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THE HOME VEGETABLE GARDEN

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INTRODUCTION*

The home garden should be planned with a view to furnishing a large assortment and continuous supply of vegetables thru the entire season. Its size will depend primarily upon the amount of land available. On the farm, where any amount of land the owner desires can be reserved for a garden, vegetables to be stored for winter as well as the summer supply, should be grown. On the village lot, space may be insufficient to grow more than the summer's supply, and it may also be necessary to leave out certain vegetables that require a large amount of space. On a city lot, the space available for growing vegetables is necessarily small, and plantings must usually be confined to those vegetables which produce a large amount of edible product for the space occupied.

Whether the garden is on the farm, in the village, or on the city lot, the principles governing its planting and care are the same altho the distances of planting, methods of tillage, and intensity of cropping may differ widely. On the farm, the saving of labor is more important than the saving of space; even the small vegetables are planted in long rows rather than in beds; and horse power is substituted for hand power wherever possible. In the village and the city, the vegetables must usually be planted as closely as the nature of their growth will permit, and hand tillage employed almost exclusively.

Much loss of time in planting a garden can be avoided by making a definite plan of the garden several weeks or even months before the planting is to begin. After measuring the area to be used for the garden, the next step is to decide what vegetables are to be grown. If space is ample, this will be determined primarily by the personal tastes of the gardener and his family. However, if only a limited amount of time and attention can be given the garden, it may be wise not to undertake the growing of some of the more exacting crops. What-

*Various parts of the material contained in this publication have been presented in public addresses within the past year, and the section on "Temperature and Moisture Requirements of Different Vegetables" was published in the February number of the Illinois Agriculturist. The entire matter is now brought together, in the hope that it may be helpful to those who are trying to supply their tables with fresh vegetables of their own growing.
ever the space to be devoted to gardening, the crops to be grown should be decided upon long before the time of planting.

In planning the garden, it is well to arrange the vegetables in the order in which they are to be planted. This facilitates the preparation of the land for planting, and makes it possible to maintain the unplanted portion in a good friable condition with the least expenditure of labor. In order that the vegetables may be so arranged, it is necessary to know the proper time for planting each crop. This depends primarily upon the temperature and moisture requirements of the particular crop in question.

TEMPERATURE AND MOISTURE REQUIREMENTS OF DIFFERENT VEGETABLES

The vegetables grown in our gardens are native to many different countries, differing widely in climatic conditions. Each kind of vegetable has its own peculiarities and thrives best under certain conditions of soil and climate. When an attempt is made to grow many sorts in the same garden under the same conditions, it is not surprising that difficulties arise, and that some thrive better than others. Many of the difficulties can be overcome, however, by adjusting the time of planting each crop to meet its temperature and moisture requirements as fully as possible. Failures in gardening often result from planting some crops too early and others too late. Each should be planted at the season most favorable to its development.

Vegetables are usually classified as "hardy" and "tender". This classification is based upon the fact that certain vegetables will endure the ordinary frosts of spring without injury, while others would be killed if subjected to the same temperatures. This classification implies that danger of frost injury is the chief distinction between the two classes of vegetables, and that while the "hardy" vegetables can safely be planted "before danger of frost is over," there would be no objection to planting them after that time, and that danger of death from frost is the only reason for late planting of the tender vegetables. As a matter of fact many of the so-called hardy vegetables would be as utterly ruined by the heat and drought of summer as are the tender vegetables by the light frosts of spring. They demand cool weather, and without it will not produce an edible product. Furthermore, the danger of death from frost is not the only reason the so-called tender vegetables should not be planted early. The cool weather normal to that season of the year, though killing frost occurred,
would preclude the proper growth and development of the crops in question, for they thrive only in warm weather. A more satisfactory wording for this classification of crops would therefore be "cool season" and "warm season" crops, for these terms suggest the conditions under which the crops must be grown to develop satisfactorily, rather than merely designating their susceptibility to, or immunity from, frost injury.

While vegetables in general may be classified as cool season and warm season crops, the different vegetables in each of these classes do not all thrive equally well under the same conditions of temperature and moisture. Altho all the cool season crops will germinate and grow at a relatively low temperature, and demand comparatively cool weather for their highest development, some will endure and even demand, lower temperature than others. The converse also is true: some will endure much higher temperature than others.

**COOL SEASON CROPS**

From a cultural standpoint, the cool season crops may be divided into three general groups. (1) The first group is composed of short season crops which cannot endure the heat of summer, but which can safely be planted in the open ground sufficiently early to attain full development before the normal season for hot weather. The following vegetables belong to this group: garden cress, kohlrabi, leaf lettuce, mustard, peas, radishes, spinach, turnips. Of these crops, cress, lettuce, mustard, and spinach will stand slightly lower temperature in the seedling stage than the other crops mentioned. However, in practice they are usually all planted "as soon as the ground can be worked in spring" or at the ideal time for seeding oats. Additional plantings of lettuce, radishes and peas can be made somewhat later for the sake of securing a succession, since radishes and lettuce grow quickly, and peas can stand a slightly higher temperature than most of the other crops of the group. Any later plantings of cress, mustard, spinach, or early turnips are usually overtaken by such high temperature that the products are of little value, so that it is usually unwise to plant these crops any later than the very opening of spring.

All the crops of the above group require an abundant supply of moisture throughout their entire period of growth, and this is normally provided by the copious rains characteristic of the spring months.

Some of these crops can also be grown in the autumn if there
is sufficient rainfall to supply the needed moisture. Turnips, radishes, lettuce and spinach are the crops best adapted to this purpose.

(2) The second group of cool season crops consists of those which cannot endure excessive heat, and which at the same time have so long a period of growth that it is impossible for them to complete their development before the normal season of hot weather, if the seed is planted in the open ground even as early as it is possible to work the soil. Such crops are early cabbage, early cauliflower and head lettuce. The only way that these crops can be grown with any assurance of success, especially in the southern part of the state, is to start the plants under glass and have them ready for transplanting as early as the weather will permit. This will be about the time the second planting of radishes and peas is made.

Another crop having temperature requirements similar to those of cabbage and cauliflower is celery; but this crop requires so long a season that it is impossible to grow it as a spring planted crop except in northern localities, where the summers are relatively cool. Together with late cabbage and cauliflower, it can be grown as a summer planted crop designed to make its principal growth during the cool, moist weather following the autumn rains. The success of these three vegetables as autumn crops in Illinois depends primarily upon the temperature and rainfall during July, August and September. Cool, wet seasons favor their development. In hot dry years they may fail utterly. As commercial crops, they reach their highest development only in relatively cool climates.

(3) The third group of cool season crops consists of relatively long season crops, demanding cool moist weather during the earlier stages of their development, but capable of enduring considerable heat and even drought after becoming fully established. This group includes beets, carrots, chard, kale, leeks, onions, parsley, parsnips, early potatoes, salsify, upland cress, and New Zealand spinach. It also includes the perennial crops asparagus, and rhubarb. All of these crops should be planted relatively early, tho extremely early planting is more important with some than others and is especially imperative in the case of onions. In actual practice, all the vegetables in this group, together with those of Group 1, may be planted as soon as the ground can be worked in the spring. If, however, the early planting is followed by unusually cold, wet weather, replanting of the beets, carrots, chard, and parsnips may become necessary, for these crops do
not germinate readily at as low temperatures as onions or kale, nor will the seedlings survive so severe a frost.

The vegetables in this group are exceedingly satisfactory to grow, for they have an extremely long period of edibility, relatively few enemies, practical immunity from injury by heat or cold, excessive rain or drought, and are practically certain to yield an edible product, even under somewhat trying conditions.

**Warm Season Crops**

The warm season crops fall naturally into two groups. (1) The first group includes those with a sufficiently short period of growth to enable them to perfect their product during the normal season of weather favorable to their development. Such crops can be planted in the open ground after the weather has become sufficiently warm in spring, and will complete their growth and mature their crop before the plants are killed by the frosts of autumn. This group includes string beans, Lima beans, sweet corn, cucumbers, gherkins, muskmelons, watermelons, okra, squashes and pumpkins. Of these crops, string beans and sweet corn will germinate at a lower temperature, and hence can be planted earlier, than the Lima beans and the vine crops. All the crops in this group demand warm weather, but some of them will suffer if the weather is excessively hot and dry. Those most resistant to drought are gherkins, watermelons and okra; and these crops are especially adapted to southern localities. Cucumbers demand more moisture than any of the other crops in this group, and if possible they should be planted in a depression where the soil will be moist.

(2) The second group of warm season crops consists of those having so long a period of growth that they are unable to mature a full crop unless started under glass considerably in advance of the normal season for weather suited to their growth in the open. This group includes eggplants, peppers, sweet potatoes and tomatoes. Of these, eggplants and sweet potatoes demand a higher temperature than tomatoes and peppers, and under normal seasonal conditions should not be transplanted to the open ground until two or three weeks after the ideal time for setting tomatoes. This would mean that in central Illinois, eggplants and sweet potatoes should remain in the hotbed until about the first of June, while tomatoes and peppers could safely be planted from the tenth to fifteenth of May. Eggplants and sweet potatoes are especially suited to growing in localities subject to severe drought, for after these plants have once become well established, their
demands for moisture are not great, and the more intense the heat, the better they grow.

The wide differences in the temperature and moisture requirements of the various vegetable crops, as above outlined, explain why some crops thrive much better some seasons than others, in the same locality, and also why certain crops are most extensively grown in certain localities. However, careful attention to the time of planting each crop, in view of its particular temperature and moisture requirements, will enable the gardener to grow to perfection a much larger assortment of vegetables in the same garden than could possibly be done without consideration of the specific requirements of each particular crop.

THE FARMER'S VEGETABLE GARDEN

The most distinctive feature of the garden on the farm should be the reduction of hand labor to a minimum. In planting the garden, therefore, it should be laid out in long rows, sufficiently far apart to permit the use of a horse and cultivator in tending the crops. Time and confusion will also be saved if the vegetables are grouped according to their cultural requirements, and the number of plantings made as small as is consistent with the demands of the various crops. Each group of crops may then be planted and tended as one crop, and the garden operations thus greatly simplified. When more than one planting of a given crop is desired for the sake of securing a succession, the second planting may be put in at the same time that other crops are being planted, so that even in this case, the number of plantings need not be multiplied. The use of two or more varieties of the same vegetable, differing in their time of maturity, will also aid in keeping down the number of different plantings.

THE PLAN OF THE GARDEN

The exact plan of the garden will depend upon the personal tastes of the owner, and will be different for each individual; but in any case, much loss of time in planting will be avoided if a definite plan is made before the planting season arrives. The accompanying plan is presented merely as a suggestion, and illustrates one possible arrangement of a farmer's garden planned with a view to securing a large assortment and continuous supply of vegetables, and at the same time simplifying the planting and minimizing the labor of tillage. The area designated comprises nearly one-half acre, but smaller or larger gardens could be arranged in much the same way. Except where noted, the rows are three feet apart.
Fig. 1. Diagram of a Farmer's Vegetable Garden 90 by 200 Feet.
The planting of the garden here illustrated would be as follows:—

First planting, about April 1:—
Row 1.—Perennials; ½ row asparagus; ½ row rhubarb; ½ row perennial onions.
Row 2.—½ row parsley; ½ row carrots; ½ row parsnips. (Marked with turnip radishes.)
Row 3.—Onions (yellow).
Row 4.—½ row early beets; ½ row onions (white). (Marked with long radishes.)
Row 5.—½ row lettuce; ½ row onion sets; ½ row turnips; ½ row spinach. (Followed by celery planted July 1.)
Row 6.—Peas: ½ row extra early smooth; ½ row early dwarf wrinkled. (Followed by string beans planted July 1.)
Rows 7, 8, and 9.—Early potatoes. (Followed by turnips sown August 1.)

Second planting, about April 20:—
Row 10.—Peas: ½ row early dwarf wrinkled; ½ row late wrinkled.
Row 11.—½ row early cabbage (30 plants 2 feet apart); ½ row cauliflower; ½ row lettuce; ½ row beets (marked with long radishes).
Rows 12, 13, 14, 15, and 16.—Lima beans; ½ row string beans; ½ row peppers (30 plants). ½ row string beans; ½ row peppers (30 plants). (4 feet from row 14.)
Row 15.—Late cabbage (seed sown).
Row 16.—Sweet corn: ½ row extra early; ½ row second early.
Row 17.—Sweet corn: two late varieties.
Rows 19, 20, 21, and 22.—Vine crops in hills 6 x 6 feet, in blocks crosswise the four rows, as follows: 40 hills cucumbers; 12 hills summer squash; 28 hills winter squash; 40 hills watermelons; 40 hills muskmelons.

Third planting, about May 1:—
Row 12.—½ row summer cabbage (transplanted); ½ row of same (seed sown); ½ row string beans.
Row 13.—Sweet corn: ½ row extra early; ½ row second early.

Fourth planting, about May 15:—
Row 14.—Tomatoes (60 plants 4 feet apart). (4 feet from row 13.)
Row 15.—½ row Lima beans; ½ row string beans; ½ row peppers (30 plants). (4 feet from row 14.)
Row 16.—Late cabbage (seed sown).
Row 17.—Sweet corn: ½ row extra early; ½ row second early.
Row 18.—Sweet corn: two late varieties.

Fifth planting, about June 1:—
Row 23.—Sweet potatoes (6 feet from row 22).

It will be observed that the vegetables are arranged strictly in the order of their planting, so that planting may begin at one side of the garden and proceed across the area as the season advances. This makes it possible to easily fit a piece of land for planting or to harrow the unplanted portion at any time desired and thus keep it free from weeds and in a moist, friable condition. Another feature of this plan is that while two or three kinds of vegetables may be planted in the same row, all the crops in a given row require essentially the same kind and amount of tillage and other care. It is also true that the crops occupying the land about the same length of time are planted together. After the early maturing crops are harvested, it is therefore possible to clear quite a wide strip of land for the planting of turnips and other late crops, if desired.

While this plan specifies five different times of planting, be-
sides the celery, late beans and turnips, it is possible in some seasons to combine the second and third plantings, so that if celery and sweet potatoes are omitted, there will be only three plantings besides the turnips or other incidental late crops. This simplifies the planting and better adapts the garden to the tastes of the average farmer.

PREPARATIONS FOR PLANTING

The arrangement of the garden as to length of rows and time of planting, is not the only labor saving feature that should characterize the typical farmer's garden. Field methods should be practiced in preparing the land for planting, and as much preliminary work done in the fall as is possible, for the sake of both securing an early garden and reducing the amount of labor in spring. After the land is cleared of refuse from preceding crops, it should be heavily manured, and plowed in the fall. The amount of manure to be applied will depend somewhat upon the fertility of the land, but more largely upon the trueness of the farmer's conception of the plant food requirements of garden crops. The best gardens are possible only where plant food is supplied much more liberally than is considered ample for field crops. Forty tons of manure per acre is a very moderate application for garden crops, and this amount should be applied annually, even on soils already rich, if maximum crops of vegetables are to be grown.

The plowing under of manure in the fall hastens the drying out of the soil in the spring, so that planting may begin earlier than if the manuring and plowing were deferred until spring. This is both because the soil actually dries out earlier, and also because no time is lost in manuring or plowing after the soil has reached workable condition. It often happens that early in the spring when the cool season crops should be planted, the soil remains in ideal condition for working only a brief period, and then becomes so thoroughly wet by copious rains that further garden work is precluded for two or three weeks. If the manuring and plowing have been done in the fall, it is often possible to plant the early vegetables in the brief period during which the soil is fit to work, while otherwise this entire period might be expended in making preparations, and the actual planting necessarily deferred until the next time the soil was dry. Since the success of many of the early crops depends upon early planting, the wisdom of fall preparation is apparent.

If the land has been manured and plowed in the fall, and is
worked at the proper time in spring, very little labor is necessary
in the preparation of a seed-bed for the early planting. Soil con-
taining sufficient humus to grow vegetable crops advantageously,

FIG. 2. PLANKER

can be fitted for planting without the use of hand tools, if the
precaution is taken to work it at the exact time it reaches the
right degree of dryness. It will then crumble readily, and a seed-
bed can be prepared by the use of a disk, harrow, and planker.
The use of these tools saves an enormous amount of labor, and
is a vast improvement over the old method of using a hoe and
rake.

PLANTING

The actual planting of the garden is a simple matter, pro-
vided a definite plan has previously been made, so that no time is

FIG. 3. SLED MARKER
lost in deciding which vegetable to plant first, where to plant it, or how much to plant. In the home garden, only a small amount of seed of each kind is planted, so that a seed drill cannot be used to advantage, and the planting is therefore almost invariably done by hand. For the small vegetables, sown in drills, the planting involves four distinct operations: (1) making the drills, (2) dropping the seed, (3) covering, and (4) firming. The most rapid way of making the drills in a garden to be planted in long rows is to use a marker that makes three or four drills each time it is drawn across the area to be planted. With a medium weight marker, and the soil in proper condition for planting, the marks will be of the proper depth for planting seeds of any of the smaller vegetables usually sown in drills. For peas or beans a deeper drill may be made with the plow attachment of a wheel hoe. After the seed is dropped, it is covered with a rake, or in the case of deep planting, with a hoe, or a wheel hoe. The soil is firmed over the seed by the use of the feet, the back of a hoe, or a garden roller. Whatever the means employed, the firming must be thorough, especially in light soil or dry weather; for unless the soil is brought in close contact with the seeds, they will not germinate.

**LABOR SAVING METHODS OF TILLAGE**

Labor saving methods can be employed in the care of the growing crop as well as in the preparation of the seed-bed. Mention has already been made of the desirability of planting the garden in long rows so that horse tillage may be introduced. By the use of a narrow-tooth cultivator, it is possible, with a steady horse, to work fairly close to the rows of even small vegetables.

**FIG. 4. HORSE CULTIVATOR ADAPTED TO GARDEN USE**
However, for the early tillage close to the rows of beets, onions, carrots and similar crops, there is nothing equal to a wheel hoe; and throughout the season this tool can be very largely substituted for the hand hoe. Its use will result in a great saving of labor. Labor will also be saved by cultivating the garden frequently, and keeping the soil in good friable condition, rather than tilling at less frequent intervals and allowing the ground to become baked before it is tilled after a rain. Timely tillage means easy tillage and the most favorable conditions for growth, while untimely or infrequent tillage means difficult tillage and less favorable conditions for growth.

**HOW TO REDUCE THE LABOR OF HAND WEEDING**

The most tedious labor in the ordinary garden is the hand weeding of the small vegetables. By proper management of the garden a large amount of this labor can be eliminated. One way to avoid excessive labor in hand weeding is to keep weed seeds out of the garden as much as possible, by avoiding the use of manure containing such seeds, and by destroying all weeds in and about the garden before they go to seed, even if they appear after the crops are harvested. But in spite of all that can be done there will always be weed seeds present in garden soil. The way to prevent these from producing weeds that are larger than the vegetable plants and endangering the life of the latter, is to keep them from starting growth before the vegetables have a chance to start. This is done by thoroughly working the soil immediately before the vegetable seeds are planted, thus killing any weed seedlings that are about to appear above the surface, and giving the vegetables an even start with the weeds that may develop from seeds germinating later.

Still another way of reducing the amount of hand weeding is to cultivate very close to the rows with a wheel hoe as soon as the vegetable seedlings appear. In the case of slow germinating crops, like carrots and parsnips, it is wise to sow a few radish seeds along with the other crop, for the sake of marking the row so that tillage may begin before the plants from the slower germinating seeds are visible. This leaves only a narrow strip of soil unstirred, and hence very little space in which weeds can grow. If the weeds which appear in this narrow strip are pulled when they are quite small, little difficulty will be experienced in keeping weeds from interfering with the growth of the vegetables; and the amount of labor involved in the hand weeding will be relatively small. If the weeds are allowed to become large
before an attempt is made to remove them, the growth of the vegetables is checked both by the presence of the weeds and the process of removal, and the latter involves much more labor than if the weeds are removed at the proper time. Nearly all the vegetables grown in drills require thinning, and if precautions are taken to prevent the early starting of weeds, as above outlined, most of the necessary weeding can in many cases be done at the time of thinning, and thus one operation be made to serve both purposes.

Vegetables Classified According to Cultural Demands

Altho the assortment of vegetables in an ideal garden would include many crops not of the easiest culture, nevertheless in a farmer's garden it may, under some circumstances, be the part of wisdom to reduce the labor of caring for the garden, by refraining from attempting to grow some of the crops that demand special care or conditions, or an unusual amount of labor. Unless the farmer is prepared to meet the demands of the given crop, the results with that crop are likely to be unsatisfactory, and the labor involved in its care unrequited. It is therefore desirable to know the particular needs of the various crops, in order to determine whether it is advisable to attempt to supply the needs of a given crop in a given garden, or to leave its culture to those more fully equipped to meet its demands.

Vegetables Requiring Rich Soil and Much Tillage

While nearly all garden crops respond readily to copious applications of plant food, there are certain crops which are especially emphatic in their demands for a rich soil, and which it is impossible to grow to perfection unless the soil is, or can be made, very rich. This group of crops includes cabbage, cauliflower, celery, eggplant, onions and melons. In the case of melons it may be unnecessary to fertilize the entire soil area, if the ground immediately surrounding each plant is made very rich.

There is also a great difference in the amount of tillage demanded by the various crops; that is, in the extent of neglect they will endure, and still produce a fair crop. The crops that require an extra large amount of tillage, and that will likely be utter failures without it, are the same as those already mentioned as demanding an exceedingly rich soil.

Vegetables Subject to Insect Attacks

The labor of caring for certain crops is also greatly enhanced by the necessity of combating the insects that prey upon them.
There are many of our garden crops which are occasionally subject to slight or even severe attacks of certain insects, but with which we do not usually anticipate trouble. There are other crops that are invariably attacked by insect enemies, and usually to so serious an extent that, unless means of control are employed, the crop will likely be a complete failure. The vegetables belonging to this group are the vine crops (including the cucumber, muskmelon, watermelon, pumpkin and squash), the eggplant, late cabbage and cauliflower. Unless careful attention can be given these crops at critical times, attempts to grow them will likely lead to disappointing failures.

**Vegetables Requiring Special Handling**

Some crops demand special training or other manipulation to
enable them to grow to the best advantage or develop the most desirable product. Common Lima beans and tall growing peas require artificial support in the form of poles and brush or wire netting respectively. Except in a region where native timber is abundant it may be inconvenient or expensive to provide these supports, to say nothing of the labor of preparing and installing them. Therefore, it may be advisable in some cases to resort to the use of dwarf varieties exclusively.

Other crops demanding special handling are cauliflower, leeks, celery and endive, all of which require blanching to develop a satisfactory, edible product. In the case of the cauliflower, the head must be protected from the sun by tying the leaves or otherwise securing them over the top. Endive likewise is blanched by tying up the outer leaves so that the inner portion of the plant will be protected from the sun. With both these crops, the blanching plants must be closely watched, so that they may be used when they have reached the right stage of development. Leeks and celery are usually blanched by hilling up with earth, tho an early crop of celery is sometimes blanched by means of boards placed edgewise along the row. When earth is used, care must be exercised to avoid getting dirt down in the "hearts" of the plants, and repeated bankings are necessary. This is a somewhat laborious process unless a person is equipped with special tools, and at best there is much labor and expense involved in the production of a good crop of celery.

VEGETABLES REQUIRING TRANSPLANTING

The labor of growing some crops is enhanced by the necessity of transplanting. The crops usually transplanted are cabbage, cauliflower, celery, eggplant, pepper, sweet potato and tomato; and an early crop of any of these sorts cannot be secured without it, for the seed must be started under glass long before the weather is suitable for planting these crops in the open. The making and care of the hotbeds in which the plants are usually started entails considerable labor, as well as the process of transplanting. Late crops of cabbage and tomatoes are sometimes grown from seed sown where the crop is to mature, and late cauliflower and celery may be started in carefully prepared seed beds in the open, thus obviating the labor involved in the care of a hotbed, tho considerable attention to the seed bed is necessary.

VEGETABLES OF EASY CULTURE

It would seem, then, that various difficulties are likely to be encountered in the growing of a number of the common vege-
tables, owing to their special demands as to richness of soil or frequency of tillage, their susceptibility to insect attack, their need of artificial support or provisions for blanching, or the necessity of transplanting. While the list of vegetables with special demands along one or more of these lines includes a number of the garden's choicest products, nevertheless there are a large number of crops which have no special soil requirements, grow fairly well without much tillage, are usually not subject to serious insect attacks, and do not require transplanting or special handling of any kind. This group includes asparagus, dwarf string beans, dwarf Lima beans of the Sieva type, beets, carrots, chard, sweet corn, garden cress, kale, kohl-rabi, leaf lettuce, mustard, okra, green onions grown from sets, parsley, parsnips, peas, radishes, salsify, spinach and turnips—twenty-one different vegetables. All these are of comparatively easy culture, and can be successfully grown by any one who will give a little attention to the proper time of planting each crop, and a reasonable amount of care during the growing season.

It is true that if a person confined his plantings to the group of crops just mentioned, his garden would be far from complete; and such a procedure is not advised. It is well to know, however, what vegetables can be relied upon to produce a crop under almost any conditions of soil and care, and to supplement this list with such of the other crops as can most readily be grown under the conditions surrounding the individual gardener, and with the facilities at his command.

THE VILLAGE OR SUBURBAN VEGETABLE GARDEN

The conditions to be met in the village or suburban garden are often radically different from those on the farm. Space is likely to be limited, so that the rows of vegetables are usually planted rather close together, and hand methods of tillage employed. In striking contrast to gardening on the farm, this hand tillage is not looked upon as irksome or a waste of time that might better be employed in the field; for suburban gardening is often done fully as much for the pleasure of working among the plants and seeing them grow, as for the edible products they yield. Instead of concentrating the garden work into as small a number of items as possible, as is desirable on the farm, the suburban gardener often prefers to take a little exercise in his garden each morning or evening and thus distribute a given piece of work over several days. The suburban gardener is also likely to wish to
undertake the growing of some of the more exacting crops, and does not count the time as lost if a given crop is a failure. He has had the fun of making the attempt, and developed an interest in devising means to overcome the difficulty in subsequent trials.

**Plan of the Garden**

As intimated above, the personality of the gardener is likely to have fuller scope in the village or suburban garden than on the farm. This means that each garden is likely to be radically different from any other, both in the kind of vegetables grown and in their arrangement in the garden. The gardens also will vary greatly in size and shape, depending upon the land available for gardening purposes. It is therefore difficult to suggest an arrangement of vegetables for such a garden. However, the accompanying plan is inserted, showing one possible arrangements of vegetables in a garden 30 by 60 feet. Doubtless an entirely different selection of vegetables would be made by some gardeners, and rightly so, for the personal element should pervade the garden if the greatest amount of pleasure is to be realized.

**Fig. 6. Diagram of Suburban Garden 30 by 60 Feet**

The planting of the garden here illustrated would be about as follows:

<table>
<thead>
<tr>
<th>Distance from preceding row</th>
<th>Early planting, beginning about April 1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row 1.—Permanent row of asparagus. 1.5 ft. from edge...</td>
<td>1.5 ft.</td>
</tr>
<tr>
<td>Row 2.—30 ft. lettuce; 30 ft. radishes</td>
<td>1.5</td>
</tr>
<tr>
<td>Row 3.—Spinach (followed by cucumbers and bush squash, planted May 20)</td>
<td>1</td>
</tr>
<tr>
<td>Row 4.—Onion sets</td>
<td>1</td>
</tr>
<tr>
<td>Row 5.—20 ft. early turnips; 20 ft. mustard; 20 ft. cress.</td>
<td>1</td>
</tr>
<tr>
<td>Row 6.</td>
<td>Early beets (followed by late cabbage set July 1)</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Row 7.</td>
<td>Onions from seed</td>
</tr>
<tr>
<td>Row 8.</td>
<td>20 ft. parsley; 40 ft. carrots</td>
</tr>
<tr>
<td>Row 9.</td>
<td>Parsnips</td>
</tr>
<tr>
<td>Row 10.</td>
<td>Early dwarf peas (followed by string beans planted July 1)</td>
</tr>
</tbody>
</table>

**Second planting, about April 20:**
- Row 11. | 2 dozen cabbage; 1 dozen cauliflower            | 1.5 |
- Row 12. | 30 ft. lettuce; 30 ft. radishes (followed by celery set July 1) | 1.5 |
- Row 13. | Late wrinkled peas (with support)              | 1.5 |

**Third planting, about May 1:**
- Row 14. | String beans (green and wax)                   | 2 |
- Row 15. | Early sweet corn (followed by 2 rows turnips sown August 1) | 2.5 |

**Fourth planting, about May 15:**
- Row 16. | Late sweet corn                                | 2.5 |
- Row 17. | 40 ft. dwarf Lima beans; 20 ft. peppers         | 2.5 |
- Row 18. | 1 dozen tomatoes; ½ dozen eggplants             | 3 |
- Margin                                         | 1.5 |
- Total width of garden                          | 30.0 |

The rows of vegetables, as indicated in the diagram, are about as close together as the growth of the respective crops will permit. It is assumed that the tomatoes are to be trained to stakes and thus confined to a smaller area than if allowed to spread naturally over the ground.

It will be noted that, with the exception of the permanent row of asparagus, the vegetables are arranged in the order of their planting, tho such an arrangement is not so essential as in a farmer's garden, since hand methods are to be employed in fitting the soil for planting, and a small area can be fitted in almost any part of the garden whenever needed. However, a simple, orderly arrangement, like that suggested, is often a matter of convenience.

**PLANTING**

In order to hasten the planting in spring, it is advisable to have the garden manured and plowed in the fall, rather than to defer the plowing till spring or resort to the use of the spading fork. Theoretically the exercise derived from spading a garden may be ideal for stimulating an appetite, but it is too tedious a method to employ in a garden of any size. Except in gardens too small to admit the use of a team, it is strongly advised that the garden be plowed instead of spaded. With most gardeners it is necessary to hire the plowing. If several neighbors arrange to have their plowing done by the same team, a number of gardens can be plowed in a day, and the expense for each need not be great.

If the garden has been plowed in the fall, there need be no
delay in planting after the soil has reached workable condition in the spring. The ground can be fitted for planting by the use of a hoe and rake, and planting may begin as soon as a strip wide enough for one or two rows has been prepared. If each strip of ground is planted the same day as it is prepared, quick germination will be insured, and the early contest with weeds forestalled.

In planting a small garden, one or two rows at a time, the drills for the reception of the seeds can most conveniently be made by drawing the end of a hoe handle along a line stretched in the desired position. A piece of ordinary chalk line, with a wooden stake at each end, answers the purpose as well as a special garden line and reel. The methods of sowing the seed, covering and firming, are the same as given for the farmer's garden.

TILLAGE

In a small garden, much of the tillage can be done with a steel rake. This is an ideal tool for maintaining a dust mulch, and can be operated more rapidly than a hoe. If the soil is stirred with the rake as soon as sufficiently dry after each rain, it can be kept in a loose, friable condition, the moisture retained and the weeds given no chance to start. If the rows of vegetables are close together, a rather small rake should be used.

The efficiency of the rake as a tillage tool depends upon the frequency of its use. If a crust is allowed to form, or the weeds
to start, the rake is rendered useless, and the only resort is the hoe. This is a more effective tillage tool than it is sometimes credited with being. Its efficiency in establishing and maintaining an earth mulch depends upon the skill of the operator and the condition of the hoe. Much of the dissatisfaction in the use of a hoe is due to the misconception that a hoe is necessarily dull. As a matter of fact, to do effective work, a hoe must be kept sharp by the occasional use of a file.

While the rake and hand hoe are well adapted to the tillage of a small garden, the real pleasures of gardening remain unknown to the person who has never used a wheel hoe. This modern invention stimulates good gardening. By its use, a person can cultivate his whole garden before breakfast, and feel proud of the accomplishment. Like the rake, however, it is useless in badly crusted or weedy ground. The experienced gardener will use it often, and thus keep the soil of his garden in ideal condition.

**THINNING**

There is a tendency for some gardeners to leave the plants of carrots, onions, and similar vegetables too thick, or to defer the thinning too long, with the intention of making use of the thinnings. Usually this is a serious error, except in the case of beets, which can be used quite young for greens. The crowded seedlings do not reach edible size as soon as they would if not crowded; and the removal of part of the crowded plants when they are wanted for the table is likely to seriously disturb and impair the growth of those which remain. A better plan is to make at least a preliminary thinning as early as possible, leaving the plants perhaps twice as thick as they are eventually to stand; and then to pull out every other plant after they reach edible size. This method of thinning is especially adapted to beets, carrots, lettuce and onions. The other root crops, like parsnips and salsify, should be thinned to the full distance at the first thinning.

**FIGHTING INSECTS**

In the small garden, hand methods of fighting insects are usually employed; and it is often found more effective to protect the plant by mechanical means than to kill the insects. Thus, cut worms may be prevented from destroying newly transplanted cabbages and tomatoes by wrapping a piece of heavy paper around the stem of each plant at the time of transplanting. This method is fully as effective as scattering poisoned bran mash about the gar-
den a day or two before setting the plants. Likewise the striped beetles which invariably attack cucumbers, melons, and squashes, can be kept away from the plants by a covering of mosquito bar or cheese cloth stretched over a light frame or bottomless box made for each hill. This is a more effective method than is the use of repellents, like turpentine or crude carbolic acid, mixed with ashes or land plaster, and is well adapted to the small garden, where only a few hills of the vine crops are grown. When plants are attacked by any of the larger insects, like tomato worms or celery caterpillars, the quickest way to dispose of the insects is to knock them off and crush them under foot. Hand picking may also be employed for destroying the eggs of squash bugs and potato beetles. For some of the smaller leaf-eating insects, it may be necessary to resort to the use of spray materials. In the small garden, these can usually be applied with sufficient thoroughness by the use of a sprinkling can or an atomizer.

GARDENING IN A CITY BACK YARD

In marked contrast to the facilities for gardening available to the farmer or even the man who lives in village or suburb, are the conditions attendant upon gardening operations in the residence portions of a modern city. Usually space is very limited, and the soil is often ill adapted to gardening, on account of being “filling” composed principally of clay, but often combined with brick bats and other refuse. However, the limitations of space are at least partially offset by an abundance of water from the city supply, and the nature of the soil can be radically changed by proper treatment, so that extremely intensive methods of gardening may be practiced and the small area made to yield an abundant harvest.

The personal interest in a garden of this kind is likely to be fully as intense as the method of gardening. Often enclosed by a high board fence, the garden is purely a personal matter, unnoticed by the passing public, a place where the gardener can give expression to his own ideals in gardening irrespective of printed rules or professional practice. All laws regulating distance of planting and direction of growth may be disregarded, and plants that normally crawl made to climb.

The richer the soil, the more it will produce. Hence, the first effort in the intensive gardening under consideration will be directed toward improving the condition of the soil both in texture and in supply of plant food. Since the area is small it is
usually spaded by hand. At the first spading, the brick bats, tin cans and other trash are removed from the soil. If the ground is a stiff clay, it may be considerably lightened and made workable by the addition of sand and manure. The sand may be spread on the surface to a depth of about one inch*, and the ground again spaded, care being taken to mix the sand with the clay soil as fully as possible during the process. Next a supply of manure should be secured and spaded in. The manure should be used at the rate of about one-half ton to each square rod of ground. The finer the manure, the better; for fine manure can be worked into the soil more easily than coarse manure, and becomes quickly available to the plants. If coarse manure must be used, it may be necessary to apply it in the trenches as the spading proceeds, instead of spreading it over the surface of the ground and then spading it under as can be done with fine, "short" manure.

In order that maximum yields may be produced from a minimum space, it is essential that the ground be kept fully occupied all the time. This means not only that the rows of vegetables will be planted close together, but that short season crops will be planted between the rows or even the plants of longer-season crops, and that as soon as one crop is harvested another will be planted in its place. Also, transplanting may be practiced to a considerable extent to save space during the early growth of the plants. In all this gardening, the full amount of space required by a given plant at maturity is allotted to that plant the shortest possible time. Extremely rapid growth is made possible by the richness of the soil, combined with heavy watering; and the ability of the gardener to apply water whenever needed makes it possible to plant or transplant at any time during the season, so that no time is lost between successive crops. Thus the land is kept at work from early spring till late in autumn, and two, three, or even four crops may be harvested from the same spot.

Since planting must be close, and a large amount of edible product secured from each square foot of ground, it will be necessary to omit from a garden of this kind some of the larger-growing vegetables which yield a relatively small edible product for the amount of space occupied. Predominence should be given to the vegetables which produce the largest amount of edible material in proportion to the space occupied by the plant, and the length of time this space is occupied. Sweet corn, melons and squashes will therefore be omitted, and the garden devoted chiefly to such

*One wagon load of sand containing two cubic yards will cover an area 20 by 32 feet to a depth of one inch.
crops as lettuce, radishes, parsley, cress, mustard, beets, chard, carrots, onions from sets, string beans, and turnips; though cabbage, spinach, peas, peppers, tomatoes, and even cucumbers may sometimes be included. If tomatoes and cucumbers are grown they are trained in an upright position, so that comparatively little ground space is occupied. Tomatoes are most readily supported by tying each plant to a single stake five of six feet high, while cucumbers can be trained on a slightly slanting trellis made of strings stretched from stakes in the ground to nails in the top of the fence. In the case of string beans and wrinkled peas, larger yields can be obtained from the same space by growing the tall, rather than dwarf varieties, and giving them the needed support.

The close planting advised calls for an abundance of tillage, as well as plant food and water. Since the rows of the smaller vegetables are usually too close together for the use of a rake, a narrow-bladed hoe and a three-fingered weeder attached to a long handle are the most useful tools for working among the plants. The general principles of tillage and other care of the growing crops are the same as in any garden, but the details of the work are adjusted to meet the conditions of the intensive gardening.

THE WINTER SUPPLY OF VEGETABLES

The assortment of vegetables which can be made available for winter use is much larger than is ordinarily supposed. No less than thirty distinct kinds of vegetables can be preserved for winter use by proper methods of storing, canning, and pickling. Of these, at least twenty may be kept in the fresh state, without canning or pickling. Besides the staple crop, potatoes, the list includes the root crops (beets, carrots, horse-radish, parsnips, winter radish, rutabaga, salsify, turnips), kohl-rabi, cabbage, celery, leeks, chicory, parsley, onions, dry beans, pumpkins, squashes and sweet potatoes. The vegetables most commonly canned are rhubarb, tomatoes, corn, peas and string beans; those commonly preserved by pickling are cauliflower, cucumbers (both green and ripe), citron, green peppers and green tomatoes.

When vegetables are to be canned or pickled, it is not usually necessary to grow them especially for that purpose, except to make sure that a suitable variety is planted in sufficient quantity. When the vegetables have reached the right stage of maturity and the supply is abundant, part of the crop is simply canned or pickled without special regard to the particular time in the season it may be done. However, with vegetables to be preserved in the fresh state for winter use it is essential that they be planted at
such a time that they will reach the right stage of development at the proper season for storing. This means that in the case of some of the crops they will be planted considerably later than if designed for summer use, since the product is of better quality if not allowed to continue growth after reaching the desired stage of development, and this stage should not be reached before the arrival of the storage season. Since most vegetables usually keep best if put into storage comparatively late, it should be the aim of the gardener to mature the vegetables for winter use as late in the season as he can, and yet have them harvested before they are injured by cold. If planted too early the root crops are likely to become tough and woody or pithy, before the season for storage arrives. If cabbages are planted too early they usually burst open before the weather is cool enough for them to be stored.

The proper time for planting the various vegetables for winter use will depend upon the variety and the length of the season. The earlier maturing the variety the later it can be planted; and the farther north the locality, the earlier the planting may and must be done. The cool nights of northern summers are especially favorable to the growth of root crops, cabbage, celery, etc., so that it is feasible to grow a larger assortment of vegetables for storage in the north than in the south. It is fortunate that such is the case, for in the south, vegetables can be grown in the winter, while in the north, storage is a much more important factor in the winter supply. Illinois covers a wide range of latitude, and the conditions in the northern part of the state are more favorable to the growth of most crops stored for winter than in the southern part. However, a few of the crops thrive better in southern localities, and a fairly large assortment can be grown, under favorable conditions, in nearly all parts of the state.

In central and northern Illinois, the dates for planting the vegetables designed for winter use would be about as follows: (1) Onions (for either summer or winter use), as early as the ground can be worked in spring. Onions differ from all the other vegetables stored for winter in that they must be ripened and cured while the weather is still warm. The earlier they are planted, the surer the crop. (2) Parsnips, salsify, horse-radish and leeks would be planted about the same time as onions, for although an extremely early start is not so imperative in the case of these vegetables, they demand a long season to complete their growth, and the earlier they are started, the longer the time they will have to grow. (3) Beets and carrots, late varieties, May 1 to May 15;
early varieties, June 1 to June 15. Plantings made in May are surer to make a crop than those made in June; hence the late varieties are the more reliable. (4) Rutabagas are not adapted to hot climates, and hence do not succeed well in the central and southern parts of the state. In the northern part, they should be planted from June 15 to July 1. (5) Cabbage, Brussels sprouts and celery (transplanted), July 1 to July 15. (6) Turnips, winter radishes and kohlrabi, July 20 to August 10.

The other crops mentioned as suitable for storage would be planted the same time whether intended for immediate use at maturity or designed to be stored for winter.

Of the vegetables stored for winter, some require entirely different conditions in storage than do others, so that attempts to store all vegetables under the same conditions would result only in failure. In order that the root crops may be stored without wilting, rotting or starting into growth, they must be kept cool, fairly moist, and away from contact with circulating air. Cabbage may be successfully stored under the same conditions. Onions must be kept at a low temperature, but differ from the root crops in that they must be in a dry atmosphere and have free circulation of air. In a moist atmosphere, under high temperature, they would either rot or sprout. Vegetables that are expected to continue growth while in storage, such as celery, leeks, Brussels sprouts, chicory and parsley, must be planted in dirt and the roots kept moist. Air should circulate freely about the tops, and the temperature must be low. On the other hand, sweet potatoes, pumpkins and squashes demand a high temperature and dry atmosphere, with free circulation of air.

The conditions of storage favorable to the different crops are secured in various ways. Market gardeners use outdoor pits or specially constructed cellars for their root crops, cabbage and celery. Onions are commercially stored in slatted crates piled in tiers in frost-proof houses provided with means for ventilation so that the temperature can be maintained at slightly above freezing. Sweet potatoes and squashes are also stored in specially constructed houses, in which the temperature can be controlled; but since a high temperature is demanded for these crops, artificial heat is usually employed. Circulation of air about these products in storage is facilitated by the use of slatted bins, and allowing ample space between the bins and the side walls of the building.

For home use the root crops and cabbage can best be stored in outdoor pits for late winter use, and in the cellar for use early in the season. The chief objection usually urged against
storing root crops in the cellar is that they are likely to wilt. This difficulty can be obviated by packing the roots in boxes with alternate layers of earth or sand, and placing the boxes in the coolest part of the cellar. The earth will absorb any odors in case the vegetables should start to decay, and thus avoid endangering the health of the family. Cabbage can be stored in the same way if the roots and outer leaves are removed and merely the heads are packed in boxes or barrels of earth.

Cabbage intended for late winter use, however, will keep better in an outdoor pit than in a cellar. The same is true of parsnips, salsify, horse-radish and some of the other root crops. Except where the ground is especially well drained, the pits are usually made entirely above ground. For storing cabbage in this manner, the plants are pulled with the roots and leaves on, and placed up-side-down in regular order on a level piece of ground. Usually three plants are placed side by side, with two above, and this arrangement repeated so that the final result is a long, low pile of cabbage showing five plants in a cross section. Earth is piled against and over this array of cabbage until the plants, including the roots, are entirely covered. In a severe climate, a layer of manure may be added when cold weather arrives.

For storing parsnips, salsify and horse-radish, which are unjured by freezing, the roots may be placed in a pile on the ground and covered with about six inches of earth. The advantage of storing in this manner, instead of allowing the roots to remain where they grew, is the saving in time of digging, when a few roots are wanted during the winter. It is much easier to open the pit when the ground is frozen than to dig the roots from the garden with a pick. In fact, the difficulty of digging almost precludes the use of these crops in midwinter unless they are more accessible than in the place where they grew.

Beets, carrots, turnips, rutabagas, kohl-rabi and Irish potatoes can also be stored in outdoor pits, but they must be covered sufficiently to prevent freezing. One of the best ways of handling these crops is to place them in a conical pile and cover first with six or eight inches of hay or straw, then with earth to a similar depth. If extremely cold weather is expected, a layer of manure should be placed outside of the earth. In getting vegetables from pits of this kind in midwinter, the manure is removed slightly from one side of the pit near the bottom and a hole about a foot square chopped thru the frozen earth with an old ax. Sufficient hay is then pulled out by means of an iron hook, to enable a person to thrust his arm into the opening and reach the vege-
tables. Enough are taken out to last a few days, and the hole thru the dirt then stuffed with hay, the manure being replaced if necessary.

Celery may be stored in various ways, but one of the most satisfactory methods for home use is to dig the plants with the roots on, and plant them in moist earth placed on the cellar floor, or in boxes to be placed in the cellar. In either case, the cellar must be cool, the ventilation good, and the earth surrounding the roots kept moist by repeated applications of water. In applying the water, care must be taken to wet only the roots and not the tops of the plants. If the cellar is kept dark, all new growth made during the winter will be thoroughly blanched.

Leeks and Brussels sprouts stand considerable freezing, and can often be carried thru the winter in good condition by digging with the roots on and planting close together in coldframes late in the fall. In extreme weather, straw or other protection should be provided in addition to the sash.

Parsley can be wintered in a coldframe along with leeks and Brussels sprouts, or a few roots may be planted in boxes of earth and placed near the cellar window, or the plants can be placed in pots and grown in the window of a living room like geraniums or other house plants. The last named method is as satisfactory as any, and when garnishing material is needed, it is extremely accessible.

Onions intended for winter use should be thoroly cured as soon as possible after harvesting, by being kept in a dry place where the air can circulate freely about them. Some growers spread their onions in a thin layer on the floor of the corn crib; others place them in shallow, slatted trays stacked under an open shed, or exposed to the sun during the day and placed under cover at night. The bulbs may also be spread thinly on the floor of a barn loft or the attic of a house. No matter where they are placed, they must be kept dry and have a free circulation of air about them.

After the onions are cured, they keep best at a low temperature. If the cellar is as cool as it should be for the storage of most crops, onions will keep fairly well if placed in market baskets hung on the joists at the top of the cellar. Frequent ventilation of the cellar, especially when the outside air is dry, will improve the conditions for the onions. If milk and butter are to be kept in the cellar, the onions had better be somewhere else. They can frequently be kept in the attic all winter if placed close enough to the chimney to prevent freezing yet far
enough away to prevent overheating or sprouting. The dry atmosphere of a good attic is unfavorable to the sprouting even though at times the temperature may become somewhat high.

All the vegetables considered thus far keep best at a relatively low temperature. In marked contrast to these vegetables are sweet potatoes, squashes and pumpkins. These demand high temperature, a dry atmosphere and free circulation of air. There is no better place to keep sweet potatoes for home use than in a slatted crate close to the chimney in an upstairs room that is kept warm at night as well as during the day. Another good place is in baskets hung from the ceiling of the furnace room in a basement. Squashes and pumpkins also keep much better in the furnace room than in the "vegetable cellar" or cool part of the basement.

If, in planning the garden, attention is given to the vegetables which can be stored for winter as well as those which furnish the summer supply, and if care is taken in the storing of these crops to place each product under the conditions most favorable to its preservation, the garden can be made to contribute a large proportion of the table supplies in winter as well as summer.

THE SELECTION AND PURCHASE OF GARDEN SEEDS

In order to have a good garden it is necessary to plant good seeds. It is not alone essential that the seeds be capable of growing; they must be capable of producing a crop of the desired quality, under the conditions existing where the gardening is to be done. Some varieties of vegetables are restricted in their adaptations, while others thrive over a wide range of territory and under widely different conditions of soil and climate. If the behavior of different varieties in a given locality is not known, the safe plan to follow in selecting varieties for planting is to choose mainly those that have proved themselves adapted to a wide range of conditions and have thereby become recognized as standard sorts. The newer varieties may be tested in small quantities until their suitableness for a given place and purpose has been determined. For the home garden particular care should be taken to select varieties that are capable of yielding a product of high quality. Such varieties are numerous, and some are better for one region than another. The following list gives a few of the sorts which are well adapted to home gardens under Illinois conditions. Many of them do equally well elsewhere.
Asparagus—Palmetto, Barr's Mammoth.

Beans—Stringless Green Pod, Saddleback Wax, Henderson's Bush Lima, King of Garden Lima.

Beets—Crosby's Egyptian, Dark Stinson, Early Model.

Cabbage—Jersey Wakefield, Market Gardener's No. 2, Autumn King, St. Louis Late Market.

Carrot—Early Scarlet Horn, Chantenay.

Cauliflower—Burpee's Dry Weather.

Celery—Giant Pascal.

Chard—Lucullus.


Cress—Fine Curled.


Eggplant—Black Beauty, Fordhook Spineless.

Kale—Dwarf German.

Kohl-Rabi—Early White Vienna.

Lettuce—Hanson, Morse, New York Wonderful, May King, Big Boston.

Mustard—Fordhook Fancy.

Muskmelon—Netted Gem, Hoodoo, Rust-Resistant Rocky Ford, Tip Top.

Watermelon—Cole's Early, Fordhook Early, Halbert Honey, Tom Watson.

Okra—Perfected Perkin's Long Pod.

Onion—Southport Yellow Globe, Southport White Globe, Australian Brown, Prize-Taker.

Parsley—Extra Dark Moss Curled.

Parsnip—Improved Guernsey.

Peas—Maud S., Nott's Excelsior, Carter's Daisy, Vick's Charmer.

Pepper—Ruby King, Chinese Giant.

Radish—Earliest White, Scarlet Button, Cincinnati Market, White Chinese (winter).

Rhubarb—Myatt's Victoria.

Salsify—Sandwich Island Mammoth.

Spinach—Long Standing, Victoria.

Squash—Giant Summer Crookneck, Fordhook, Hubbard.


Turnip—Purple Top Strap Leaf.

QUANTITIES OF SEED TO BUY

It is always a safe plan to have a little more seed on hand than is actually needed to plant the area desired. Sometimes the first planting of a given crop is destroyed by frost or insects, making replanting necessary. In such a case, delay in replanting could be avoided by having the seeds on hand. The additional expense is slight compared with the value of the crop. In the case of many seeds, an ounce costs but little more than a packet;
and in such cases, it is the part of wisdom to purchase an ounce, even tho a packet might contain sufficient seed to barely plant the desired area. The more expensive seeds may be purchased in smaller quantities, with less margin between the actual amount required and the quantity purchased.

For the benefit of beginners, who may be unfamiliar with the quantities of seed needed to plant a garden of a given size, the following tabular statement is inserted. It represents the quantities of seeds which should be purchased for planting the gardens described on pages 10, 19, and 23 respectively, with due allowance for a normal amount of replanting.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Farmer's garden</th>
<th>Suburban garden</th>
<th>City garden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asparagus</td>
<td>100 roots</td>
<td>50 roots</td>
<td>5 pt.</td>
</tr>
<tr>
<td>Beets</td>
<td>2 oz.</td>
<td>1 oz.</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Cabbage, early</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
<td>1/2 pkt.</td>
</tr>
<tr>
<td>&quot; second early</td>
<td>1 pkt.</td>
<td>1/2 pkt.</td>
<td>1/2 pkt.</td>
</tr>
<tr>
<td>&quot; late</td>
<td>1 pkt.</td>
<td>1/2 pkt.</td>
<td>1/2 pkt.</td>
</tr>
<tr>
<td>Carrot</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Celery</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Chard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cress</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Cucumber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggplant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lettuce, leaf</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>&quot; head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mustard</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Muskmelon</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Watermelon</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Onion seed</td>
<td>2 oz.</td>
<td>1 oz.</td>
<td>1 qt.</td>
</tr>
<tr>
<td>&quot; sets, bottom</td>
<td>1 qt.</td>
<td>1 qt.</td>
<td>1 qt.</td>
</tr>
<tr>
<td>&quot; top (perennial)</td>
<td>1 qt.</td>
<td>1 qt.</td>
<td>1 qt.</td>
</tr>
<tr>
<td>Parsley</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Parsnip</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>&quot; early dwarf wrinkled</td>
<td>1 qt.</td>
<td>1/2 pt.</td>
<td>1/2 pt.</td>
</tr>
<tr>
<td>Pepper</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Potatoes</td>
<td>3 pkts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radish</td>
<td>3 oz.</td>
<td>1 oz.</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Rhubarb</td>
<td>1 oz.</td>
<td>1 oz.</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Spinach</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Squash, summer</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>&quot; winter</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>200 plants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomato</td>
<td>2 pkts.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
<tr>
<td>Turnip</td>
<td>1 oz.</td>
<td>1 pkt.</td>
<td>1 pkt.</td>
</tr>
</tbody>
</table>