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Practical Gardening

By

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Issued by

McCALL'S MAGAZINE

236-250 WEST 37TH STREET

NEW YORK

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Price 10 Cents

MAY -5 1918

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Chapter I

Early Plans for the Garden

TO be really profitable, any garden must be skilfully planned. A love of gardening, and conscientious work will help one to succeed in growing things, but there is often so much duplication and waste in the summer garden, and consequent shortage in the fall and winter supplies, that the usual one fails to be as profitable as it might be with the same amount of time expended upon it. The importance of a careful planning of the garden cannot be over-emphasized.

Also, it is important to get at the planning of your garden early. It should be done before your seeds, manure, fertilizers, and other materials are ordered. The seed-houses begin to send out their matter very early, indeed, for the coming season, and as their mailing-lists are always enormous, it would be wise for you not to delay any longer than necessary in ordering your seeds in order to avoid disappointment or substitution. The garden should be planned in the winter months before any seeds are ordered.

First of all, in planning your garden, select a standard, or unit of measurement. As vegetables differ so much in habit of growth and yield, the simplest and most practical standard to use will be the "row." Plan to have your rows run the short way of your garden, and if it is wide, it may be desirable to make a path down the middle of it. Having fairly short rows is an advantage, as then no one row will be too long for one vegetable. It always com-

plicates matters to have to put two vegetables in one row. If convenient, it is well, also, to have your rows either about fifty, twenty-five, or twelve and a half feet long. These are convenient lengths for the large, medium size, and small gardens, respectively, and since most catalogues and articles quote the amount of seed necessary to plant a one-hundred-foot row, proportioning will be a fairly simple matter for beginners.

Having settled on the length of row which will be most convenient for you, for the next step decide on the approximate number of rows of each of the vegetables you expect to grow, basing this on the relative popularity of the different vegetables at the family table. You can readily figure this out with the aid of the facts given in Chart I.

As examples, let us take beets and cabbage. Beets are at their best when from half to three-fourths grown. The first two plantings should, therefore, be small—say, two or three twenty-five-foot rows for a

family of four or five. The first planting should be made early in April, either from seed, or, in part, from transplanted plants; the second planting, about the middle of May; and the last planting about the middle of June, to provide for fall use, and also enough to store for the winter—two to three bushels or more, if there is sufficient space. This will mean that the ground occupied by the first two plantings can be used later for other things after the early crop of lettuce, peas, etc., is gone.

CULTIVATING BEETS

PLANTING DATA FOR PREPARING PLANTING PLAN

	DISTANCE BETWEEN ROWS	SEEDS OR PLANTS FOR 50-FT. ROW	NUMBER OF DAYS TO MATURE
BEANS (early)	18 in.	1 pt.	45-75
BEANS (wax)	15-24 in.	1 pt.	55-80
BEANS (lima)	18-24 in.	1 pt.	60-90
BEANS (pole)	4 ft.	¼ pt.	65-100
BEETS (early)	12-15 in.	100-150	40-60
BEETS (late)	12-15 in.	1 oz.	75-90
BROCCOLI (early)	2 ft.	35	50-90
BROCCOLI (late)	2-3 ft.	35	100-140
BRUSSELS SPROUTS	2 ft.	35	100-140
CABBAGE (early)	2 ft.	35	70-100
CABBAGE (late)	2-3 ft.	25-35	120-180
CARROT (early)	12 in.	½ oz.	50-80
CARROT (late)	12-15 in.	½ oz.	60-90
CAULIFLOWER (early)	2 ft.	35	50-80
CAULIFLOWER (late)	2-3 ft.	25	100-140
CELERY	12 in.	½ oz.	125-150
CORN (early)	3-4 ft.	½ pt.	60-80
CORN (main crop)	4 ft.	½ pt.	80-100
CUCUMBERS	4 ft.	¼ oz.	60-75
EGGPLANT	2½ ft.	25	40-60
ENDIVE	12 in.	½ oz.	75-100
KOHLRABI	18 in.	¼ oz.	65-85
LETTUCE (plant)	12-15 in.	50	40-85
LETTUCE (seed)	12-15 in.	¼ oz.	60-100
LEEK	15 in.	½ oz.	120-150
MELONS, MUSK	4-6 ft.	¼ oz.	90-120
MELONS, WATER	6-8 ft.	¼ oz.	100-125
ONION	12-15 in.	½ oz.	120-175
ONION (seedling)	12-15 in.	150	90-150
PARSLEY	1 ft.	½ oz.	90-110
PARSNIPS	15-18 in.	¼ oz.	100-150
PEAS (smooth)	3 ft.	1 pt.	50-65
PEAS (wrinkled)	3-4 ft.	1 pt.	60-75
PEAS (late)	3-4 ft.	1 pt.	70-80
PEPPERS	2½ ft.	25	40-60
POTATO	28 in.	½ pk.	60-90
PUMPKIN	6-8 ft.	¼ oz.	100-130
RADISH (early)	1 ft.	½ oz.	25-40
RADISH (late)	1 ft.	½ oz.	25-50
SALSIFY	15-18 in.	¾ oz.	125-150
SQUASH (summer)	4-6 ft.	¼ oz.	60-75
SQUASH (winter)	6-8 ft.	¼ oz.	
SWISS CHARD	15-18 in.	¾ oz.	50-60
TOMATO	4-5 ft.	15-20	40-60
TURNIP (early)	15 in.	½ oz.	60-75
TURNIP (late)	15 in.	½ oz.	60-75

PLANTING PLAN FOR SMALL GARDEN

FIRST PLANTINGS

SUBSTITUTE PLANTINGS

CABBAGE, early, 18 plants; Summer 18	2 ft.	CELERY, late	4 ft.
CAULIFLOWER	2 ft.		
BEETS	1 ft.	CELERY, early, 1 row	3 ft.
LETTUCE	1 ft.		
SPINACH	1 ft.		
BEETS, 2 rows	2 ft.	CAULIFLOWER, ½ row	3 ft.
CARROTS, 2 rows	2 ft.	BRUSSELS SPROUTS, ½ row	3 ft.
TURNIPS	1 ft.	CABBAGE, Winter	3 ft.
LETTUCE	1 ft.		
BEETS, 3 rows	3 ft.	BEANS, second planting, 2 rows	3 ft.
CARROTS	3 ft.	BEANS, last planting, 2 rows	3 ft.
ONIONS	4 ft.		
PARSNIPS	3 ft.	RYE FOR COVER CROP, OR TRENCH FOR WINTER.	
SALSIFY	3 ft.		
SWISS CHARD	1.5 ft.		
PEAS, extra early	3 ft.	CARROTS, 3 rows	3 ft.
PEAS, main	3 ft.	BEETS, 3 rows	3 ft.
BEANS {string, 1 row}	3 ft.	LETTUCE, 2 rows	2 ft.
PEAS {snap, 1 row}	3 ft.	Cos, ½ row; ENDIVE, ½ row	1 ft.
PEAS	3 ft.	TURNIPS, Winter	3 ft.
PEAS	3 ft.		
CORN, early	3 ft.	REMOVE, AND SOW CRIMSON CLOVER OR RYE AND VETCH AS SOON AS CROP IS HARVESTED.	
CORN, medium	6 ft.		
CORN {Either 3 rows of late, or 4 rows of early}	12 ft.		
BEANS, Limas	4 ft.	SOW RYE THICKLY AS EARLY AS POSSIBLE.	
MELONS	5 ft.		
TOMATOES	4 ft.		
PEPPERS, 12; EGGPLANT, 12	3 ft.		
CUCUMBERS, 4 hills	6 ft.		
SQUASH, Winter, 4 hills	4 ft.		
SQUASH	4 ft.		
MELON	6 ft.		

Unless otherwise specified, only one row is meant.

CHART NUMBER 2

Cabbage is one of the things frequently over-planted. Started in April, the early varieties will be ready in July. These will remain in good condition for about a month. If you count upon using cabbage twice a week, two heads at a meal, it is evident that a dozen and a half plants, or, at the most, two dozen, allowing a few for the cut worms, should be ample. Do not set out fifty or a hundred, just because you happen to have the plants. A packet of seeds sown in April, outdoors, will give you two or three dozen plants to transplant for late summer and fall use; and another packet, sown in late May, will supply you with plants for your winter crop.

Take your list, and from it make two

new lists, putting in one all the vegetables which will occupy the ground the entire season, and in the other those that will mature in part of a season, and may succeed or follow some other crop. Before each vegetable, put the number of rows you have estimated, and, after it, the distance apart of rows, in feet or in inches—to tell you how much ground each will occupy. For instance, in crops remaining all season, four rows of onions, one foot apart, will take up four feet, and so through your whole list of selected vegetables.

Having these two lists of vegetables, and the amount of space each will require, mark off a rough plan on a sheet of paper, and put down on this each vegetable and

the amount of space you have allowed for it. The vegetables may be arranged as you wish, but if they are grouped according to time for planting, habit of growth, and so on, the work will be much simplified (see Chart No. 2). In this way you can shift on paper, and not in your garden.

When you have made your rough plan and have arranged your vegetables as you will want them, go over them item by item again, cutting out a row here and there, or rearranging your combination crops until the spaces occupied and the length of the garden balance exactly.

TESTED VARIETIES OF VEGETABLES

VEGETABLES

VARIETIES

BEETS	Early Model; Columbia; Crimson Globe; Detroit Dark Red.
BEANS (early)	Stringless Green Pod; Bountiful; Early Red Valentine.
BEANS (wax)	Rust-proof Golden Wax; Burpee's Kidney Wax; White Wax.
BEANS (lima)	Burpee Improved; Henderson's Bush; Dreer's Bush.
BEANS (pole)	Burpee's Stringless Green Pod; Sunshine Wax; Worcester Pole.
BEANS (pole lima)	Early Leviathan; Giant Podded.
CABBAGE	Copenhagen Market; All Head; Succession.
CABBAGE (late)	Perfection Savoy; Danish Roundhead; Danish Red.
CAULIFLOWER	Snowball; Dry Weather; Best Early.
CARROT	Short Horn; Coreless; St. Vallery; Danver Chantenay.
CORN	Golden Bantam; Peep o' Day; Howling Mob; Early Crosby.
CORN (main crop)	White Evergreen; Country Gentleman; Seymour's Sweet Orange; Black Mexican.
CELERY	Golden Self-Blanching; Winter Queen; Emperor.
CUCUMBERS	Davis Perfect; Vickery's Forcing; Fordhook Famous.
LETTUCE	Mignonette; Grand Rapids; Wayahead; Iceberg; Big Boston; All-seasons; Brittle Ice; New York; Salamander.
LEeks	American Flag; Giant Musselberg.
ONION	White Queen; Prizetaker; Danvers; South Port Globes; Ailsa Craig; Gigantic Gibraltar.
MELONS, WATER	Coles' Early; Halbert Honey; Ice Cream; Baby Delight.
MELONS, MUSK	Emerald Gem; Netted Gem; Henderson's Bush; Montreal; Spicy.
PEAS (smooth)	Best Extra Early; Alaska; Clipper; Pilot.
PEAS (wrinkled)	Little Marvel; Laxtonian; Blue Bantam (dwarfs); Gradus; Early Morn.
PEAS (late)	Boston Unrivalled; Royal Salute; British Wonder (dwarf).
PEPPER	Early Neapolitan; Ruby King; Ruby Giant; Sweet Upright.
POTATO	Irish Cobbler; Gold Coin.
RADISH (early)	Rapid Red; Crimson Globe; Icicle.
RADISH (late)	White Strasburg; Chertiers.
SQUASH (summer)	Scalloped Bush; Fordhook Bush; Delicata.
SQUASH (winter)	Hubbard; Delicata; Delicious; Blue Hubbard.
TOMATO	Bonnie Best (early); Dwarf Giant; Matchless.
TURNIP (early)	White Milan; Petrowski; Amber Globe.
TURNIP (late)	Amber Globe (yellow); White Egg.

Chapter II

Starting Plants

ONE of the most important things to be considered if you want to make your garden a success, is to have on hand plenty of strong, well-grown plants of all vegetables which may be started early and then transplanted, ready to be set out into the vegetable garden when weather conditions permit.

By setting out started plants you not only gain several weeks' time, but success is much more certain than with extra early crops planted from seed. The list of vegetables that can be started ahead in this way, and set out when partly grown, includes cabbage, cauliflower, lettuce, beets, onions, tomatoes, peppers, eggplant, and celery. In addition to these, melons, cucumbers, lima beans, sweet corn, and squash can be started and transplanted with almost as great advantage, and with much less trouble. Of course, if you buy your plants, this will be expensive, but you can start them just as well yourself even without a greenhouse.

To do this, you must meet the plant's three requirements: heat, moisture and light. If you have a hotbed, you will probably use that; but if you have not, a warm sunny window such as you can easily appropriate, in the kitchen or living-room, for a few weeks in early spring, will answer the purpose. The seedlings, when first started, require very little room. It is only after they are transplanted that they begin to take up space. Your planting should be so arranged that you can, at transplanting time, put them into a frame out of doors.

So far as heat is concerned, a temperature of from forty-five to fifty degrees at night will answer for the vegetables you will want to start early. It will be possible to have good plants, even if the tempera-

ture goes down to forty occasionally, but growth will not be quite so rapid. You will not want to put in tomatoes, eggplants and peppers, which are all "warm-blooded" things, until two or three weeks after the earlier things are sown. For these, the night temperature should average higher, say fifty to sixty degrees.

Undoubtedly, the most general cause of failure in starting plants indoors is insufficient moisture. The air in many houses, particularly if they are heated with hot air or with steam, is so dried out that it is almost impossible to keep the soil in the seed boxes uniformly moist; and when the little plants begin to grow they need moisture in the air as well as in the soil. One way of overcoming this difficulty is to keep pans or saucers of water evaporat-

ing on radiators, or on the stove, so that moisture is being continually given off to be absorbed by the abnormally dry air. Another help comes through ventilating as frequently as

CABBAGE SEEDLINGS READY TO TRANSPLANT

possible without getting the room too chilly, and thus maintaining a supply of fresh, moist air from the outside. When the plants once begin to grow, frequent ventilation to supply fresh air will be one of the most important factors in keeping them in healthy, vigorous condition. Where they are grown in a window, however, care should be taken that there is no direct draft upon them, as sudden change in temperature is likely to check them severely.

With the exception of the few days during which the seeds are germinating, and a day or two after transplanting, the little seedlings will want all the sunlight you can possibly give them. Otherwise, while they may grow vigorously, they will be tall, spindling, and weak; and for good

results, a stocky plant is just as essential as one of good size. If they all cannot have an equal amount of light, the smallest untransplanted seedlings should be given the preference. As a general rule, however, it will be better to start no more than the number which can receive full light.

Soil and seed pans or boxes—"flats" they are called—in which to start the seedlings are your first necessity. If you have followed the advice given in Chapter 1, you should know just how many plants

of each variety you will require. An ounce of beet seed and a packet each of the other things will be an ample supply for a small garden. In fact, a very good result from

half these amounts should furnish you with plenty of good plants for transplanting, and if you put in only half the seed at the first sowing, the rest can be saved for a second planting, in case the first fails.

Small earthenware "seed pans," which are made something like extra deep flower-pot saucers, can be bought at a hardware store, and are very convenient for starting small quantities of seeds. Cigar boxes are sometimes used, but the wood is thin and warps easily and the soil dries out more quickly in them. If you want to use boxes, get a wooden cracker-box and saw it up into sections from two to two and a half inches deep, and put bottoms on these. Leave half-inch cracks for drainage. A half a dozen, or even a dozen different kinds of seeds may be sown in one "flat" if you want only a few dozen plants of each. The soil will not dry out so quickly in such an arrangement as this, and will not need so much attention as a half dozen small boxes. When transplanting time comes, each variety can have a box to itself.

The soil for starting seed should be very light and friable (that is, easily crumbled); if you have to prepare your own, add builders' sand and leaf mold, or chip dirt (which you can gather in the

woods or from under the woodpile and rub through an ordinary ash sieve) to your regular garden soil. The resulting mixture should be light and springy, so that it will absorb moisture readily and will not pack or cake on the surface. Soil which gets hard on the surface will not permit the little starting seedlings to come through—and then the seedsman is blamed for furnishing poor seeds. Both commercial humus and coconut fiber are good spongy materials with which to cover your seeds, if your soil cannot otherwise

be made just right.

In filling the pans or "flats" for the seeds, press the soil down firmly, especially in every corner; not to pack it, but to keep it from being

IN TRANSPLANTING, SAVE ALL THE ROOTS POSSIBLE

fluffy. If it is at all dry, give it a thorough watering with a fine rose spray, and let it stand for several hours until the water has soaked in and the surface is dry enough not to be sticky when you touch it. Mark off shallow drills with the point of a lead pencil, or with the end of a wooden label. Beet seeds, which are large, can be placed about a quarter of an inch deep, but the others should be barely covered. After planting, give a moderate watering which will help to swell the seeds at once.

Label each variety carefully as it is planted. A pane of glass laid over each seed-pan or box, not fitted tight enough to prevent the free admission of air, will aid very materially in keeping the surface of the soil from drying out and will hasten germination. Immediately after planting, the pans, or "flats," should be put into a warm place, on top of a radiator, or near a stove. Light is not essential until after germination takes place, but the receptacles should be watched carefully every day, as leaving them so close to heat even a day too long may spoil the whole planting.

Rig up in front of the window you have available, a plain board shelf of sufficient size to accommodate your planting operations. This may be supported by an old table or a movable support made for

the purpose. On the edge of this may be tacked a guard of shingle lath, coming just above the surface. This will go a long way toward helping you to keep from mussing up the room when caring for your plants.

These little seedlings should begin to break the surface of the soil in from three to ten days after planting, according to variety and the amount of warmth they have. Watch the soil carefully and do not let it dry out. It is well to water it as infrequently as possible, but if the soil begins to get dry, water it thoroughly, at once, with a very fine spray.

As soon as the little plants break ground, remove the pans or boxes to their shelf, within reach of full sunlight. They will develop rapidly, and for the next four to six weeks careful attention must be given to watering and ventilation to keep them growing steadily and vigorously. The temperature during the day in the bright sunlight may run up from ten to fifteen degrees above the night average. They should be watched carefully, every day, to see that the soil does not dry out, but overwatering should be equally avoided. During February and March it is better to water on bright, sunny forenoons so that the foliage dries off before night. If the sun is "baking hot" during the day, a piece of cheesecloth hung over the window will break its force without keeping out the light.

A fungus disease, known as "damping off," sometimes destroys the plants during the early stages of growth. It attacks the stems near the surface of the soil and causes the little seedlings to fall over. If it appears, keep the plant as warm and as dry as possible and sprinkle flowers of sulphur over the soil.

As soon as the first pair of true leaves is well out, and the second set is developing, the little seedlings will be ready for transplanting. As a rule, the sooner this is done the better. There is thus less danger of losing the plants, and they get over the

shock of transplanting more quickly. The soil used for transplanting should be rich and light. Compost removed from the last year's hotbed, and garden soil, mixed with the new, makes an excellent combination. A little manure, if old and very thoroughly rotted, should be put in the bottoms of the "flats" or pans. The pans used for transplanting should be three inches or so in depth, and the soil packed down to a fair degree of firmness. An ordinary cracker-box "flat" will hold from four to six dozen plants. The fewer you put in, the stronger plants you will get.

Having everything in readiness, take the little seedlings out of their original beds, carefully, a few at a time. Lay them out with the roots all one way, and then with the forefinger, or a small pointed stick, make a hole in one corner of the new box deep enough to take the seedling to be transplanted well up to the first leaves; then, with the forefingers and thumbs of

both hands press down the soil firmly about it. Mark off your rows and proceed until the "flat" is filled. Then jar the sides with the palm of the hands sufficiently to level the soil and even down the little ridges.

LETTUCE SEEDLINGS AFTER TRANSPLANTING

Give a thorough watering, and shade from bright sunlight during the midday hours, for three or four days.

The transplanted seedlings will probably have to be put into a mild hotbed or into a cold frame. This should be kept with less than the usual amount of ventilation until the seedlings have become established. Water sparingly the first two or three days.

Plants should be started in clay or square paper pots from two to four weeks before setting outdoors. In the bottom of the pot put an inch or so of rich compost and soil on top of this. Thin out to three or four of the best plants as soon as they are well started. The plants should be thoroughly hardened by leaving the glass off the frame for several nights before setting them out.

Soil for the Spring Garden

THERE are three factors which enter into the preparation of your garden for big and continued yields of high quality of vegetables: the first is the physical condition of the soil; the second, the bacteriological condition; and the third, the chemical contents. The knowledge of these factors forms the A-B-C of gardening.

The physical condition of the soil means its characteristics—that is, whether it is light, heavy, sandy, gravelly, or mostly clay. It includes also the condition it is in, as a result of cultivation, or of neglect: that is, whether it is packed down hard, or broken up in lumps, or what is called “in good tilth”—deep and finely pulverized, and soft and mealy—the kind you like to work in with your hands, and in which it is a pleasure to use a hoe. No matter how limited your garden experience may have been, you could probably recognize soil that is in good condition physically; how to get it into good condition, is another story.

The earlier in the spring you can begin work on your garden, the better it will be. Of course, you cannot touch it until the frost is out of the ground, and after that, it will be several days, or possibly a couple of weeks—according to the nature and condition of the soil, and climatic conditions—before it will be dry enough to “work.” You can tell when it is ready by taking a spade or fork, and turning the surface earth. If it breaks and crumbles readily when you drop it on the ground, the sooner you can get to work at it, the

better. If it has a tendency, however, to remain in a wet, muddy mass, it should be left for a while longer.

The initial operation is to turn the soil over—to spade it up, or to plow it. Unless your garden is a very small one, it will be cheaper and better to have it plowed; but whether by hand- or by horse-tools, the work should be done very thoroughly. Every square foot of the soil should be turned over and broken, from four to six inches deep, down to the “sub-soil”—which is the layer of hard, uninviting-looking dirt that lies below the surface soil.

After your garden has been plowed or spaded up, it will be in a rough and lumpy condition. The next step is to harrow it. If it is too small for horse-tools, go over it with the prong hoe and iron rake, or the rake attachment on your hand wheel-hoe, until it is pulverized as deep down as possible. It may be several

HOEING A CAULIFLOWER GARDEN

weeks or even two months from this time before you will have finished planting, but it is best to go over the whole surface immediately after plowing or spading.

Pulverizing the soil accomplishes two things: it provides a surface which will soak up rain rapidly, and from which, on account of the soil mulch on the top, moisture will not rapidly evaporate; it gives the first crop of weed-seeds a chance to sprout. Whenever you plant after that, only a few minutes' work with an iron rake will be necessary, providing the pulverizing was well done in the beginning.

As to the bacteriological condition of soil, it has long since been proved that the richness or fertility of any soil depends, to a great extent, upon the presence in it of large numbers of soil bacteria. One of the things which they require is plenty of vegetable matter. This may be supplied by adding manure to the soil; by turning under sod or some other growing crop to decay in the soil; or by using commercial humus, which is now being used, to a large extent, as a partial substitute for manure.

If you buy commercial fertilizer, the best for your garden should contain four per cent. of nitrogen; eight per cent. of phosphoric acid; and ten per cent. of potash. This year, however, on account of the war, it will probably be impossible to obtain fertilizers with ten per cent. of potash. To make up this deficiency, if it exists for you, use wood ashes.

Most garden soils, especially those that have been used continuously for years, tend to become acid, or "sour," and many kinds of vegetables do not grow well in them. Your garden may be made sweet by the addition of lime. If you use plenty of wood ashes, that will be all that is necessary; but if you cannot secure these, get a bag or two of ground limestone, which costs very little, when you buy your fertilizer. The ground limestone is a fine white powder, which is clean and easy to handle, and has no disagreeable smell. You should use two or three times as much limestone as fertilizer; but it will not be necessary to use it oftener than once in three years, and it can be put on in the fall as well as in the spring.

To give the garden a good dressing of manure, such as market gardeners apply,

from one-half to one cord will be required for a garden fifty feet by thirty feet. The earlier you can get it, the better, especially if you can have it stacked up in a square heap in one corner of the garden to ferment before you use it. If the frost is out, it can be spread directly on the ground, even if it will be some time before you have a chance to plow or spade it. If spread on the frozen ground, it will keep the frost in, and delay your getting an early start in the spring. The manure should be spread as evenly as possible, before the plowing or spading is done. It should be turned under carefully, in order that no long straw or lumps remain on the surface.

Fertilizers, humus, and lime should be applied after plowing or spading, but before the first raking and fining of the soil. If no manure is to be had, both humus and commercial fertilizers should be used generously. One supplies the vegetable matter and the bacteria, and the other plant food. More fertilizer will be needed with humus alone than with manure. In addition to a good dressing of manure, apply a high-grade, complete fertilizer, using two pounds per hundred square feet of soil. If no manure has been used, double this quantity.

For each one hundred square feet

of surface, use ten to twenty pounds of lime. If you have used wood ashes annually, no lime will be needed. To determine definitely whether or not your garden needs lime, put some soil in a cup; add water, then insert a strip of litmus paper. If it turns pink, lime is needed; if red, a heavy application of lime is desirable.

The raking and fining of your soil should be done immediately after it is plowed or spaded.

MAKING WASTE PLACES YIELD

Chapter IV

Starting the Garden Right

THE first step toward success is the preparation of the seed-bed—or surface soil. While the seed remains in the packet dormant, it will stand a good deal of knocking about and abuse; but the moment you put it into the soil, the spell is broken; and unless it finds conditions which are congenial, the vegetable or flower you expected to develop from it, will never materialize.

Moisture, warmth, and a covering which is not so deep or hard that it cannot be thrust aside are necessary for seed growth. Almost all flower seeds and most vegetable seeds should be covered very lightly. The top layer or surface of the

soil, to the depth of an inch or so, dries out, however, very rapidly. The gardener's first problem in planting, therefore, is to provide a continuous supply of moisture for the seeds without covering them so deep that they will be hindered in coming up.

Always plant on a freshly prepared seed surface. Bring fresh, moist soil close up around the seeds so that they will swell and sprout soon.

To make a good seed-bed rake over the surface of the soil until it is very level and finely pulverized. Do this after plowing and again before planting.

Plant with the inexpensive seed drill;

PLANTING TABLE

VEGETABLES	WHEN TO PLANT	PLANT IN	ROWS APART	APART IN ROW	DEPTH TO COVER
Asparagus,	April-May	Trench	3 ft.	1 ft.	4 in.
Beets,	April-May	Drills	12-15 in.	3-4 in.	1 in.
Beets, late,	May-June 15	Drills	12-15 in.	3-4 in.	1 in.
Beans, early,	May-June 15	Drills	18 in.	3-4 in.	1-2 in.
Beans, wax,	May-June 15	Drills	15-24 in.	3-4 in.	1-2 in.
Beans, lima, dwarf,	May-June 15	Drills	18-24 in.	4-6 in.	1-2 in.
Beans, pole,	May-June 15	Hills	4 ft.	4 ft.	1-2 in.
Cabbage (plants),	April-May	Rows	2 ft.	1½ ft.	
Cauliflower (plants),	April-May	Rows	2 ft.	1½ ft.	
Carrots,	April-May	Drills	12 in.	2-3 ft.	½ in.
Corn,	May-June	Drills	3-4 ft.	3 ft.	2 in.
Celery,	April-May	Trench	12 in.	2-3 in.	¼-½ in.
Cucumbers,	May-June	Hills	4 ft.	4 ft.	1 in.
Eggplant (plants),	May-June	Rows	2½ ft.	2 ft.	
Endive,	April-May	Rows	12 in.	12 in.	½ in.
Kohlrabi,	April-May	Drills	18 in.	6-8 in.	½ in.
Lettuce,	April-May	Drills	12-15 in.	8-12 in.	½ in.
Melons, Musk,	April-May	Drills	12-15 in.	2-3 in.	½ in.
Onion,	May-June	Hills	4-6 ft.	4-6 ft.	½-1 in.
Parsley,	April-May	Drills	1 ft.	4-6 in.	¼-½ in.
Parsnip,	April-May	Drills	15-18 in.	3-5 in.	½-1 in.
Peas, smooth	April-May	Drills	3 ft.	2-4 in.	1-2 in.
Peas, wrinkled,	April-May	Drills	3-4 ft.	2-4 in.	3-4 in.
Peas, late,	May-June	Drills	3-4 ft.	2-3 in.	3-4 in.
Peppers (plants),	May-June	Rows	2½ ft.	15-18 in.	
Potato,	April-May	Rows	28 in.	13 in.	3-4 in.
Pumpkin,	May-June	Hills	6-8 ft.	6-8 ft.	½ in.
Radish,	April-May	Drills	1 ft. 3 in.	2-3 in.	½ in.
Salsify,	April-May	Drills	15-18 in.	2-4 in.	1-2 in.
Squash,	May-June	Hills	4-6 ft.	3-6 ft.	1 in.
Swiss Chard,	April-May	Drills	15-18 in.	8-12 in.	½ in.
Tomato (plants),	May-June	Hills	3-4 ft.	2-3-4 ft.	
Turnip,	April-May	Drills	15-18 in.	4-6 in.	½ in.

it opens a furrow, distributes the seeds evenly, closes the furrow with the fresh, moist soil on top of the seed, firms down the soil above the planted seed, and marks out the next row, all in one operation. One should be sure to let the surface of the freshly raked soil dry out for several hours before planting is attempted. Small seeds, such as carrots, cauliflowers, lettuce, onions, radish, and turnips, should be sown quite thickly—eight to twelve to the inch. This is, of course, much thicker than the plants can grow, but some of them will fail to come up, and others will meet with accidents of various sorts, and in order to get the plants thick enough so that there will be no skips or bare places in the row, the seeds are purposely sown too thickly, and the plants thinned out, as soon as they are well started, to the distance required. The seeds just mentioned are covered from a quarter to a half inch deep. This is also the right depth for Brussels sprouts, cabbage, cauliflower, and celery, which are usually sown in

rows in the same way as the above—but not so thick—thinned out to stand from three to four inches apart, and then transplanted as soon as they begin to crowd. Larger seeds, such as beans, peas, and sweet corn, are planted from one to two inches deep, while the vine vegetables, such as melons, cucumbers, squash, pumpkins, and citron, are planted from one-half to one inch deep.

Some of the larger seeds, such as peas, beans, and corn, are often planted by hand. A drill or furrow two or three inches deep is opened up with a hoe. The seed should be dropped and covered at once while the soil is still moist. If the

soil is at all dry, it should be pressed down firmly in the furrow with the back of the hoe so that every seed will be brought into close contact with the soil; and after it is covered, the top of the row should again be lightly firmed.

Extra deep or trench planting is sometimes used. A furrow or trench six inches or so deep is opened up and the seed is planted in the bottom of this, and covered with an inch or two of soil. As the plants grow, more soil is put in and in this way the trench is gradually filled up level with the soil, although it is a good plan to make a slight elevation in order to drain off surplus water. The purpose of this planting is to get the roots far below the surface of the soil, where they will remain cool and moist during very hot weather. Late plantings of garden peas, set out in this way, will be much better able to withstand the dry weather of June and July. Celery plants may be set out in narrow trenches several inches deep, the gradual filling in of

the soil helping to hold them upright as they grow.

In the accompanying table you will notice that the various vegetables are to be planted in drills, rows or hills. As there is generally confusion in regard to the meaning of these terms—a few words of explanation will help to make the matter more clear.

Planting in drills means the sowing of seeds in a continuous line, so that the plants will come up quite close together; the plants are thinned out after they are well started to prevent overcrowding.

Planting in rows means sowing the seeds at equal distances, usually far enough

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apart to allow cultivating the plants in rows. Placing in hills means putting several plants together, usually several feet apart each way. The hills are generally enriched before they are planted. Where the row is to be sown or planted by hand, it is often advisable to enrich it by opening up a furrow, sowing fertilizer or manure, either in a continuous line or at the points where the plants are to be set, and mixing it with the soil, before planting. Hills are usually enriched by digging out a space a foot and a half to two feet square—four inches or so deep, mixing fertilizer or manure with the soil at the bottom, and then replacing the soil which had been removed. This special preparation is especially recommended for the vine crops, as they are planted late, and are much more likely to survive the attacks of insects if they are able to make a robust, rapid growth from the very beginning.

The common vegetables in the garden, such as cabbage, cauliflower, lettuce, extra early beets, tomatoes, peppers and eggplant, should be set out as partly grown plants, obtained from the seedsman or started in the cold frame or seed border. Thorough preparation and fining of the soil is just as essential for success in transplanting plants as for sowing seeds. In transplanting, no matter how carefully the work is done, the roots are more or less displaced and broken up, and a large percentage of them is lost altogether. Before they can continue their work of absorbing moisture from the soil and of sending it up to the leaves above, where most of it is rapidly evaporated, they must produce new feeding rootlets or root hairs. This takes several days, even under favorable conditions. For this reason, it is desirable to cut back the tops of the plant from one-half to a third just before transplanting. Otherwise, the roots cannot supply moisture to the leaves as fast as it is needed, and the

result is that the whole plant wilts. In trimming back the plant, cut the large outside leaves, being careful not to injure the new ones that are just developing. The soil in which the plants just set out are growing, whether in cold frames, pots, or flats, should be moist, but not wet, when they are transplanted. Water thoroughly twenty-four hours or so before you expect to transplant.

The rows or hills having been prepared in advance, and the plants made ready, the work of transferring them to the soil should be done as quickly as possible, and preferably on a cloudy or drizzly day, or late in the afternoon.

Plants growing in flats should be cut out with an old knife or a transplanting fork. In digging them up from the frames, or in the garden, lift them carefully with the trowel so as to get a good ball of roots. Only a few should be handled at a time, so that there will be the least possible danger of their drying out or wilting before they are put into the ground. It is of the greatest importance in transplanting to get the soil firm about the roots. Set the plant in deep so that there is not much stem above the ground, and firm the earth around it as much as you can with the fingers. There is no danger of getting it too firm. Except in wet weather or in very heavy soil, it is a good plan to go back over the row, after planting, and press the soil down with your feet.

A mistake that is often made is to water newly set out plants on the surface of the soil. If the weather and the soil are so dry that water must be used, put it in the bottom of the hole below the roots, before you put in the plant. If you have to water after that to keep the plant from wilting, you can make a hole beside each plant with the end of the hoe handle, and pour in the water, letting it soak away gradually.

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