

PLANT PROPAGATION

Transplanting and Handling

If the plants have not been seeded in individual containers, they must be transplanted to give them proper growing space. One of the most common mistakes made is leaving the seedlings in the seed flat too long. The ideal time to transplant young seedlings is when they are small and there is little danger from setback. This is usually about the time the first true leaves appear above or between the cotyledon leaves (the cotyledons or seed leaves are the first leaves the seedling produces). Don't let plants get hard and stunted or tall and leggy.

Seedling growing mixes and containers can be purchased or prepared similar to those mentioned for germinating seed. The medium should contain more plant nutrients than a germination mix, however. Some commercial soilless mixes have fertilizer already added. When fertilizing, use a soluble house plant fertilizer, at the dilution recommended by the manufacturer, about every 2 weeks after the seedlings are established. Remember that young seedlings are easily damaged by too much fertilizer, especially if they are under any moisture stress.

To transplant, carefully dig up the small plants with a knife or wooden plant label. Let the group of seedlings fall apart and pick out individual plants. Gently ease them apart in small groups which will make it easier to separate individual plants. Avoid tearing roots in the process. Handle small seedlings by their leaves, not their delicate stems. Punch a hole in the medium into which the seedling will be planted. Make it deep enough so the seedling can be put at the same depth it was growing in the seed flat. Small plants or slow growers should be placed 1 inch apart and rapid-growing, large seedlings about 2 inches apart. After planting, firm the soil and water gently. Keep newly transplanted seedlings in the shade for a few days, or place them under fluorescent lights. Keep them away from direct heat sources. Continue watering and fertilizing as in the seed flats.

Most plants transplant well and can be started indoors, but a few plants are difficult to transplant. These are generally directly seeded outdoors or sown directly into individual containers indoors. Examples include zinnias and cucurbits, such as melons and squash.

Containers for Transplanting

There are a wide variety of containers from which to choose for transplanting seedlings. These containers should be economical, durable, and make good use of space. The type selected will depend on the type of plant to be transplanted and individual growing conditions. Standard pots may be used, but they waste a great deal of space and may not dry out rapidly enough for the seedling to have sufficient oxygen for proper development.

There are many types of containers available commercially. Those made out of pressed peat can be purchased in varying sizes. Individual pots or strips of connected pots fit

closely together, are inexpensive, and can be planted directly in the garden. When setting out plants grown in peat pots, be sure to cover the pot completely. If the top edge of the peat pot extends above the soil level, it may act as a wick, and draw water away from the soil in the pot. To avoid this, tear off the top lip of the pot and then plant flush with the soil level.

Community packs are containers in which there is room to plant several plants. These are generally inexpensive. The main disadvantage of a community pack is that the roots of the individual plants must be broken or cut apart when separating them to put out in the garden.

Compressed peat pellets, when soaked in water, expand to form compact, individual pots. They waste no space, don't fall apart as badly as peat pots, and can be set directly out in the garden. If you wish to avoid transplanting seedlings altogether, compressed peat pellets are excellent for direct sowing.

Community packs and cell packs, which are strips of connected individual pots, are also available in plastic and are frequently used by commercial bedding plant growers, as they withstand frequent handling.

In addition, many homeowners find a variety of materials from around the house useful for containers.

These homemade containers should be deep enough to provide adequate soil and have plenty of drainage holes in the bottom.

Hardening Plants

Hardening is the process of altering the quality of plant growth to withstand the change in environmental conditions which occurs when plants are transferred from a greenhouse or home to the garden.

A severe check in growth may occur if plants produced in the home are planted outdoors without a transition period. Hardening is most critical with early crops, when adverse climatic conditions can be expected.

Hardening can be accomplished by gradually lowering temperatures and relative humidity and reducing water.

This procedure results in an accumulation of carbohydrates and a thickening of cell walls. A change from a soft, succulent type of growth to a firmer, harder type is desired.

This process should be started at least 2 weeks before planting in the garden. If possible, plants should be moved to a 45o to 50oF temperature indoors or outdoors in a shady location. A cold frame is excellent for this purpose.

When put outdoors, plants should be shaded, then gradually moved into sunlight. Each day, gradually increase the length of exposure.

Don't put tender seedlings outdoors on windy days or when temperatures are below 45oF. Reduce the frequency of watering to slow growth, but don't allow plants to wilt. Even cold-hardy plants will be hurt if exposed to freezing temperatures before they are

hardened. After proper hardening, however, they can be planted outdoors and light frosts will not damage them.

The hardening process is intended to slow plant growth. If carried to the extreme of actually stopping plant growth, significant damage can be done to certain crops. For example, cauliflower will make thumb size heads and fail to develop further if hardened too severely. Cucumbers and melons will stop growth if hardened.

Transplanting Seedlings

WHEN TO TRANSPLANT: Transplant seedlings from the germinating tray to more spacious quarters as soon as they are large enough to handle. This procedure is called pricking-out.

The usual signal for readiness is the growth of the second set of leaves (the first set of true leaves). Before this, there won't be enough root system to keep the transplant alive: Leave it too much later and it becomes difficult to separate the seedlings without damaging them.

CONTAINERS: Seedlings may be transplanted into anything from yogurt cups and milk cartons, to old cell packs from last year's bedding plants. The containers should be at least 8 cm deep and have drainage holes. Holes in the bottom often get blocked, so it is referable to make holes in the sides of the container close to the bottom. **POTTING MEDIUM:** Use a mix that incorporates equal parts by volume of pasteurized soil, peat moss and vermiculite or perlite. Combine all ingredients thoroughly and moisten the mix before filling the containers (moist soil will form a loose ball when pressed in your hand). The potting mix should be warm when transplanting seedlings. If you have a prepared mix which has been stored in the garage for example, be sure it is thoroughly thawed before using. Warm the mix by moistening with hot water. Fill the containers to within about 1.5 cm of the rim. Settle the mix by tapping the container and level it by pressing the surface lightly.

PRICKING-OUT: Choose a shady spot for the pricking-out procedure so the seedlings will suffer less from wilt.

Handle the seedlings by grasping the leaves between your thumb and index finger. Do not handle by the stem, which is fragile and crushes easily.

Gently dig under the roots with a dibber (a pencil or popsicle stick will do) to lift out a small clump of seedlings.

Dig only a few seedlings at a time so they won't dry out, and try to get a bit of soil with the roots. Gently drop the clump to knock the soil away from the roots so that you can tease the individual seedlings apart.

Use the dibber to make a hole in the growing mix just large enough to accommodate the roots of the seedling.

Allow a spacing of at least 5 to 7 cm between holes for seedlings to develop.

Place one individual seedling into each hole, setting the transplant slightly deeper than it was growing in the germinating flat. Press the soil around the roots to cover them and eliminate air pockets.

After all the seedlings have been transplanted, water them lightly with tepid water. Add a water soluble starter fertilizer, diluted to half strength, to the water. Place the transplants out of direct sun while they recover from the shock of being transplanted.

GROWING-ON: As the transplants grow they will require water more frequently. Make it a habit to check them daily. Pinch back the tops of tall plants to encourage bushy, well-branched plants.

Bedding plants should be hardened-off or acclimatized to the outside environment before they are transplanted to the garden.

Once the weather permits, place the plants outdoors in a sheltered location out of direct sun and wind.

If the nights are warm they can remain outdoors, but be prepared to rescue them if a frost is forecast.

Remove any flowers that appear prior to setting the plants out in the garden. This simple procedure is very