which require more potash and phosphoric acid. Where plants are grown as in a vegetable garden, it is often impossible to consider their individual fertilizer requirements. The following mixture is recommended as a general dressing for a vegetable-garden 50 x 50 feet: Nitrate of soda, 16 lb.; muriate or sulphate of potash, 25 lb.; and phosphoric acid in the form of bone-meal finely ground, 50 lb., or acid-phosphate, 15 lb. If possible, these three fertilizers should be applied as suggested above.

Lime is beneficial to most soil, and especially if it is inclined to be sour. From 50 to 100 lb. is sufficient for a plot 50 x 50 feet. It should be applied in the fall or very early spring. As the results last over a number of years, an application every four or five years is sufficient.

PREPARATION OF THE SOIL.

The vegetable-garden should be ploughed or spaded to a depth of 7 or 8 inches in the fall. This will open the soil to the effects of the weather, and also destroy many injurious insects, besides permitting the soil to absorb any moisture which may fall in the form of rain or snow. If fresh stable manure is used, it should be applied in the fall.

In the spring, after the land is ploughed again and harrowed well, the surface should be worked and reworked with a hand-rake until it is freed from all clods and is fairly firm. Having done this, the seed-bed is prepared, but any portion of the garden not planted at the time of preparation should be hoed and reraked previous to following plantings in order to conserve moisture and to kill any weeds which may have started.

PLAN OF GARDEN.

Planning the garden is no small task, and unless some system is followed there is almost sure to be confusion. Vegetables which remain in the garden for several years, like rhubarb, asparagus, and horseradish, should be planted on one side, so as not to interfere with ploughing. Early vegetables, like lettuce, radishes, early peas, and spinach, should be planted together, so their place can be taken later by tomatoes, cucumbers, etc., which have been started in a hotbed. The following is a suggestion of how a plot 50 x 50 feet may be planted :-

PLAN OF A SMALL GARDEN. CROPS GROWN IN ROWS.

Rhubarb.	Horse-radish.
	Asparagus.
	Asparagus.
Early Potatoes X Turnips.	
Early Potatoes X Turnips	
Early Potatoes X Late Peas.	
Radishes X Tomatoes.	
Spinach X Tomatoes.	
Lettuce X Tomatoes.	
Peas X Late Cabbage.	
Peas X Late Cabbage.	
	Onions.
Beets.	Carrots.
Parsnips.	
	Turnips.
Beans.	Beans.
Corn.	Corn.
Cabbage.	Cauliflower.
Parsley.	
	Cucumbers.

X== followed by."

In the above plan all the vegetables are not included, but where the desired ones have been omitted they may be substituted in place of others. The area used for beans, corn, and cucumbers may be used to good advantage for early greens, etc., which will be harvested before the ground is needed.

SEEDS.

Seeds for the garden should be secured from a reliable seed firm, and the order should be placed at least two months before planting-time, to ensure fresh seeds of the proper varieties. If there is any doubt as to the vitality of the seed it should be tested before it is planted. This is usually done by placing a number of seeds in moist sand or by placing a few between moistened blotters between two plates. The number which sprout will show the value of the seed.

THE HOTBED.

A hotbed is an essential part of a large garden, but may be omitted on very small areas where only the common vegetables are desired in their season and where tomato, pepper, cabbage plants, etc., can be secured from a local gardener. However, with a little attention, a hotbed can be made to produce a supply of greens for at least six weeks before and the same time after growth has ceased in the garden.

The construction of the hotbed is very simple. It should always be built facing the south, and should be located in a protected spot where it will be convenient to attend. The size, shape, and material used in construction is a local problem. A hotbed 6 x 6 feet is large enough for the home garden. For temporary use 1-inch boards and window-sash may be used, but for permanent use 2-inch boards or cement are required for the frame and regular sash for the covering. The pit should be dug before the ground freezes in the fall, but the remainder of the work may be left until the bed is needed in the spring.

The pit should be about 2 feet deep, and the frame made to project about 14 inches above the ground at the back and 8 inches at the front. This will give the sash a slope of about 1 inch to the foot, which will prevent water from collecting on the top. All joints in the frame, and especially those between the sash and frame, should be made tight. The frame should be banked to the top with earth to prevent draughts.

When the construction-work on the hotbed is completed it is ready for the manure and soil. Horse-manure containing little straw should be tramped firmly and evenly in the pit until it forms a bed not less than 18 inches in depth. About 6 inches of rich soil should be placed on top of this and the sash placed in position. After the temperature has reached 100° Fahr. or more and has fallen to 70° Fahr., which it usually does in a week's time, the seeds may be sown. As a rule, they are sown about $\frac{1}{2}$ inch deep in rows 4 inches apart. After this, proper ventilation and watering is all that is necessary. On warm days the sash must be raised or the heat from the sun and the manure combined will injure the plants.

THE COLD-FRAME.

In construction it is similar to the hotbed, but has no pit underneath for manure, hence any heat it gets comes from the sun. As a rule, plants are transplanted from the hotbed to the cold-frame, and then placed in the garden after they have become hardened. Such vegetables as cabbage, cauliflower, etc., may be started directly in the cold-frame, if early production is not desired. Where large cold-frames are used or in warm climates, heavy cotton is often substituted in place of the glass sash.

IRRIGATION.

Where there is a lack of moisture during any part of the arrangement should be made for irrigation. Usually no irrigation is needed until the plants can be seen in the rows, but if the soil is not all dry before any seeds are sown,

watering season, some irrigation should be applied until the soil is needed until the plants should be irrigated

When water is applied to the growing plants shallow furrows should be made, and the furrows should be cultivated over as soon as the water has been applied. Afterwards, the rows of vegetables are 18 inches apart, in every second space is sufficient. Since vegetables feed more rapidly than other crops, more frequent irrigations are necessary than with other crops; but when irrigation is given it should be sufficient to moisten the soil to a depth of 2 feet.

After irrigation, the soil should be worked over, a furrow being made in the upper 2 feet of the rooted field to allow the ground well.

STORING VEGETABLES.

While the question of storing vegetables can hardly be considered within the scope of a circular, mention of the principles of storage will not be out of place.

Annually there is a large loss in stored vegetables. Much of this could be prevented by following a few simple rules. The temperature should be between 35 and 45 degrees; fresh air should be admitted whenever the weather permits; the cellar windows to be opened; only the best vegetables should be stored; bruised, or overripe vegetables should not be stored; root-crops, such as

beets, turnips, and parsnips should be covered with soil to prevent them from drying out; the pit or cellar where the vegetable are stored should have good drainage.

Vegetables like celery and endive should be dug with the roots on. The celery should be stood upright in rows close together in the cellar, and the roots covered with sand and kept moist. The cabbage may be kept until spring if suspended by the roots and kept quite dry. Only very hard heads should be stored. Both of these vegetables may be stored in pits like potatoes if sufficient protection is given to keep the cold out.

For detailed information on storage, secure Bulletin No. 58, "Farm Storage for Fruits and Vegetables," from the Department.

CULTURAL METHODS FOR DIFFERENT VEGETABLES.

Asparagus.—A deep rich loamy soil is the best for asparagus. The patch may be started from seed or from one-year-old plants. Where plants are used, cutting may be commenced the second or third year. No cutting should be done after July 1st.

Give frequent but shallow cultivations during the growing season, and in the fall or winter apply a liberal application of manure and work it into the soil in the spring. After growth is completed in the fall the old tops should be removed and burned.

Beans.—Select a warm, light soil for pole and bush beans, and a heavier soil for broad beans. Broad beans should be planted early in the spring, as they require a long, cool growing season, but the other varieties should not be planted until danger of frost is over. Early and late varieties planted the same time, or an early variety planted at intervals of two weeks, will give a continuous supply for the table.

Greater yields may be secured by keeping the beans pleated closely, as the presence of mature pods causes the vines to cease bearing.

Beets.—Beets require a rich soil. Successional sowings of an early variety should be made at intervals of three weeks to ensure a continuous supply of tender beets for table purposes. The round or globe-shaped varieties are more desirable than the longer varieties. When the beets are thinned, the young plants may be used for greens.

For winter storage the seed should not be sown until about the middle of June. To prevent the roots from becoming wilted in the cellar, cover with sand.

Brussels Sprouts.—The hotbed and field culture is practically the same as for cabbage.

Cabbage.—The young cabbage-plants should be transplanted to the cold-frame before being set in the open ground, or they may be thinned to 1 inch in the hotbed and the sash left off for about two weeks to harden them. They may be started directly in the cold-frame if desired, but are seldom as early as the hotbed plants.

When the plants are transplanted the majority of the large leaves should be removed, as they only tend to weaken the plant and later drop off and die. If the soil is dry when transplanting, a little water placed in the hole and allowed to settle before the plant is set will be very beneficial. Shallow cultivation should start as soon as the plants are set, and continue at intervals of about two weeks during the summer.

The best soil for cabbage is a well-drained clay loam, to which an abundance of well-rotted manure has been added.

Cauliflower.—Cauliflower may be handled the same as cabbage, but especial care should be given to prevent the growth from being checked. When the heads are well started they should be shaded by tying the leaves over them.

Carrots.—Carrot-seeds may be sown quite thickly and thinned by using the small carrots for cooking purposes. The plants remaining for winter use should not be left closer than 2 inches, and the crowns should be kept covered with earth to prevent them from becoming green. The short varieties are usually preferred to the long pointed ones. The matured carrots should be stored as recommended for beets. Carrots require a loose, deep loam.

Cantaloupe, or Muskmelon.—Cantaloupes require the same general treatment as is recommended for cucumbers. At present very few are grown in British Columbia,

but more extensive plantings should be tried in favoured localities. Wherever possible, an attempt should be made to produce a supply for home use.

Celery.—Celery-seed should be sown in the hotbed—in flats, and then planted when about 2 inches high into larger flats. Sometimes the vigour of the plants justifies a second transplanting about three weeks later. About June 1st, when the plants are set in the open, they should be 4 to 5 inches high. Late celery may be secured from seed sown outside and transplanted in July.

As a rule, the plants are set in a shallow trench—they may be set on the level and banked with earth in the fall to blanch.

Celery requires a rich, moist soil. An abundance of well-rotted manure should be worked into the soil before the plants are set.

Celery may be stored in an ordinary cellar or pit. When digging, the roots should be left on and the plants set upright in rows a few inches apart.

Chard.—Chard requires the same general treatment as recommended for beets.

Corn.—Sweet corn should not be planted until danger of frost is over. Early and late varieties planted at the same time will give a succession of fresh corn. A warm, rich, sandy soil gives the best results. Cultivation should start as soon as the hills can be seen.

Cucumbers.—Cucumbers may be secured very early by starting seeds in April in flat boxes like strawberry-boxes, which can be cut off without disturbing the roots when transplanting. This method is almost necessary when the season is very short. Frames with a pane of glass, or even muslin placed on top, may be set over the hills in the fields to force them, if transplanting is undesirable.

Where the seeds are planted in the open ground, seven or more should be placed in each hill, and all but four plants removed when they are well started.

The soil should be rather light, but very rich and well drained. Barnyard manure worked into the soil is beneficial.

Egg-plant.—Give the same treatment as is recommended for the pepper.

Herbs.—The herb-bed is almost a memory of past days. Without it the old-fashioned garden was not complete. All herbs may be grown by sowing the seed in the open ground about May 1st and covering lightly.

Kohlrabi.—Give this vegetable the same treatment as recommended for cabbage, although it is not necessary to start the plants in a hotbed.

Lettuce.—Successional sowings of leaf varieties should be made during the early summer. When head lettuce is grown it may be transplanted to the required distance when the plants are small. A rich, loamy soil containing plenty of moisture is desirable.

Onions.—Before sowing the seed the soil should be thoroughly worked and freed from all trash and clods, and plenty of well-rotted manure applied and worked in.

The plants may be thinned by using the small green onions. The onions allowed to mature should be thinned to about 3 inches. After the tops fall the bulbs should be pulled and allowed to dry. When dry, top and place in a dry frost-proof cellar.

Where one does not care to bother with seed, sets may be used. They require the same treatment as recommended for seed-onions.

Parsley.—Sow in drills in early spring. Single plants may be potted and kept in the house for winter use.

Parsnips.—Parsnips require the same culture as recommended for carrots.

Peas.—Late and early peas sown at the same time give a succession. If plenty of moisture is available they may be sown as late as the middle of June, but the early plantings usually give better results. The dwarf or semi-dwarf varieties are best for the small garden. Heavy applications of manure and constant cultivation are desirable.

Pepper.—Start plants in the hotbed and give same care as recommended for tomatoes.

Potatoes.—For early potatoes, the tubers intended for seed should be placed where they will form small sprouts before being planted. The early crop should be planted shallow, but the main crop seed should be set deeper. Level culture should be practised except on very wet land.

Radish.—Make successive sowings every two weeks from March until June and again in August. This is a good crop to plant on soil to be used later for tomatoes, etc. Plenty of moisture and plant food is necessary.

Rhubarb.—Seeds or crowns may be planted. For the small garden where immediate results are desired, crowns should be planted in the spring. Place them slightly below the level of the ground. Do not allow the stalks the first year. The soil should contain an abundance of manure. It is better to manure each year and dig it in around the plants. Do not place any manure on the bed before planting.

Old rhubarb roots may be forced in several ways. They may be taken up in the fall and placed in earth in a frost-proof cellar, where they will produce a crop of stalks about six weeks later, or a common barrel may be inverted over the root in the garden about March 1st, and banked up well with manure. Roots forced in either manner should be given one year's rest before being forced or pulled from the ground.

Spinach.—This is a vegetable of great value for early spring use. The first sowing should be made as early as the ground can be worked, and every two weeks after as long as the vegetable is desired. Sowings may be made in August for fall use. Rich soil is necessary to produce a rapid tender growth.

Squash.—The same cultural requirements are recommended as for cucumbers, pumpkins, etc. Late or early maturing varieties may be planted, but where the large varieties are allowed to mature for winter use, they should be collected and stored in a dry frost-proof cellar shortly after the last fall frosts.

Tomatoes.—Where only a few dozen plants are needed, it pays to buy them from some one who makes a practice of growing them. They may be started in the usual way recommended for cabbage. When all danger of frost is over, the plants should be set in the open ground.

There are several ways of training the vines. Where a single stem is trained to a stake, all laterals are removed. An excess of nitrogen in the soil will cause too much leaf-growth at the expense of the fruit.

In the fall, when the frosts threaten the plants containing a number of large fruits, the vines may be pulled and placed in piles and covered with straw, and the tomatoes will continue to ripen for some time. In rainy sections it is better to hang the vines in a shed instead of piling.

Turnips.—Turnips, like radishes, should be sown early and at intervals of two weeks to provide a continual supply. Where turnips are wanted for winter use, the seed should not be sown until about July 1st. Store as recommended for other root-crops.

A loamy soil is best, and a constant supply of moisture must be provided, otherwise the turnips will be pitiful and unfit for use.

GARDEN PESTS.

Cutworms are one of the most common and frequent pests found in the vegetable garden. They often appear in great numbers in the spring, and unless great care is taken they may ruin many dollars' worth of vegetables. The most common remedy is the poisoned bran. This is prepared by mixing one part of Paris green with fifty parts of bran, and moistening it with sweetened water. This mixture is spread broadcast over the garden in the evening. Two or more applications may be necessary if the cutworms are numerous.

Aphides or "green-fly" are often troublesome on turnips, cabbage, Brussels sprouts, etc., but can be controlled by spraying the plants with some contact insecticide when they first appear. Black Leaf 40 is one of the best and should be diluted one part to 800 parts water. Apply in a fine spray with force and repeat in a few days if any insects remain.

In most gardens there are many undescribed leaf-eating pests. When these become troublesome, as they often do, a poison spray should be applied. A good spray for this purpose is made by mixing 1 oz. of arsenate of lead with 1½ gallons of water.

For further information on garden pests, see Spray Calendar issued by the Department, or write the Department for assistance.

VARIETY AND PLANTING TABLE FOR THE HOME GARDEN.

The following table is meant for a general guide. The dates will vary with the district and season. The varieties are those recommended by experienced growers, but the list is far from being complete; hence others should be tried also.

Vegetable.	When to sow in Hotbed.	When to sow in Open Ground.	Depth to plant.	Distance between Rows.	Distance between Plants in Row.	Plant in Hills or Drills.	When to transplant to garden.	Quantity of Seed or Plants for Foot of Row.	Variety.
Asparagus (seed)	May 1	1½ inches	2 feet	Hills	April 15	1 oz.	Palmetto, Colossal.	
Asparagus (plants)	2 inches	2 feet	Drills	April 15	1 quart	Palmetto, Colossal.	
Beans (road)	May 1	2 inches	2 feet	Drills	....	1 pint	Golden Wax, White Wax.	
Beans (mush)	May 15	2 inches	2 feet	Drills	....	16 pint	Scarlet Runner, Kentucky Wonder.	
Beans (pole)	May 15	2 inches	2 feet	Drills	....	2 oz.	beetroot Red, Eclipse.	
Beets	April 15	1 inch	1½ feet	Drills	....	50 plants	bulkhead.	
Brussels sprouts (plants)	March 1	....	2 inches	2½ feet	Drills	May 1	14 oz.	Early Jersey Wakefield, Danish Hulthead.
Cabbage (seed)	April 15	¾ inch	2½ feet	Drills	May 1	40 plants	Early Jersey Wakefield, Danish Hulthead.	
Cabbage (plants)	3 inches	2 feet	Drills	May 1	½ oz.	Headed, Escarole Green, Rock's Ford.	
Carrot (seed)	April 10	2 inches	4 feet	Hills	May 25	1 oz.	Early Snowball, Autumn Giant.	
Carrot (root)	March 1	April 15	¾ inch	2½ feet	Drills	May 1	40 plants	Early Snowball, Autumn Giant.	
Carrots (plants)	May 1	3 inches	2½ feet	Drills	May 15	1 oz.	Early Short Horn, Half-long Chantenay.	
Carrots (seed)	1½ inch	1½ feet	Drills	May 15	14 oz.	White Plum, Paris Golden.	
Celery (plants)	March 15	....	2 inches	3 feet	Drills	May 15	200 plants	Lincoln, Lyon.
Chard (Swiss)	1½ inch	12 inches	Close	....	1 pint	Golden Raintau, Country Gentleman.	
Corn	April 1	1½ inch	3 feet	Drills	....	12 oz.	Early White Stone, Artington, Improved Long Green.	
Cucumber	May 15	2 inches	4 feet	Drills	....	14 oz.	White Vienna, Purple Vienna.	
Kohlrabi	April 15	1 inch	1½ feet	Drills	May 1	12 oz.	Grand Rapids, Gem, Brunnehead. All do well.	
Lettuce	April 15	½ inch	12 inches	Close	....	1 oz.	Early Isabella, Yellow Danvers, Australian Brown.	
Onion (seed)	April 15	½ inch	1½ feet	Drills	....	1 oz.	Dutch, Willets, Shallots.	
Parsley	April 1	½ inch	1½ feet	Drills	....	1 oz.	Moss Curled.	
Parsnips	April 15	3 inches	1½ feet	Drills	....	1 oz.	Gurnsey, Half-long, Hollow Crown.	
Pens	April 15	2 inches	1½ feet	Drills	....	1 quart	American Wonder, Alaska, Telephone.	
Pepper (plants)	2 inches	2½ feet	Drills	May 25	50 plants	Ruby King, Bull Nose.	
Potatoes	May 1	2 inches	16 inches	Hills	....	8 pounds	Early Rose, Early Ohio, Gold Cohn, Carnation No. 1, Up-to-date.	
Pumpkin	May 15	1½ inches	3 feet	Hills	....	½ oz.	Small Sugar, Winter Queen.	
Radish	Feb. 20	March 20	½ inch	4 feet	Drills	....	1 oz.	Early Scarlet Turnip, French Breakfast. All do well.
Rhubarb (plants)	3 inches	12 inches	Drills	April 15	25 plants	Mayatt's Lianatus, Victoria.	
Splinach	Feb. 20	½ inch	12 inches	Close	April 15	1 oz.	Victoria.	
Squash	May 15	½ inch	4 feet	Drills	....	1 oz.	Garden Bush, Golden Hubbard, Green Hubbard.	
Tomato (seed)	3 inches	3 feet	Drills	May 25	1 oz.	Eddle, Rarus, Heavy Heat.	
Tomato (plants)	March 20	1 inch	3 inches	Drills	May 25	35 plants	Earliest, Heavy Heat.	
Turritis	1½ feet	1½ feet	Drills	....	½ oz.	Early Snowball, White Milan, Purple Top Strap Leaf.	



