



Producing Transplants at Home

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Transplants are young seedlings of varieties of flowers and vegetables that are commonly used to shorten the time between planting and harvest. Transplants of tomatoes, for example, are started indoors 6 to 8 weeks before weather would allow them to grow outside. By the time the weather moderates for vegetable or annual flower growth, a strong and sturdy young plant can be developed for transplanting to the garden or landscape.

Transplants, properly grown and in abundant quantity, can be purchased at reasonable prices at many garden centers in the spring. When buying transplants, consider the following suggestions:

1. Buy only those that appear healthy. If a seedling has not been properly grown and has not been given careful handling in market preparation, it may never grow to your expectations.
2. Select moderately sized, leafy plants that have not begun to bloom. Spindly plants will take longer to start growing. Excessively tall plants may be hard to hold erect until they develop stems strong enough to withstand wind in your garden. The blossoms on tomatoes, peppers, and marigolds may be a detriment to growth and establishment of the young plants.

Why grow your own transplants? For one reason, the varieties or types you want may not be available at the time you need them. Second, even though their price is reasonable, many more can be grown at home with a little care and at less cost. And third, there is some satisfaction in growing one's own seedlings and watching them develop into productive vegetables and flowers.

Production of transplants is not difficult on a small scale if certain steps

are understood. The main ingredients for successful transplant production are a properly lighted, heated, and ventilated place; a clean growing medium; a schedule of growing that allows the seedling enough but not too much time indoors; and tender, loving care.

Timing

Depending on the type of plant, most transplants are large enough to move to the garden or flower bed 4 to 8 weeks after seeding. Members of the cabbage family usually will develop to the proper stage for transplanting within 4 to 5 weeks. Tomatoes, peppers, and eggplant will take from 6 to 8 weeks. The secret to success is to not start seedlings too early indoors, for they may become too tall and "stretchy," and consequently, spindly and weak, before the weather is warm enough to move them outdoors. Determine when the latest killing frost occurs in your locale, then count back 6 to 8 weeks to decide when to start your tomato seedlings. In most areas of western Oregon, the soil and weather is about right for planting by mid-May. By starting your tomato, pepper, or eggplant seedlings about the end of March, the transplants should be ready at the right time for your garden.

Some plants are tolerant of cool growing temperatures and can be planted in early spring if the soil is dry enough to be prepared at that time. Plant cabbage, lettuce, spinach, and other hardy vegetable seeds indoors by mid-February.

Placement

Certain changes will take place as the seedlings proceed from seeds to finished transplants, and each stage will require a little different environmental condition. For example, during the seed

germination period, warmth and moisture are necessary. Once the first leaves are formed, light is required in enough intensity to allow the photosynthesis process to work. Then, as the seedlings expand and begin to stretch, ventilation will be necessary to prevent destructive fungus diseases. Each step requires a mixture of all these growing needs.

You also need to consider the amount of space needed. The first step involves only a few containers and many seeds. As they grow, you will transplant individual seedlings either to separate pots or to nursery "flats" to give them more space to develop. Before they are ready to move outdoors to the garden or flower bed, your seedling crop may need an entire room. Your job is to provide the necessities to produce a healthy transplant.

Growing medium

You can buy commercial growing and potting soils, or compressed peat moss pellets which expand with water to provide a growing medium, or you can make your own growing soil. The key is to avoid fungus diseases that can destroy the young seedling. You can make a satisfactory "homemade" growing mix with equal parts of sand or pumice, peat moss or screened compost, and garden loam.

Homemade mixes must be pasteurized to destroy fungus diseases. A common problem encountered by transplant growers is "damping off," caused by a complex of fungus diseases that kill young seedlings. To pasteurize growing soil, moisten it uniformly to a condition suitable for seed germination. Place the soil in a shallow pan and bake it in the oven for 30 minutes at 180°F (use a thermometer and start timing



when the soil temperature rises to 160°F). Remove the pan, cool the soil, and either use the soil or store it in clean plastic bags until needed.

Planting and germinating seeds

Fill the desired container with the pasteurized soil mix. Place seeds so each has room to develop its first leaves and so you will have enough room to transplant the seedling with a minimum of damage. Generally, a 4-inch flower pot can be seeded with 18 to 20 average sized seeds. Cover the seeds with about ¼ inch of soil mix. Very small seeds should be covered only lightly. Label the pot and place it in a plastic bag, or cover the pot with a sheet of newspaper or plastic film. If you use peat pellets (Figure 1), place them in warm water until they expand fully. Then insert two or three seeds ¼ inch deep in each unit. Place the peat pellets in a pan, and place the pan in a plastic bag, or cover it with paper or film. Tie the plastic bag so moisture cannot escape. You will not need to water until the seedlings appear.

Keep the seeded container at room temperature (68–70°F) until the seeds sprout. Check the germinating seeds daily. Cabbage seeds sprout quickly; peppers may take nearly 2 weeks. As soon as most of the seeds have germinated and the plants have emerged, remove the bag or cover and expose the plants to full sunlight if possible.

Seedling development

After germination, place the container where the night temperatures will be near 55°F and day temperatures near 70°F. The seedlings should receive full sunlight every day, all day. Unless fertilizer was mixed into the soil medium, you will need to fertilize weekly to produce a healthy, husky transplant. Use a water-soluble fertilizer at manufacturer's suggested rates.

Weak, spindly plants are caused by one or more of the following: insufficient light, day or night temperatures too high, or not enough fertilizer. If conditions indoors are too difficult for seedling production, consider building a coldframe or hotbed (see FS 246, *Constructing Coldframes and Hotbeds*).

First transplanting

When seeds have germinated and the seedlings have formed their first **true leaf**, the plants should be separated. Carefully loosen the soil around the roots with a knife blade and lift the plant along with the soil that hangs onto its roots. Plant each seedling in its own 3-inch pot, or space seedlings 2 inches apart in a seedling flat.

Growth and hardening

Seedling growth, once the seedlings are given space, depends on uniform watering and feeding and at least 12 hours of sunlight daily. Make sure the area has sufficient ventilation to keep foliage fungus diseases in check. Slight, but continuous, air movement is the key to avoiding disease at this stage.

About 10 days before transplanting or moving the plants outdoors, change the plants' environment to give them cooler temperatures and slightly less water. Protect the plants from freezing and wind at all times. The final product you transplant to the garden should be a dark green, stocky plant. The day before transplanting outdoors, water the plants with a soluble fertilizer. When setting plants outdoors, give protection against drying winds, and water the soil thoroughly to make sure the roots are in good contact with the soil.

For more information

Constructing Coldframes and Hotbeds, FS 246 (Oregon State University, Corvallis, reprinted 1996). No charge.

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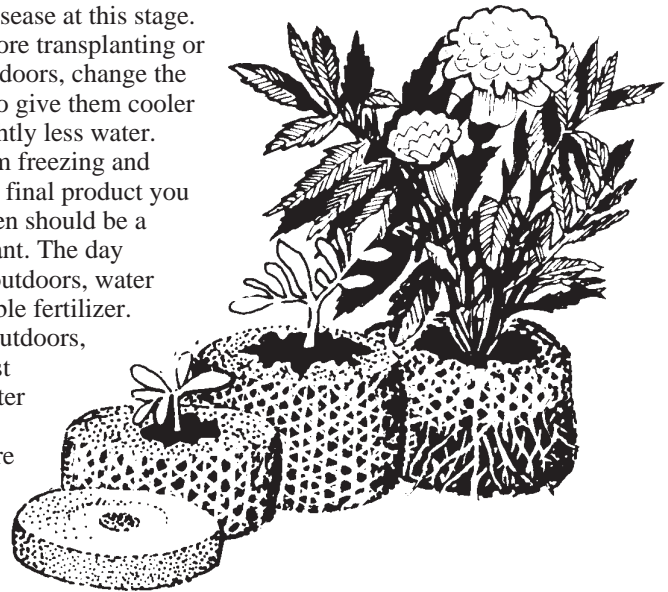


Figure 1.—Pellets expand when soaked, forming individual units for starting seeds or cuttings.

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