The DIRT Society

Transplanting: A Step-by-Step Guide

To extend the growing season, farmers and gardeners often create methods by which plants are protected from extreme temperature and weather shifts. As the cool season approaches, crops may be put under a mobile greenhouse or frame to lengthen and increase the harvest. As temperatures rise again, many growers make use of these structures (and their own homes) for another purpose: starting seeds indoors.

Seeds and seedlings kept indoors are protected from the potentially harmful weather patterns at the start of the growing season. Once mature, they are better able to withstand the elements. But what is the proper way to transition them from warm shelters to the outdoors?

Transplanting is not difficult, but for the best results a gardener must remember the ultimate rule: **Move the plant while inflicting the least possible stress.** Too much stress on a living plant makes it unhealthy; causing smaller yields, disease, stunted growth or death.

The following steps, when performed carefully, will ensure that seedlings are transplanted without mishandling or unnecessary stress.

1. First, determine when to transplant. A seedling is typically ready to transplant after its true leaves emerge. These are noticeably different from the cotyledons, which are the first leaves to appear. Transplanting should occur prior to the time when the plants' root systems become too crowded, or as soon as possible if indoor light is scarce. If the roots require more space but the weather is too stressful, consider transplanting into a larger container until it is safe to plant the seedlings in the ground.
2. One week before transplanting, allow the seedlings to "harden off" outdoors. You can move them into a semi-protected space outside, encouraging them to prepare for less predictable climates and stressors by exposing them for a brief period. If they are put in danger by freezing temperatures or extreme weather, they can be brought inside again.
3. Choose an overcast day to transplant, or plan to work in the evening. By scheduling the transplanting at a low-light hour, you are protecting the seedlings from heat and extreme sunlight when they are most vulnerable.
4. Water your seedlings at least one hour prior to transplanting. If the soil is too wet or too dry, it may fall away and expose the delicate roots. The young plant should be hydrated, and the soil spongy.
5. Create trenches or holes for your transplants. Most often, growers should avoid placing seedlings deeper in soil than they previously were. Thus, it is best if the space you prepare is roughly the same size as the seedlings' current containers or cells.
6. Loosen the roots and dirt as a single body. This can be accomplished by running a thin stick or blade around the edge of a hard container, or by massaging a flexible container until the root ball moves somewhat freely. If the seedling was grown in an easily composted container (such as paper) there is no need to separate the two.

7. Try to hold the plant by gripping multiple leaves; protecting the stem from sustaining any physical damage. Once possible, shift contact to the root ball. **Do not break roots and soil apart.** This is a common practice that results in damaged tissue and will not aid in transition.
8. Place the plant in the space prepared. Fill dirt around the edges of the seedlings' roots, but do not attempt to pack in more than easily fits. Both air pockets and dense earth can interfere with water absorption.
9. Lightly pat the soil's surface, preventing the run-off of loosened dirt, and water the area.
10. In the event that the seedling is put in danger of extreme weather shortly after transplanting, protect the tender plant with a physical barrier such as a cloche, sheet or overturned pot. Remove once the danger has passed.

Of course, seedlings are not the only plants to be relocated. Farmers and gardeners may choose to move mature plants into and out of containers, as well as plant trees or relocate other large perennials. Steps 3 through 9 are applicable in these situations, though hardened, woody stems will be less susceptible to damage than when the plants were tender and young. Thus, moving a sapling by holding its stem (or trunk) is perfectly safe.

Though plants are vulnerable to many types of damage while being transplanted, the practice is still extremely common. This is because the reward is far greater than the risk. When properly executed, transplanting allows for greater yields, extended seasons, and more rotations within a garden or farm; all very good reasons to practice and perfect the technique.