



Hardening Off & Transplanting

Why Harden Off Your Plants?

Transplanting seedling from the greenhouse or windowsill to the garden can put them through a lot of stress. Direct sunlight, wind and extreme temperatures can shock and damage tender seedling grown indoors. The more you can do to ease this stress the sooner the seedlings will recover from the transplant shock, toughen and begin to grow into healthy plants.

When to Plant Seedlings into the Garden

Cool weather crops have natural tolerances to cold temperatures and can be planted in early spring or late-summer/early fall to grow in the fall and winter. They include: Beets, Broccoli, cabbage, cauliflower, peas, lettuces, onions, radishes, and spinach. Many cool weather plants will bolt as the days get longer and the temperature hotter.

Warm weather crop should be planted after the last frost when the soil begins to warm up in late spring/early summer. They include: melons, carrots, chard, corn, cucumbers, peppers, potatoes, pumpkins, beans, squash, tomatoes, and eggplants.

Most vegetable varieties can be started in a greenhouse, though many (both cool and warm season crop) are commonly sown directly into the soil. In Utah tomatoes, peppers, eggplants, brassicas (broccoli, kale, cabbage, cauliflower, etc.) some squash, herbs, and flowers are often started in the greenhouse and therefore should be hardened off.

Hardening Off Your Seedlings

Two weeks before planting slow down the growth of your plant by watering and feeding less, and if possible, keeping the seedlings at a slightly cooler temperature. This will begin the hardening off stage by preserving the plants' energy for adjusting to the new outdoor conditions.

Begin acclimating your seedlings to the garden by gradually exposing them to outdoor conditions. First expose them to filtered sun in the shade of a tree or in a sheltered spot protected from the wind and direct sun. Leave them out for an hour in the morning or late afternoon the first day. Each day increase the exposure to the outdoors until after a week or so, they can withstand a full day of sun. While hardening the seedlings off, keep them well-watered and watch them closely for signs of stress (the leaves may start turning yellow and drying out if exposed to too much sun). You can cover the plants with shade cloth to help them adjust and to protect against wind and cold temperatures even after they've been planted into the garden.

Transplanting

After you've hardened off your cool weather seedlings in mid-spring and your warm weather crop after the average last frost, it's time to transplant them into the garden. Pick a cloudy, windless afternoon to transplant your seedlings to lessen the stress on them.

Transplanting Continued...

Make a hole or trowel out a row that is a little larger than the root ball of your seedling(s). Place a handful of compost in the hole or work some into the topsoil before you make the row. Fill the hole with water and let it sink in. Tap the sides of the pot to loosen the soil and root ball. Then carefully pull the seedling out by holding onto a leaf. Avoid holding the plant by its stem as it's easily damaged. Gently loosen and spread the roots and immediately place the seedling into the hole (limiting the roots' exposure to the dry air). Set the plant in the hole a little deeper than it was in the pot, fill in the rest with soil and gently firm around roots to eliminate air pockets. Make a saucer-depression around the stem to help catch water. Give each plant at least a quart of water directly after they've been planted. You may want to mulch around the base of the plant with straw to help keep weeds down and decrease evaporation.

After you have transplanted the seedlings, carefully observe your plants. Water them well until they have fully recovered (established plants show new growth). Watch the weather for the first week or two after the average last-frost date in case of a spell of cold or hot weather. If a late frost threatens to occur cover your warm-weather plants with weather cloth or a plastic tarp to protect your plants. Cold frames, wall'o'waters, cloches, hotcaps (milk jugs), and grow tunnels (with weather cloth or fiberglass) are other devices used to protect plants by trapping warm air during the day and insulating the plants and soil during the night, prompting faster growth. Remember to remove any of these devices on sunny days to avoid roasting your plants.

Resources:

Encyclopedia of Organic Gardening, Ed. Marshal Bradley and Barbara W. Ellis, Rodale Press 1997.

The Garden Primer, Barbara Damrosch, Workman Publishing 1988.

The New Seed-Starters Handbook, Nancy W. Bubel, Rodale Press 1988.

