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THE HOME VEGETABLE GARDEN

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Relation of Vegetables to the National Food Crisis

Vegetables are particularly valuable food products at this critical time in the history of the Nation. If "food will win the war," then vegetables will play an important part in the winning. This fact is becoming more apparent to the American people as they have awakened to the worth of vegetables through a realization of several important facts regarding their use. They realize, first, that by direct use of the garden through the growing season, and by means of canning, drying, pickling, and storage for the other seasons, vegetables may be made available for food the year round; second, that vegetables are a highly healthful and nutritious food; third, that by judicious selection, many a balanced meal may consist chiefly of vegetables; fourth, that by a liberal use of vegetables, families may reduce the necessity of buying the more expensive foods, such as flour, meat, and fats, thus releasing many of these for war purposes.

This publication deals briefly with important factors in the vegetable garden that are of special concern at this time. Other pamphlets will be issued later at opportune times, covering important phases of vegetable-growing work.

Causes of Unsuccessful "War Gardens"

In the spring of 1917 there was a vigorous drive to increase the planting of vegetables on areas adjacent to city homes. Vacant lots were also utilized. These emergency plantings have been styled "war gardens." The enthusiasm prevailing prompted many to plant gardens irrespective of a consideration of necessary factors concerned in the success of any garden. Many so-called "war gardens" were highly successful, while many others were partial, and some total, failures. The failures may be attributed to any or all of the following reasons:

1. **Lack of experience in vegetable growing.** Many people planted through sheer patriotism and a desire to help the cause. A year's effort will have been extremely valuable in its teaching.

2. **Unfavorable Weather Condition.** The peculiarity of the spring weather prevented many garden soils from being properly prepared; then, following the rainy season, the warm dry spell made growing conditions generally unfavorable. Where water was available, however, these conditions were largely under the control of the grower.

3. **Hasty planning of operations.** Many vegetable gardens were planted with but little forethought, and the work was hurried in an attempt to get started. In many cases, therefore, the results were unsatisfactory.

4. **Improper choice of ground, or, where there was no possible choice, lack of thorough soil preparation previous to planting.** This was undoubtedly a factor of considerable importance, to which in many instances but little attention was paid. Scarcity of teams and men in the spring made it impossible in many cases for best work to be done in preparing the soil. Some areas of land were taken for a vegetable garden with but little consideration as to their suitability for successful vegetable growing. Some gardens were failures because of the influence of large trees near the garden ground, their roots extending out over this area and their leaves casting shade over the plants. Other characteristics of soil conditions are named below.

5. **Incorrect methods of handling sod land and fitting it for planting.** Sod in many cases was plowed up before being disked and thus lay intact under the top stratum of soil. Where the disk did not reach it, it acted as a barrier to proper soil capillarity, preventing shallow-rooted vegetables from obtaining necessary moisture. It is advisable, therefore, to disk sod land first, and then plow it under and later disk it again.

6. **Lack of fertilizer added to the soil.** Many soils were used for vegetable growing in which the natural fertility of the land was depended upon to produce good crops. The results in some cases were very disappointing. Gardeners will make no mistakes in adding fertilizers to the soil, using preferably well composted manure, disked or lightly plowed into the soil. Vegetables require an unusual amount of available nitrogen, and invariably thrive best in a soil in which there is an abundance of humus.

7. **Inferior seed strains bought, giving a meager stand.** Many gardens began to be partial failures when the seed which was planted produced a meager stand of plants in the row, the plants themselves also lacking vigor. This condition can largely be remedied by more careful seed buying, and an effort on the part of the gardener to get the best possible seed strains of the different varieties of vegetables which are to be planted.

8. **Incorrect methods of seeding, particularly in regard to depth and thickness of planting as well as time of sowing.** With inexperienced gardeners it is not to be wondered at that errors were made in planting. By carefully following directions laid down in pamphlets, which can be obtained gratis, there is but little need for mistakes along this line. Seeding or transplanting should not be done hurriedly. This is a feature of gardening that necessitates care and uniform work. It is better to extend the planting season over a longer period of time and do it well, than to do it hastily and irregularly. The best seed strains will give but inferior results unless they are properly planted.

9. **Ravages of Insects.** An inexpensive spray outfit is almost a necessity in the control of insects, which yearly infest the garden. The damage done by these insects varies from slight injury to total ruin In any case the toll is very large, and in preventing waste of time, labor, and money in soil preparation, and in seed buying and planting, control

measures for insects must be used. Simple directions can be obtained from the department of Entomology through the medium of the College Extension Service. Bulletin 856 concerning insect control may also be obtained free from the U. S. Department of Agriculture at Washington, D. C.

The Vegetable Seed Shortage

There is an unusually low supply of vegetable seed stocks on hand for the planting season of 1918. This condition is due to a number of reasons. First, the past season was most unfavorable for seed growing and maturing. It is agreed, in fact, that in many cases the shortest seed crops on record were harvested. Second, importations of foreign stock have been reduced to a minimum, as, for instance, Holland spinach seed, due to the embargo. Third, last year's stocks were much depleted due to the tremendous buying for planting of home gardens. A great deal of stock was undoubtedly wasted through excessive buying by home gardeners for small areas. This factor in home vegetable gardening must be particularly avoided this season by reason of the seed shortage. Seed estimates can be approximately determined by planning the garden; and seed economy can be secured by buying only sufficient seed to suit the plan.

As a result of the reasons stated above, seed prices are going to be considerably in excess of those of 1917. This fact, therefore, makes it imperative that seed be purchased and planted with discretion this spring. One should consider: First, a careful estimate of needs for the area to be planted, eliminating as far as possible unnecessary stock to be left over unused; second, buying good strains from reliable seed houses having a reputable standing; third, best preparation of the soil possible so that seed may find suitable conditions for highest germination; fourth, seeding at the proper time, with a view to preventing loss through seed rotting; fifth, thinner seeding in the rows, or more care exercised in seeding, so that seedling plants do not have to be thrown away in large numbers by thinning.

Left-Over Vegetable Seed Stocks

Stocks of vegetable seed that have been left over from last year or the year before, should not be discarded, but may in some instances be planted with the assurance that they will produce a satisfactory crop in 1918. The vitality of these seeds depends upon the individuality of the vegetable, as there is quite a difference in the ability of the various seeds to retain their vitality. The following data show the number of years vegetable seeds, when kept under proper conditions, will retain their vitality and as a rule germinate satisfactorily.

Beets, cabbage, cauliflower, rutabagas, turnips, and crops of similar relationship, are long lived and may be at least four or five years old. Spinach, however, will not give as good results when kept over the second or third year. Tomatoes, peppers, and egg plant are usually good for at least three years; squash and pumpkins, five to eight years; beans and sweet corn, three years; peas and lettuce, three years. On the other hand, seed for onions, parsnips, carrots, and parsley should usually be fresh, although in some cases it is possible to get a satisfactory stand of plants of these vegetables from seed that is two years old. Onion seed will ordinarily not germinate more than 50 to 60 percent the second year, while the same would also be true of parsnips.

There are two methods that may be used by the gardener to assist in knowing the value of the old seed stock: First, a simple germination test may be made, consisting of enclosing a certain number of seeds between two moist layers of cloth or blotting paper; or, second, a simple soil test in a box of soil may be made in which the seed may be sown, covering it one quarter of an inch and keeping it in good light and in a temperature of 65 to 70 degrees. The average germination of most first-class vegetable seed will be about 75 to 85 percent. Thicker planting should be made in the garden rows if old seed is used. In this way there will be less trouble in obtaining a uniform stand of plants in the row.

Purchasing of Seed. In view of the fact that the plan of individual gardens differs so widely, the amount of seed necessary to be purchased will vary in proportion to the space devoted to each vegetable. Hence the following table is arranged for a 100-feet row; from this as a standard amounts to be purchased may be deduced accordingly. The packet is the smallest amount of seed that can be bought.

Vegetable	Horticultural Variety.	Seed for 100-feet row.
Beans, snap		
Wax	Davis Wax, Kidney Wax	1 lb.
Green	Refugee, Stringless Green Pod	1 lb.
Pole	Lazy Wife, Kentucky Wonder, Dickenson's Yount	1 pint
Lima	Oregon Pole Lima	1 lb.
Beets	Early Model, Detroit Dark Red	2 oz.
Broccoli	St. Valentine	1 pkt.
Brussels sprouts	Perfection	1 pkt.
Cabbage	Early Jersey Wakefield, Copenhagen Market, Glory, All Seasons, Danish Ball Head, Giant Green Savoy	1 pkt.
Carrot	Chantenay	½-1 oz.
Cauliflower	Snowball, Danish Giant Dry Weather, Autumn Giant	1 pkt.
Celery	Golden Self-Blanching	¼ oz.
Chard, Swiss	Lucullus	2 oz.
Corn, sweet	Portland Market, Golden Bantam, Howling Mob	1 pint
Chinese cabbage	Wong Bok	½ oz.
Cucumber	Davis Perfect, Boston Pickling	½ oz.
Eggplant	Black Beauty	½ oz.
Kale	Dwarf Scotch Curled	1 pkt.
Kohl-rabi	White Vienna	1 pkt.
Lettuce, head	Spring and Fall—May King, Big Boston, New York; Summer—Hanson, Iceberg	½ oz.
Mustard	Fordhook Fancy	½ oz.
Onion seed	Yellow Globe Danvers, Australian Brown	1 oz.
Onion sets	Yellow Globe Danvers, Australian Brown	2 lbs.
Parsley	Dwarf Moss Curled	1 pkt.
Parsnip	Hollow Crown	½-1 oz.
Peas	Early Morn, Laxtonian, Telephone	1-1½ lbs.
Peppers	Chinese Giant, Neapolitan	1 pkt.
Pumpkin	Winter Luxury	½-1 oz.
Radish	Scarlet Globe, Hailstone, White Icicle	1 oz.
Salsify	Mammoth Sandwich Island	1 oz.
Spinach	Victoria, Longstanding	1 oz.
Squash	Summer—Crookneck; Winter—Delicious	½-1 oz.
Tomato	Bonny Best, Jewel, Perfection, Stone	1 pkt.
Turnip	White Egg, White Milan, Yellow Globe	½ oz.

SUGGESTIVE PLANTING PLAN FOR THE VEGETABLE GARDEN

Dimensions 40′x50′. **May be modified to suit individual conditions**

Row Number.	Distance between rows. Inches.	CROPS PLANTED Showing date of seeding or plant setting.	Note: — — — signifies "followed by"
1		Peas 3/10-25 — — — Fall Cabbage 6/10-20	
2	24	Peas 3/10-4/1 — — — Fall Cauliflower 6/10-25	
3	24	Spinach or Swiss Chard 3/10-25 — — — Late Carrots 6/1-20	
4	12	Green onions (from sets) 3/10-25 — — — Late Beets 6/1-20	
5	12	Turnips or Kohl-rabi 4/1-10 — — — Head Lettuce 6/1-10 Radishes 4/1-10	
6	24	Early Cabbage (Head Lettuce plants between) 3/25-4/10 -- -- -- Celery or Broccoli 7/1-12	
7	24	Peas 4/10-25 — — — Brussels Sprouts and Scotch Kale 7/1-20	
8	30	Peas 4/15-5/1 — — — Winter Cabbage 7/10-25	
9	30	Early Beets 4/10-25 — — — Late Snap Beans 7/15	
10	18	Early Carrots 4/10-25 — — — Late Snap Beans 7/20-30	
11	18	Head Lettuce 4/20-5/1 — — — Lettuce seeded at intervals	
12	18	Dry Onions 4/25	
13	24	Parsnips 4/25-5/10 (Radish to mark the rows)	
14	20	Salsify 4/25-5/10	
15	24-30	Snap Beans 5/1-10 — — — Fall Turnips 8/10-9/1	
16	24-30	Snap Beans 5/15-25	
17	30	Dry Beans 5/10-20	
18	36	Tomatoes 5/15-30	
19	36	Peppers 6/1-10 Eggplant 6/1-10	
20	36	Lima Beans 5/15-25	

Sweet Corn 4/30-6/25

Cucumbers 5/15-25

Note 1. No space is here allowed for frame area, nor for potatoes or squash.
2. Herbs such as mint. sage, parsley, etc., can be planted in some undisturbed place.
3. Additional rows of certain vegetables, such as dry beans, may be substituted for vegetables not desired, possibly eggplant or peppers.
4. Area from row 16 to end of Sweet Corn block may be cover-cropped at end of season.
5. In row 6, head lettuce plants are set between early cabbage in the row.
6. If no equipment, such as frames, is available for growing seedlings of early cabbage, lettuce. tomatoes, peppers, etc., these may be secured directly from a grower, or from a reliable plant-dealing establishment.
7. Plants for late crops, such as cabbage, broccoli, cauliflower, kale, etc., can be home grown in an outdoor seed bed, or bought.
8. All dates following names of vegetables are subject to change under seasonal conditions. and various locations and elevations in the State. The dates stated represent average planting times for the Willamette Valley.

The accompanying planting plan is based on actual practice in keeping the ground occupied and in providing a proportionate amount of vegetables needed by the average family. It must of necessity be modified, however, to suit the wide variation of garden areas, the difference in the kind of crops desired, and seasonal conditions.

Some definite features, however, should be emphasized.

First, the early spring plantings are grouped according to time of planting; thus the first vegetable work can be done on that part of the land that has been fall prepared for early spring seeding or transplanting. Many of these early crops require only a short growing season and therefore may be followed by later vegetables.

Second, as the season advances, the second definite plantings are made, beginning with the crops that are not usually started until after the first or the middle of April.

Third, later in the season, the early-maturing crops in Block 1 of the garden are gradually maturing, permitting a succession of fall and winter crops such as cabbage, cauliflower, Brussels sprouts, kale, broccoli, and celery.

Fourth, crops requiring the whole season, such as onions, parsnips and salsify, are grouped for convenience.

Fifth, provision is made for successive seedings of lettuce and radishes, important all-year vegetables.

Sixth, extra plantings of crops for canning may be made, such as peas, beans, tomatoes, and corn.

Seventh, the sweet corn area should preferably be blocked out, to afford superior pollination.

Eighth, the above plan does not consider the planting of potatoes or vine crops which take an excessive amount of room.

Horticultural Varieties of Vegetables. In choosing varieties of vegetables one should consider as important factors quality, season of maturity, and particular adaptation to weather conditions. The best seed strains of standard varieties should be used rather than varieties of comparatively unknown reputation. While the following list might be modified or enlarged, the varieties given represent standard sorts that have proved their worth.

Preparation of Land for Planting

Having as far as possible purchased reliable seed stock, 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, and 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 harrowing or raking it well.

In home gardens in 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. For the vegetable garden, these heavier types of Oregon soils are best fall plowed. They will then require less work

and are in proper physical condition to make a better seed bed. It will usually be necessary to spend considerable time in pulverizing them in order to get them fine. Too often the gardener leaves until spring all of the plowing or spading, which may then have to be rushed through in a somewhat inefficient manner. Hurrying the work in the spring is often responsible for soils being plowed or spaded when too wet. This condition can never be corrected later by summer cultivation. Soils of a lighter character can be well prepared by spring working. In any event, the plow or spade should be followed, when the soil moisture is right, by a thorough disking, harrowing, and pulverizing in order to have a smooth, fine surface for seeding or transplanting.

Fertilizers

Few garden areas will produce maximum yields without being previously fertilized. Vegetables must grow rapidly to be of the best quality, so that the soil must not only be in good physical condition but it must also contain plenty of available plant food. The most satisfactory fertilizer from all standpoints is well rotted horse or cow manure. If the manure has been well composted, then the weed seeds therein contained will have been rotted, and in all probability injurious insects will have been destroyed.

In the spring application of manure, care will have to be taken that the manure be thoroughly incorporated with the soil. It should not be turned under the ground too deep, where shallow-rooted vegetables would not reach it and where quite a large amount of the value of the manure would be lost through leaching. It is best, if possible, to cut up the manure and disk it into the soil, or lightly plow it under, followed by thorough disking.

It can readily be seen that the manure must be well rotted and fine to be satisfactorily handled in this manner. There is considerable danger of using long, strawy manure, which will sometimes have an injurious effect on the soil by acting as a barrier to proper capillarity of moisture.

Poultry manure is valuable for garden crops such as cabbage, cauliflower, onions, celery, etc., but it is highly concentrated and will readily burn. It should be mixed with three or four times its bulk of soil in the form of a compost pile, or spread very thinly over the ground when the soil is being spring harrowed. It may also be applied, like commercial fertilizer, in small diluted portions around plants.

Hardwood ashes that are unleached are valuable for applying to the ground in the spring, since they contain considerable lime and some available potash. They should not be used too freely, however, as the soil may be made alkaline and rendered almost worthless. When the ground is being harrowed down in the spring, forty to fifty pounds to the square rod should be spread broadcast and worked in.

Lime may or may not give beneficial results, depending upon the acidity of the soil. It will serve, in any event, only as an indirect fertilizer, and should be applied at the rate of twenty to twenty-five pounds of ground limestone to the square rod.

In some instances it may be difficult to obtain manure, in which case the vegetable crops may be considerably helped by the application of some commercial fertilizer. A general fertilizer containing 3 percent

nitrogen, 7 to 8 percent phosphoric acid, and 2 to 3 percent potash may be profitably broadcasted over the garden area in the spring at the rate of six to eight pounds to the square rod. This should be lightly harrowed into the soil. Nitrate of soda is a valuable stimulant for all vegetables and is particularly useful for lettuce, cabbage, cauliflower, onions, celery, and plants grown for their leafy parts. The normal application of this fertilizer is at the rate of about one pound to the square rod. In a good many cases, however, it is more economical to apply the nitrate directly to the hills or individual plants in the row, using from one-half to one ounce to each plant. No nitrate should be allowed to stand on the leaves of the plants, as burning will result. Special directions for applying fertilizer to certain crops are contained in a separate pamphlet issued by the department of Vegetable Gardening.

Publications on Vegetable Gardening

To be had without cost

Farmers' Bulletins obtainable gratis from the U. S. Dept. of Agri., Washington, D. C.

Asparagus—869
Beans—289
Cabbage—433
Celery—282
Control of Insects and Diseases in the Home Vegetable Garden—856
Onion Culture—354
Home Production of Onion Seeds and Sets—434
Home Storage of Vegetables—879
Saving Vegetable Seeds for the Home and the Market Garden—884
Sweet Potato Culture—324
The Small Vegetable Garden—818

Publications obtainable gratis from the Oregon Agricultural College, Corvallis.

Bulletins

Insect Pests of Truck Crops—College 100

Pamphlets

Asparagus Culture
Broccoli Growing and Marketing
Production and Marketing of Late Cabbage
Celery Growing and Marketing
Cucumbers under Glass
Fertilizers for Truck Crops
Fertilizer Tests on Onion Land
Garlic Production and Marketing
Hot Beds and Cold Frames in Vegetable Growing
Horse Radish Culture
The Production and Marketing of Dry Onions
The Growing and Marketing of Onion Sets
Rhubarb
The Production and Marketing of Early Tomatoes
Celery Diseases
Onion Diseases
Tomato Diseases
Bean and Pea Weevil
Wireworm Control
Spraying for Plant Lice