



Growing Flower Transplants

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Growing your own annual flower transplants from seed is an interesting gardening project if you have a good location for starting the plants. It is best to use hotbeds, coldframes, or small greenhouses if possible. You can use fluorescent lights for seed germination, but be sure the intensity is high enough so the seedlings develop normally until you are ready to plant them outside. Avoid attempts at growing transplants on a windowsill. Usually the light intensity and temperature are not sufficient for optimal plant growth.

Because the growth rate varies among annuals, they require seeding at different times indoors to obtain the best plants for setting out in the garden at the proper time. Sowing dates are based upon the average date of the last frost which allows most annuals to be safely planted out. In general, it is fairly safe to set out plants in the southern part of Illinois on May 1; in the central part on May 15; and in the northern part from May 20 to 30. In any case, soil temperature should be 60 degrees when measured at the 4 inch level to insure proper root development.

Most annuals require approximately 4 to 10 weeks to produce a usable transplant. This means counting back from the time plants are needed and it is safe to plant them. For example, dwarf marigolds need 6 to 8 weeks of growing time to produce a transplant. If they are set out in the garden on May 20, the seed needs to be sown about April 1. Many gardeners don't take the time to make this simple calculation and start their seeds much too soon indoors. This usually results in seedlings that are very tall and not of good quality.

Annuals are grouped into three general categories based on the length of time to produce a transplant. This list is not all inclusive. More extensive lists can be found in many major seed company catalogs.

Group I - need a minimum of 8 to 10 weeks from seeding to outdoor planting: wax begonia, seed geranium, impatiens, lobelia, salvia, verbena, vinca.

Group II - need a minimum of 6 to 8 weeks from seeding to outdoor planting: ageratum, sweet alyssum, cosmos, dusty miller, nicotiana, petunia, portulaca, snapdragon.

Group III - need a minimum of 4 to 6 weeks from seeding to outdoor planting: calendula, celosia, marigold, cleome, zinnia.

Soil Medium

The best medium for starting seeds is one that is loose, well-drained, fine-textured, low in nutrients, and free of insects and diseases. Many commercial seed starting products meet these requirements and are therefore suggested. Because these products are composed of various combinations of peat and vermiculite, they need to be pre-moistened before sowing seed.

Container

Any type of container can be used to start the plants. A main consideration is that it must have adequate drainage with holes in the bottom of the container. Numerous containers are available commercially. Fill clean containers three-fourths full of the medium. Moisten the medium by watering from the top or setting the container in a pan of water and allowing it to soak from the bottom to the top. Allow excess water to drain before sowing the seed.

Procedure

Seed may be broadcast over the entire surface or sown in rows marked across the surface. Large seed such as geranium, marigold, zinnia, and impatiens can be covered lightly with the same growing medium or vermiculite. Fine seed such as petunia, begonia, and nicotiana need no covering. After seeding, thoroughly sprinkle the soil with a fine spray of water. Cover with a plastic film and place in a warm (65 to 70 degree F.) location. Bottom heat is also very useful in getting quick, even germination. Do not put plastic covered containers in direct sunlight since excessive heat could build up and damage young seedlings. Check the containers daily. Careful attention should be given to keeping the seed flat uniformly moist since poor germination results when the soil dries out for even short periods.

Growing the plants on

As soon as the seeds germinate, remove the cover and place the seedlings in very bright light (not direct sunlight). If natural light is poor fluorescent light tubes can be used. Position the tubes so they are about 1 to 2 inches above the seedlings and leave the lights on for 10 to 12 hours per day. The use of an electric timer eliminates the need to remember to turn the lights on and off. Tall, spindly plants indicate a lack of sufficient light. When the second set of true leaves appear, it is time to transplant the seedlings in to cell packs or other containers to grow on.

Plastic cell packs or individual containers (peat pots, compressed peat pellets, clay pots, plastic pots, newspaper pots) can be used for growing the plants. Containers should be filled with a potting soil media that can be purchased at local garden center outlets. Many of the potting mixes available are 'artificial mixes' composed of peat moss, perlite, vermiculite, and nutrient elements. They are clean, lightweight, afford good aeration and drainage, and are highly recommended. After filling the cells or pots, moisten the media. Lift the seedlings from the seed flat and carefully separate them. Be sure to handle them by the leaves and not the stem. Make a hole in the center of the cell or pot and place the seedling in the hole to about the same depth as it was growing in the flat. Lightly press soil around the roots and water thoroughly to eliminate any air pockets. Place in a bright, sunny location or use fluorescent tubes. Every two weeks apply a mild liquid fertilizer solution (use half the strength recommended on the fertilizer label). The keys to growing quality transplants are: start at the proper time, move the seedlings to a very bright location, and grow the plants at cool temperatures to avoid soft, succulent growth.

Trouble-Shooting

Tall, spindly plants. Leggy plants usually result from insufficient light. This condition may occur if plants are grown in poor light or spaced too close together.

Slow growth. This symptom can be caused by lack of fertility, insufficient light, or poor root growth due to wet soil. If water and light are adequate, a boost with any soluble houseplant fertilizer should stimulate growth. Wet soils that do not allow the roots sufficient air are caused by overwatering or if heavy potting soils are used. Drainage can be improved by additions of perlite or vermiculite, or the use of a soil-less medium. Make sure all containers have proper drainage holes in the bottom.

Chlorosis (yellowing). Healthy leaves are green. When chlorophyll is not produced in sufficient quantities, the leaves appear yellow, and growth is slow due to lack of nitrogen. Weekly applications of a 20-20-20 fertilizer or any soluble houseplant fertilizer should correct the problem.

Damping-off. Poorly drained soil or excessive watering may result in a girdling of the seedling stems at the soil line. This is caused by several fungal organisms, including *Pythium*, which are common in all soils, but are usually more of a problem under wet conditions. Be sure to start out with clean containers, use commercial soil-less mixes, and grow the plants in bright light to reduce this problem. Fungicide soil drenches also can be used.