
Ready, Set, Grow

Building good soil can be satisfying, but now the fun really begins. At times it may seem that we've turned upside down some of the gardening practices you may have learned in another area of the country. But if you follow these few basic rules for desert gardening, you'll be harvesting buckets of produce and armloads of flowers in no time!

Seeds



Choose varieties that are known to do well in the desert. Give preference to disease and pest resistant selections. This information can be found as letters at the end of the species name, in the catalog or on the seed packet. For example, "Celebrity VFNT" is a tomato that is resistant to **V**erticillium; **F**usarium; **N**ematodes; and **T**obacco Mosaic, all problems that can strike tomatoes. If you have limited space, use dwarf varieties. In general, select varieties with shorter growing cycles to help deal with the relatively short cool- and warm-weather growing seasons in the desert. Plants with short growing cycles often have "Early" in their name. Many catalogs contain charts with this type of information so that you can compare plant attributes. If this seems confusing, consult your County Cooperative Extension office, local garden clubs, garden columns in local periodicals, reputable nurseries and seed companies in the Southwest. They can recommend varieties that do well in your area.

Follow seed package instructions for row and plant spacing or follow the square foot gardening guide. Consider halving the recommended planting depth since our soil is usually heavier. Lacking seed instructions, a rule of thumb is a depth of two to



three times the seed diameter. As to planting dates, desert gardening references or County Cooperative Extension publications (check the planting calendars in Appendix F) will provide better information than seed packages or books written for other climates.

Gently water seeds to remain moist (not muddy). You can cover them with old sheets or burlap to keep moist, but check often and remove the cover when sprouts appear. Commence deep watering practices (see Chapter 11) when plants emerge.

If plants do not sprout within the expected time frame, re-plant immediately. Check your seed packs for dates. It's not that old seed *won't* grow, it's just that the percentage that will germinate starts to fall as the seed ages. So give some older seeds a chance, particularly if they were donated. Your students may not mind a lower success rate if you have taught them the impact of age before planting time.



TIP

Greater supervision, especially of younger children, is required when using seeds treated with chemicals. (Treated seeds are usually colored). When ordering, ask if seeds are treated or untreated. Make sure children wash hands thoroughly after planting.

Transplants

When buying transplants, select healthy, pest-free, mid-sized plants. Do not buy plants too large for the container as the plant may be root-bound. Leave behind the spindly, yellowed or spotted starters. You can start your own transplants from seed about six to eight weeks before planting time. Before planting, "harden them off," which is the process of introducing and acclimating the plants to the outside by increasing exposure over a week's time.

Transplant on cloudy days or in the evenings whenever possible. Keep the root ball intact and handle the plants carefully. If the roots have circled the container (called girdling), loosen the



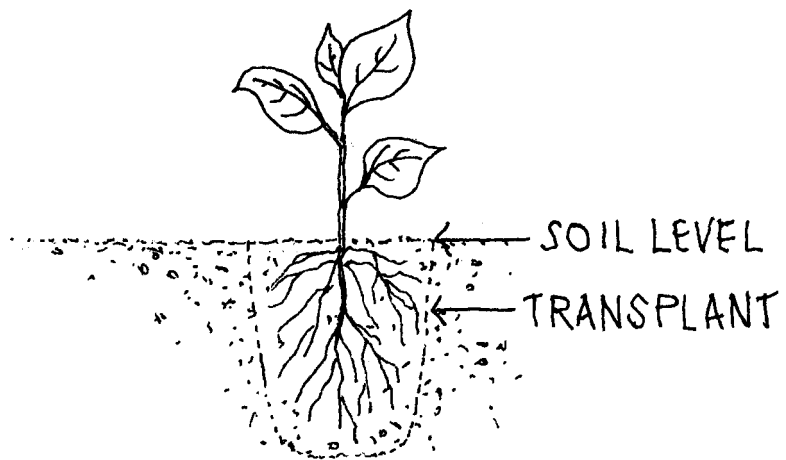
ends of the roots by gently drawing a pointed instrument such as a nail or pencil down the side of the root ball or by cutting the roots in severe cases.

Seedlings should be transplanted at the same level in the soil as they were in their containers. The ground around them should be level. Don't plant them up on little hills or in sunken depressions. The hills carry water away from the plant and may erode, exposing the roots. Depressions will collect water and increase the chances of water-borne diseases or stem rot. Salts will also accumulate.

Tomatoes are an exception to this rule. Before transplanting, remove all the leaves below the top two nodes. Dig a shallow trench and place the plant on its side in the hole. Bury it up to the last two nodes. As tomatoes are able to sprout roots along the entire stem, this method gives the plant an added advantage.

Be sure to soak the ground well immediately after transplanting. Protection from sun and wind for a few days is helpful.

If you are starting your own seedlings, know that not all plants like to be transplanted. Some are best when directly sown (sunflowers, squash, peas, beans, celery, carrots, and most root crops) while others do better when started in a container and transplanted (tomatoes, peppers, eggplant).



Choosing Crops

Consider the time to harvest against the school year calendar, making sure you can harvest before the term ends or it's time to plant for the warm season. If you are trying to plant two cycles of crops, select varieties with short maturity dates, often denoted by "Early" in the plant's description.

Do you know the easy rule for remembering the time of the year to grow most vegetables in the desert? Cool-weather crops, or those planted October through January, are those from which the food source is a part of the plant itself: roots, shoots, leaves or flowers. Lettuce, cabbage, spinach, onion, garlic, beets, carrots, radishes, turnips, broccoli, and cauliflower are some better-known examples. Peas are also grown then; try some sugar snaps to eat right off the vine! (This is a short season, so there is generally not time for the plant to bear fruit. Peas are the exception.)

For warm-weather crops, which are planted from February to September, think fruits and seeds: tomatoes, peppers, cucumbers, squashes, melons, beans, sunflowers and corn, for starters. The longer growing season allows for the whole plant cycle: seed to plant to flower to fruit to seed.

If you are planting a lot of herbs and don't have a separate bed, consider planting the more invasive varieties (mint, oregano, marjoram and yarrow) within five-gallon containers. This barrier prevents aggressive growers from taking over. Be sure to cut the bottom out of the pots to allow for drainage.



Class Activity

Seed Catalog Poster

Cutting up seed catalogs makes a fun poster to illustrate these two growing seasons. We guarantee that students will have to prove that a tomato planted in late September ("Whaddya mean it's time for cool crops? It's 103 degrees outside!") will probably not produce. Plant one in a bed as an experiment, but don't fill the whole plot!



Mulch

When your plants are up, mulch, mulch, mulch. Mulching is the application of organic matter on *top* of the soil. You will quickly become hooked on its virtues: minimizing water evaporation, keeping the soil from cooking, providing a protective barrier against weeds and eventually enriching the soil when you turn it under or it breaks down. Some temporary nitrogen depletion may occur, but this is minimal. Remove the mulch during cooler months (January–March), if quick spring crop germination requires warm soil. You could even heat the soil by covering it with clear plastic.

Types of Mulches

compost	leaves	straw
grass clippings	hay	cottonseed hulls
pine needles	wood chips	sawdust

Materials that decompose more slowly and are high in carbon (wood chips, sawdust) temporarily rob nitrogen from the soil. They are better left to pathways where the soil can still receive long-term conditioning.

Don't use anything as mulch that could break down and be harmful to your plants, such as sawdust from chemically treated lumber.

Weeds

Control the weeds in your garden, which can compete with your plants for water, sun and nutrients. But don't let this year-round task control you. Mulching is a great way to discourage unwanted plants by providing a barrier between stray weed seeds and the soil. Weeds can provide food and shelter for insect pests such as cutworms or whiteflies. Although scientists have done some research on weeds serving as food and shelter for beneficial insects, such as lady beetles, the results are not conclusive.

Does every last weed need to be removed? Not necessarily. You can use weeds as a great teaching tool. What is it about the weed that helps it survive so well? Deep roots? Voluminous seed production? Or maybe it has a fast life cycle timed to coincide with the rainy season. And finally, have your children consider what Ralph Waldo Emerson had to say on the topic: *What is a weed? A plant whose virtues have not yet been discovered.*

Be forewarned: most weeds reseed prolifically so if you don't remove them before they flower and go to seed, you will have a huge new crop next year. Pull the weeds **before** they go to seed and they are a great addition to your compost pile. Use your hands (you have plenty of them in class) or tools, but you should not have to use chemicals for weed control.



Class Activity

Why Mulch?

Examine the impact to the garden with and without mulch. Use two adjoining planted areas with similar exposure. Heavily mulch only one area. Use gallon jugs to hand water these plots so children can track how much water is used. Check the soil moisture daily with a ruler (or fingers) to demonstrate how mulch helps to maintain soil moisture. Which plot has more weeds?

Thinning

The most emotional task your class may have is thinning, which should be started about two weeks after sprouts appear. There should be limited need to thin if seeds have been correctly spaced, but little hands don't always sow very uniformly. Fewer, appropriately spaced plants will actually produce more, not less.

Thin by cutting seedlings at ground level with scissors. There is less chance of pulling up adjacent plants.





Class Activity

Prove the Benefits of Thinning

Heavily sow seeds in two identical spaces. As seeds begin to germinate, thin one patch according to seed pack instructions; let all the seedlings grow in the second patch. Have children examine the plants weekly for differences in height, flowering, fruit generation and overall vigor. Depending on the vegetable you choose, determine the difference in yield, e.g., number of pea pods per plant, or size of carrots.

Fertilizing

If you have prepared your soil well at the beginning of the growing season, you may not need to bother with midseason fertilization. It depends on the needs of your plants and the fertility of your soil. Examine your plants for any of the symptoms listed in Appendix G, “Diagnosing Plant Problems.” If you determine the need for an extra “boost,” there are several methods for applying fertilizer at this point. Always apply fertilizer according to the container’s instructions.

Dilute foliar sprays are mixed with water and sprayed directly on the plant, which absorbs the nutrients through its leaves.

More concentrated water-soluble fertilizers are mixed with water and applied to the soil around the plant. Take care not to splash on the plant itself.

Alternatively, fertilizer can be dug into the soil about four inches to the side of your plants and worked to a depth of three inches. If the fertilizer is applied more closely, you will risk burning the roots. Because of the potential to damage tender plant roots, this method is not recommended when working with children.

Herbs will produce more oil and have better flavor if not fertilized too often. Periodic supplements of organic matter should provide sufficient nitrogen. Herbs lose flavor as flowers form (keep buds pinched), so unless you want massive quantities of seeds for



propagation, additional phosphorus shouldn't often be necessary either.

Please harvest or otherwise use your plants! Make a salad, sell bouquets, pop corn, donate produce to a food bank or make herbal potpourri. But do leave a few plants, particularly cool season varieties, to show students how the plant eventually reproduces and dies. Have you ever seen a radish, carrot or broccoli fully flower? Now just where did all those seeds you planted come from anyway?



Class Activity

Fertilizer Results

Compare the health, vigor and yield of the same species with and without midseason fertilization. Did the fertilized plant produce a greater crop? Did more pests visit one plant over another? Is one plant greener than its neighbor? Are the leaves bigger?

