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## PLANTING YOUR GARDEN

**Types of planting.** Gardeners can either plant seeds directly in the garden (direct seeding) or plant small plants (transplants). Root crops such as carrots, radishes, rutabaga, and parsnips are usually direct seeded as well as legumes such as peas and beans. Corn, cucumbers, and squash can also be direct seeded. Transplants grown in a cold frame or indoors shorten the time between planting and harvest and assure no empty spaces in rows. Vegetables usually grown from transplants include tomatoes, peppers, eggplant, broccoli, cauliflower, and lettuce. Many melons, including watermelon, are now grown from transplants.

**Selecting seeds.** For optimum germination, purchase new seed every year from a reliable company. Old seeds may be slow to germinate and often result in uneven spacing within rows or even empty gaps. Seeds saved from last year's crop increases the possibility of producing plants that do not breed true. Seeds from hybrid plants often revert back to their original parents whose characteristics may be interesting, but sometimes are plants of inferior quality. In addition, diseases can be transmitted from generation to generation through their seed. Seed companies select disease-free plants for their stock. Seeds from heirloom plants should breed true as long as there has been no cross pollination from other varieties.

**When to direct seed outdoors.** To insure optimum germination, the soil temperature is of prime importance. The temperature of the soil at planting time affects the rate at which seeds germinate, or if they germinate at all. Some seeds can be planted as soon as the ground can be worked without becoming cloddy (late

March to early April). These include beets, peas, radishes, spinach, carrots, and lettuce. Crops that should be seeded when soil temperatures are greater than 60°F and after the danger of frost is past (about mid May) include beans, corn, cucumbers, melons, pumpkins, and squash. The seed packets often give information on when a crop should be planted outdoors.

**How to direct seed.** First, rake the seed bed as smooth as possible and remove large clods and rocks. Then, mark straight rows with stakes and a string. Make a shallow furrow by drawing a rake handle along the string. The seed packet often describes how deep the seeds should be planted as well as the spacing between seeds. If saved seeds are one or more years old, plant them thicker than you would sow fresh seeds. Generally, the large seeds should be planted more deeply than smaller seeds. Lettuce seeds should be planted very shallowly because light is necessary for germination. After covering the seeds with soil, tamp the soil with a rake or hoe to insure that the seeds have good contact with the soil. After the seeds have germinated and the seedlings are established, thin or remove the extra seedlings to the desired spacing. When thinning, try to save the strongest seedlings. The seedlings of some vegetables, if carefully removed during thinning, can be transplanted and used to fill in empty spaces in the row. Thin root crops before their taproots become fleshy. If the plants are spaced too closely, they become stunted with reduced yields.

**Buying transplants.** When buying transplants, select recommended cultivars if possible.

Cultivar trials of many vegetables have been conducted at the Experiment Station with the results described in Station Bulletins. Many of these Bulletins can be found online. Choose plants that are healthy, medium-sized, and free of disease or insects. Avoid yellow, spindly, or oversized plants and those with brown spots or markings on their foliage or stems. If possible, buy plants in containers with their root systems intact and protected. Bundles of bare-rooted plants should be fresh, have a good green color, and have moist and healthy roots.

**Growing your own transplants.** Growing your own transplants has many advantages. They are often less expensive to grow. They are available when you need them and you can grow the varieties you want. You also avoid the danger of diseases and insects. You can successfully grow transplants of many vegetables by following a few simple guidelines.

To determine when to start your transplants indoors, read the seed packet. Broccoli, cabbage, and cauliflower take 5 to 7 weeks to reach the size for transplanting while tomatoes, peppers, and eggplant may need 8 or more weeks.

Containers for growing transplants can be purchased or you can use plastic egg cartons, milk cartons, aluminum foil loaf pans, or pie tins. Provide drainage holes at the bottom of the container before filling the container nearly to the top with a soilless mix. Several commercial sterile soilless mixes are available. Garden soils may be contaminated with disease and weed seeds and drainage is often poor.

Do not plant seeds too thickly. When using trays or pans, plant the seeds in rows and cover with one quarter of an inch of mix. When planting in individual containers, plant two or three seeds per container. After thorough watering, cover the containers with a piece of plastic or slip them into a clear plastic bag to maintain high humidity. The optimum temperature for germination is 80°F. If the temperature drops below 80°F, germination slows. Time to germinate ranges from 2-3 days (broccoli, cauliflower) to 2 weeks (eggplant, peppers). Tomatoes usually germinate in about 10 days. Germination of hard coated seeds can often be accelerated by soaking the seeds in tap water for 2 days before planting.

As soon as the seeds germinate, increase the light intensity to prevent spindly growth. There should be at least 6 hours of direct sunlight each day. Cool, white, 40-watt fluorescent tubes placed 6 to 8 inches above the seedlings can be used as a supplemental light source. Optimum results may be obtained if the fluorescent fixture is next to a window to increase the amount of light reaching the young plants. Individual containers with more than one seedling should be thinned to one plant. Seedlings germinated in trays must be transplanted to individual containers while still small. Onions and leeks can stay in the trays and transplanted bare root in the garden.

Some commercial potting soils contain a small amount of fertilizer, but not enough to grow the seedlings. Fertilize seedlings with water soluble fertilizer. Prepare a fertilizer solution following the instructions on the container.

**Transplanting to the garden.** Before setting the transplants in the field, place them outside for 1 to 2 weeks to acclimate them to colder temperatures, brighter light, and wind. Hardening young seedlings increases their food reserves, reduces the severity of transplant shock, and increases the chance of survival in the garden. Bring them indoors only when there is danger of frost. A day or two before setting in the field, fertilize the transplants with water soluble fertilizer. If possible, set transplants in the garden on a cloudy day or in the evening. Avoid root disturbance as much as possible. Water the transplants immediately, and do not let the soil dry while the transplants adjust to their new environment. Tall tomato transplants can be planted deeply, burying their stem to the first set of leaves.

**What's next?** Once your garden is planted, you should not just forget about it. Maintaining your garden is important throughout the growing season to obtain optimum yields. See Station fact sheets on mulches and maintaining your garden.