POSSIBILITIES OF THE FALL VEGETABLE GARDEN

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Few people realize the possibilities of the fall vegetable garden, and fewer still make any attempt to take advantage of these possibilities. Many gardens which start very favorably in the spring gradually decline in productivity as the season advances, and become weed patches long before fall arrives. The garden may, however, be made to continue in productivity until late fall. In fact, with a little forethought and attention, a larger assortment of vegetables can be had in the fall than at any other season of the year.

There are two outstanding factors in producing vegetables in the fall. The first is to furnish the early-planted crops good conditions for growth in order that those capable of surviving summer weather will be carried safely thru the hot, dry season. The second is to plant other crops toward the close of summer especially for fall use. In the latter case the times of planting are especially important, as crops planted too early may suffer from drouth, and crops planted too late may not have time to mature properly. The handling of the soil previous to planting is also an important factor in growing vegetables late in the season.

The vegetables which can be made available for fall use may be divided into three groups:

1. Vegetables planted in early spring and which are capable of surviving hot, dry weather:

   - Carrots
   - Parsnips
   - Horse-radish
   - Salsify
   - Leek
   - Swiss chard
   - New Zealand spinach
   - Parsley
   - Rhubarb

2. Vegetables planted in late spring and early summer, or early enough to permit them to become established before hot, dry weather:

   - Late cabbage
   - Late cauliflower
   - Brussels sprouts
   - Kale
   - Celery
   - Celeriac
   - Late potatoes
   - Cucumbers
   - Muskmelons
   - Watermelons
   - Squash
   - Pumpkins
   - Lima beans
   - Tomatoes
   - Eggplant
   - Peppers
   - Sweet potatoes
   - Sweet corn

3. Quick-maturing vegetables planted in late summer or early fall especially for fall use:

   - String beans
   - Turnips
   - Rutabagas
   - Beets
   - Pe-tsai
   - Endive
   - Radishes (summer and winter varieties)
   - Lettuce
   - Onions
   - Spinach
   - Kale
VEGETABLES STARTED IN EARLY SPRING

All of the crops of the first group grow best in a moist, rich soil, and prefer a deep sandy loam. With the exception of carrots and rhubarb, which are sometimes affected by bacterial diseases, none of these crops are attacked by serious diseases or insects. The secrets of success in growing them are selection of a well-adapted soil, thorough preparation, and persistent tillage and weeding until the plants cover the ground. Rarely do any of these vegetables need irrigation.

Carrots planted in the early spring are commonly used in the fall as well as during the summer, but a much more tender product is obtained for fall and winter use if a second planting is made about June 15 to July 1. Parsnips, horse-radish, salsify, and leek require a full season in which to reach good size, and should be started early in the spring; in case a good stand is not obtained from the first planting of parsnips, salsify, and leek, a second planting may be made, although this should not take place later than May 15. Swiss chard, New Zealand spinach, and parsley will continue to produce crops of good quality throughout the summer and fall from early spring plantings. However, they may also be planted for fall use as late as June 1 to 15 with good results. The more often the leaves or shoots are removed, the better and the more abundant will be the product.

VEGETABLES PLANTED IN LATE SPRING OR EARLY SUMMER

Of the second group, cabbage, cauliflower, Brussels sprouts, kale, celery, celeriac, potatoes, and cucumbers prefer a cool, moist, sandy-loam soil. Muskmelons, watermelons, squash, pumpkins, lima beans, tomatoes, eggplant, peppers, sweet potatoes, and sweet corn do best on a better drained soil. Eggplants and watermelons in particular require a warm, well-drained, but rich soil. These two crops can endure much drought when well established.

In general, soils should be used for these crops which are capable of absorbing large quantities of moisture during the winter and spring, but in which, at the same time, the capillary action is strong enough to return the moisture to within reach of the plant roots in times of need. The character of the subsoil, therefore, is even more important than that of the surface.

For best results with these crops the land should be manured and plowed in the fall, and left in the rough condition, so that it will absorb the greatest quantity of moisture possible. As none of these crops are planted early in the spring, the surface should be disked or harrowed occasionally from early spring until planting time in order to retain the moisture that would otherwise be lost in enormous amounts by evaporation. In preparing the seed bed it is important
that the soil be thoroughly pulverized and compacted in order that the plants may secure a firm foothold and that the capillary connection may be reestablished with the lower soil. Under no circumstances should a coating of manure be applied, or a bed of weeds allowed to develop, before plowing, for these are almost certain to form a dividing layer between the plowed and unplowed soil and seriously interfere with the rise of capillary moisture.

It is even more important with these crops than with those of the first group that thorough cultivation be practiced throughout the growing period. During the dry season in particular, shallow cultivation should be practiced. Deep or close cultivation is certain to do more harm than good at this time. With the proper kind of tillage, coupled with the right kind of handling previous to planting, there is scarcely a season in which there will not be sufficient moisture within easy reach of the roots to carry the plants safely through trying periods.

In order that the vine crops of this group may be cultivated for a longer period, the shoots should be turned in the direction of the rows as they develop. This treatment will also facilitate the harvesting of the crops, and treatment of insects and diseases.

Unfortunately, practically all the vegetables of this group are affected by serious insect pests and diseases. One of the factors in tiding the plants thru hot, dry weather consists in protecting them from their enemies. The cabbage group will need treatment for the green worms; celery for blight; potatoes for blight and for beetles; cucumbers, muskmelons, and other vine crops for rust, aphid, and striped beetles; tomatoes for leaf spot, for the large green worms, and for flea beetles; and eggplant for potato beetles and flea beetles.

For some of the crops of the second group, especially cabbage, cauliflower, Brussels sprouts, kale, celery, potatoes, and tomatoes, irrigation will be found a distinct help. In fact, irrigation is absolutely necessary in Illinois during some seasons in order to save cabbage, cauliflower, celery, and late potatoes from complete destruction. Where water under pressure is available, an overhead irrigation system will be found very useful. The manufacturers are now selling equipment especially suited for home-garden and lawn use. The overhead system has the advantages of requiring a small amount of time and of distributing the water uniformly as a very fine mist, which does not wash or "puddle" the soil. A catalog from the manufacturers will give full details for constructing and operating such a system.

The dates for starting at least one planting of practically all the crops of this group are given in Circular 198 of this station. Cauliflower and Brussels sprouts cannot be depended upon as a fall crop in Illinois except in the northern part of the state. Brussels sprouts should be planted and grown like late cabbage. The miniature heads or large buds, which form in the axils of the leaves, are the parts eaten.
They should be picked from the plant when well developed and before they begin to deteriorate. Cauliflower should be sown about June 1 and the plants transplanted to their permanent place about July 15. Dry Weather or Danish Giant cauliflower will give best results.

Cucumbers, which are ordinarily planted about June 1 to 15 for pickles, will continue to bear cucumbers until quite late in the season. A single planting of muskmelons does not supply fruit of this crop as long as it is possible to have it in central and southern Illinois. In these sections it is well to make a second planting about June 15. This procedure should supply melons until the time of frost. However, in cool, wet falls the melons may not be of the highest quality.

With good soil, a good variety, and a normal season, the early planting of tomatoes will continue to bear until frost. However, in some soils and in some seasons the early planting does not continue to bear fruit of high quality in abundance throughout the season. A much better fall product may usually be obtained if a second lot of plants is started about April 15 and transplanted June 1 to 15, or just early enough to permit them to become well established before the arrival of hot, dry weather. It is also advisable to make a second planting of lima beans about June 15 to July 1 especially for fall use. Celeriac is a development from celery which forms a root of very strong celery flavor. It is handled like celery except that no blanching is necessary. In order to provide a long season for the development of the roots, the plants should be started in February or March and transplanted to the garden as soon as suitable size is attained. Eggplant and peppers continue to bear until frost from a single planting. Sweet potatoes require as long a season of warm weather as can be given them in our climate. The roots may be used as soon as they reach edible size, which is often in the latter part of August. The crop should be dug before the arrival of killing frosts. This crop grows well only in southern Illinois and on some soils in central Illinois. The red-skinned varieties are much better adapted for corn-belt soils than the yellow sorts.

Early varieties of sweet corn, like White Cob Cory and Golden Bantam, endure cool weather somewhat better than the main-season varieties like Stowell’s Evergreen and Country Gentleman. For this reason, sweet corn can be had later in the fall when Cory or Bantam is used for the last planting. The main-crop varieties, if used, should not be planted later than July 1 in central Illinois, but the early sorts can be planted with success as late as July 10 as a rule.

VEGETABLES PLANTED IN LATE SUMMER ESPECIALLY FOR FALL USE

The crops of the third group, which includes string beans, turnips, rutabagas, beets, pe-tsai, endive, radishes (summer and winter), lettuce, onions, spinach, and kale, prefer a cool, moist, rich soil. It
is especially important that the land intended for these vegetables be handled during the summer so as to retain as much moisture as possible. If feasible, these vegetables should be planted just before or after a rain. Sometimes, however, the weather is quite dry at the time of planting. Under such conditions, irrigation is a distinct help in bringing the soil to suitable condition for receiving the seeds or plants, and for starting them into immediate growth. October is a rather dry month as a rule, and irrigation often proves quite helpful in maturing these crops at this time.

For early fall use string beans should be planted from July 1 to 15. For late fall, the crop should be planted about the last week in July, thus allowing the required seven or eight weeks for the beans to mature before killing frosts.

The old saying, "The twenty-fifth of July, sow turnips, wet or dry," is a good rule to follow, not because the turnips germinate when sown on that date whether wet or dry, but because this is about the proper time to sow turnips in our climate. As turnip seeds are very small, they should be sown very thinly and covered very lightly. They are sometimes sown in drills, but they are more commonly broadcasted for the fall crop and worked into the soil with a brush drag or a harrow set at an angle.

Rutabagas require so long a season of cool weather that they cannot usually be grown successfully in this state, except in the extreme northern part, and even there the roots do not always reach prime condition. The seeds should be sown about July 1 to provide a sufficiently long season. When well started, the plants should be thinned to about one foot apart in the rows.

Pe-tsai or celery cabbage is a Chinese vegetable which has been known in this country for a long time, but which has attracted attention only within the past few years. It is an excellent salad plant, having large, succulent, well-blanced leaves when properly grown. It has a flavor which suggests both cabbage and turnips, but it is milder and more pleasant than either. The name celery cabbage is commonly used for this plant, but it is really a misnomer, since there is nothing in the flavor to suggest celery. For best results, the seeds for this crop should be sown July 1 to 15 and the plants transplanted to the garden about the middle of August. The leaves of pe-tsai need no tying to facilitate blanching, since they grow upright and close in around the head, thus insuring a very tender, well-blanced product. Cabbage worms are sometimes a serious pest of this vegetable. Slug shot or pyrethrum will control them satisfactorily without poisoning the leaves. Pe-tsai may be grown successfully in central and northern Illinois, especially when irrigation can be practiced, and deserves more attention in the home vegetable garden. Starting at the right time, rich soil, and plenty of moisture are the essential factors in its successful culture.
Spring-sown beets usually become tough and woody before fall, and in order to obtain a tender product for fall use and for canning and storage, a second planting should be made about June 15 to July 1.

Radishes, leaf lettuce, spinach, and onions should be planted about August 15. Summer radishes and leaf lettuce will continue to be edible until the arrival of a hard freeze. These two vegetables may be had until about Thanksgiving time by planting them in a cold frame or in a hot bed in September. Winter radishes are not only excellent for fall use, but may be stored successfully for use during the winter. Onions and spinach may be used in the fall. The Egyptian variety of onions will endure the coldest winters and may be used in early spring before the spring-planted onions become fit for use.

Spinach will usually survive the winter in southern Illinois if a suitable variety is used and if some protection is provided in the form of a loose mulch which will not smother the plants. In central and northern Illinois the chances of its living over winter are not very great. Bloomsdale or Savoy Leaved is a good variety. Kale, which was included in the second group also, provides a very tender product for use in late September and October when sown about August 15. The Dwarf Siberian variety will usually survive the winter in central and southern Illinois if protection is afforded. It is somewhat hardier than spinach.

Endive is a crop much resembling lettuce; it is used for salads, for greens, for garnishing, and for flavoring soups. It has a slightly bitter flavor which at first is not relished by some persons, but which usually becomes attractive with further use. It is a vegetable that deserves greater attention among home vegetable growers. As with pe-tsai, the essential factors in the successful culture of endive are starting the plants at the proper time, rich soil, and plenty of moisture. For best results the seeds should be sown about July 15 and the plants transplanted to the garden about August 15. When the plants are fully grown, the outer leaves should be gathered over the tops and tied with raffia or strips of muslin. The leaves should be dry when tied, as otherwise they are likely to rot during the blanching period. Blanching insures a much tenderer and less bitter product and greatly improves its appearance. In order to provide a longer succession of edible product, the blanching should not all be started at one time, since the tender leaves do not keep long after blanching. Plants not needed for fall use may be taken up with the roots attached and set in moist earth in a cool cellar or a cold frame, where they will keep until about Christmas time.

Head lettuce can usually be grown successfully in northern Illinois as a fall crop by planting the seeds about July 15 and setting the plants in the garden about August 15. In some seasons the crop can also be grown successfully in central Illinois. Irrigation is usually necessary for the production of head lettuce in the fall.
SUMMARY

By the proper kind of preparation in advance the following vegetables can be had in the fresh state throughout the fall and can also be stored for use during part or all of the winter: carrots, parsnips, horse-radish, salsify, leek, parsley, cabbage, Brussels sprouts, celery, celeriac, endive, potatoes, squash, pumpkins, sweet potatoes, turnips, rutabagas, beets, winter radishes, and onions. The following may be had until freezing weather, which is usually about October 15 in central Illinois: Swiss chard, New Zealand spinach, rhubarb, cauliflower, kale, pe-tsai, summer radishes, lettuce, and spinach. The following may be had until the arrival of a killing frost: cucumbers, muskmelons, watermelons, lima beans, tomatoes, eggplant, peppers, and sweet corn. By picking eggplants, peppers, and full-grown green tomatoes before frost and storing them in a cool, well-ventilated place, these may be had for two or three weeks afterward.

There are, therefore, thirty-seven different vegetables available for fall use in our climate. A few of these, of course, cannot be depended upon to grow successfully in all seasons or in all parts of the state. However, even granting several exceptions, the number of vegetables which may be produced during the fall is considerably larger than is possible at any other season of the year. By taking advantage of the possibilities of the fall vegetable garden, not only is a financial saving effected, but the length of time during which the family must subsist on dried and canned foods is reduced to the minimum.