



Even those with a green thumb can struggle to keep their plants healthy when Phoenix's summer rolls in. To shed some light on ways to maintain your garden in the heat, AFM talked with Noelle Johnson, horticulturist and field expert for Birds & Blooms Magazine.

AFM: Arizona is known for its extreme temperatures. Are there specific times of year that are the best to plant during to ensure the plants' survival during the summer months?

NJ: The best time of year to add new plants in Arizona landscapes is during the fall months. The reason for this is that the cooler temperatures give plants a chance to develop their roots before the stress that hot summers bring. A well-developed root system is often the deciding factor as to whether or not a new plant will make it. The exception is with frost-tender plants such as bougainvillea and lantana, which do best when planted in spring, once the danger of frost has passed.

AFM: Are there certain areas and types of terrain that gardeners should look for when planting? Rocky areas, shaded areas, flat areas, etc.?

NJ: The most difficult spot to grow plants in Arizona are in areas that receive full, afternoon sun—most plants do best when planted in east-, north- or south-facing exposures. For areas that get hot afternoon sun, select plants that are native to the Southwest, which are adapted to the extreme sun and heat. Much of the terrain in Arizona is made up of rocky or clay soils. Most native and arid-adapted plants do best in well-drained soil. Mixing compost to existing soil at the time of planting, at a ratio of one part compost to one part native soil, will improve drainage.

AFM: How often should gardeners water their plants, and for how long (seconds, minutes, etc.)? Is a "deep water" better than a shallow water, and if so, how can that be accomplished?

NJ: The frequency of watering changes with the seasons—plants need more water in summer and much less in winter. In general, shrubs/ground covers should be watered every five days in summer, every 10 days in winter and every seven days in spring/fall (for desert adapted plants, you can space out watering even further). Plants should be watered deeply, which promotes the roots to grow deep into the soil where it is cooler, holds onto moisture longer and helps to flush away the salts that accumulate around the root zone - this can take up to two hours

depending on the irrigation system, soil, water pressure, etc. The length of time that you water is determined by how long it takes for water to reach the desired depth, which is two to three feet for trees, 18 inches to two feet for shrubs and one foot for ground covers. You can test the depth of watering by sticking a long screwdriver or a piece of rebar into the soil after watering. It will penetrate the soil to the depth that the water has reached. Adjust the length of time of water as needed to achieve the desired depth—once you have determined the length of time to water your plants, you won't have to change it—only the frequency of watering will change with the seasons. Shallow watering keeps roots near the surface, which dries out quickly and where soil temperatures get very hot, which stresses plants. Shallow water evaporates quickly, leaving salts behind that resemble white powder that can adversely affect plants. The most efficient method for watering plants is via drip irrigation, which slowly releases water, allowing it to permeate the soil without running off. Soaker hoses can also be used to water plants. Watering plants using a hose can be inefficient since much of the water is lost to runoff and doesn't penetrate the soil deeply enough. If using a hose to water plants, turn it on to a slow trickle and allow it to soak into the soil, which can take up to an hour.

AFM: Can plants be over-watered in the summer? If so, how can you tell that one has been over-watered?

NJ: Often, there are more problems due to over-watering than under-watering—even in the desert. Signs of over-watering is soil that is constantly moist and never dries out, young leaves that are yellow or light green, and the younger parts of the plant are wilting.

AFM: If a plant is beginning to die in the summer heat, is it salvageable? If so, what can be done to save it?

NJ: Plants that are newly planted and are ill-suited to the hot, arid climate will usually start to show signs of stress when the summer arrives. In most cases, they should be removed since they are unlikely to do well in the desert climate. Most native and arid-adapted plants can be saved if a few steps are taken. First, make sure that they are being watered at the correct frequency and depth (new plants will need to be watered more frequently than established plants). The second step you can take is to provide temporary shade using shade cloth or placing a patio chair to shield it from the afternoon sun. Next, determine if the plant is located in the wrong place—for example, if it needs a shadier spot to grow in, you may want to try to transplant it in winter, when temperatures are cool.

AFM: What other tips are there for enabling plants to have the best chance of survival in these hot summer temperatures? Any special soil or food that can be given to the plants?

NJ: Select plants that are native or adapted to the desert climate. There are many beautiful plants that thrive despite temperature extremes in the desert. Don't waste time, money and resources with plants that are ill-suited to the desert. Avoid fertilizing plants in the summer,

which causes them to divert resources that they use to cope with the heat. Mulching around plants can help keep the soil cooler and prevent water from evaporating quickly.

AFM: What are some of the best heat-resistant plants to invest in for the summer months?

NJ: Angelita Daisy (*Hymenoxysacaulis*), Artichoke Agave (*Agave parryi* var. *truncata*'), Blue Bells (*Eremophilahygrophana*), Bougainvillea, Damianita (*Chrysactiniamexicana*), Desert Ruellia (*Ruelliapeninsularis*), Desert Willow (*Chilopsislinearis*), Firecracker Penstemon (*Penstemoneatonii*), Murphy Agave (*Agave murpheyi*), Red Yucca (*Hesperaloeparviflora*), Texas Sage (*Leucophyllumfrutescens*) and Valentine (*Eremophilamaculata* 'Valentine').

Noelle Johnson is a horticulturist and certified arborist who lives and gardens in the desert southwest. Growing up in Southern California, it wasn't until she married and moved to Arizona that she began to try her hand at gardening. She received her degree in urban horticulture and went to work managing landscapes for golf courses and later working as a landscape designer.

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