



Fall and Winter Watering in the High Desert

Las Campanas Water Cooperative

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Fall is coming and nights are getting colder. If you have an irrigation system, now is the time to think about winterizing it. If you have a system that features a timer and other equipment attached to a faucet above ground, it's critical that the system is turned off, with all vulnerable parts stored and the hose disconnected from the faucet, before the first freeze in the fall. Such systems are extremely vulnerable to freeze damage; however, irrigation systems with valves buried in the ground are more protected by the warmth of the soil and can often tolerate a light freeze (29-31 degrees). This can sometimes allow the system to be run for several more days before we have a hard freeze. In order to ensure that there is no moisture in the valves and other parts that could be damaged by a hard freeze, systems with valves in the ground are usually turned off and blown out with compressed air before a hard freeze is predicted. Once the system is turned off watering will need to be done by hand.

Some people think that watering the landscape is something that only needs to happen in the growing season, after the garden has come out of dormancy and up until the plants go dormant in the fall. What they don't know is that most landscape plants, even southwestern natives, need moisture in the root zone throughout the year to thrive. Like most areas in the Southwest, Santa Fe is generally getting warmer and drier as we move into the "new normal" of on-going climate change. Before the current century precipitation patterns in Santa Fe tended to be more predictable, with snowfall bringing an average of about an inch of moisture a

month throughout the winter. The snow cover kept moisture in the ground through the winter by reflecting sunlight and keeping the soil frozen. Snow melt charged the soil with a bank of moisture in the spring, helping plants get through the hotter, drier months of May and June. The summer "monsoon rains" would usually start in early July and last through October, the wettest months of the year. Snowfalls would typically begin again in late November or December. Native plants were adapted to this more predictable rain pattern, one reason why so many wildflowers and native grasses bloom in mid- and late summer. The summer rains also kept pinons hydrated and resistant to bark beetles, which is why bark beetle outbreaks are tied to prolonged drought.

In this century the historical pattern of precipitation has disappeared, with severe droughts taxing the plants repeatedly and warmer, drier, nearly "snow-less" winters becoming more common. Coupled with this is the fact that many of the non-native plants we use in our landscapes are indigenous to areas where they receive much more precipitation than we tend to get, usually coming throughout the year. It's easy to see why just watering through the growing season may not be sufficient to keep our landscapes healthy. There is one group of landscape plants, however, that don't need winter watering; these are the desert succulents like agaves, bear grasses, cacti and yuccas.

In late summer and fall hardy plants (trees, shrubs, and perennials) put out a burst of root growth as they store nutrients in the roots, trunks

and branches to spur growth the next spring. This makes it important not to cease watering entirely once irrigation systems are turned off. Decrease the frequency of irrigation gradually after plants start to go dormant. For example, if you've been watering every three or four days, back off to once a week for a while, then every 10-14 days through December. Let your plants, your soils, and the weather guide you in this tapering off of irrigation frequency.

Roots continue to remain active through the winter any time the soil temperature is over 34 degrees, necessitating irrigation when there is not a heavy snowfall providing moisture. Established deciduous plants and perennials, and plants growing in cold areas/heavy soils, may only need to be watered once a month in January and February and possibly March. In very shady areas where the soil freezes solid, water deeply in December then wait for the soil to thaw out and start to dry down before watering again. Though water use by deciduous plants and perennials is reduced greatly after the tops go dormant, evergreens continue to transpire moisture through the winter, making them especially vulnerable to drought stress during warm dry winters. This applies to both needleleaf evergreens (like pines and spruces) and broadleaf evergreens (like Euonymus and Pyracantha). If you are growing evergreens in warm sunny areas and/or sandy soils, you might need to water them every two to three weeks through the winter, especially if they were only planted this year.

In spring, increase your watering frequency gradually as plants come out of dormancy and the soil warms up. You might go from watering once a month in January and February to every two to three weeks in March to every seven to ten days in April, depending on the weather and how well established your plants are. When soil temperatures and air temperatures warm up enough for plants to start putting out new growth, root activity will ramp up and an adequate supply of moisture in the soil will be critical to support the new growth. Since the soil is still relatively cool, irrigation will not be needed as often as it will in June, but it's important that plants are not drought-stressed as they come out of dormancy.

For best results it's necessary to supply enough water to thoroughly moisten the top foot of soil in the root zone every time you water through the winter. This can take a lot more time than expected; look for sunny periods expected to last for two or more days in which to water the garden. If you have an open bed full of new plants, setting up a small sprinkler to water the whole area and letting it run for a long time is a good way to do this. You can water trees with the same approach, moving the sprinkler around every 45-60 minutes to cover the whole root system. Soaker hoses can also be used in the winter if they are disconnected after each watering. In places where you have a thick cover of organic mulch, keep in mind that the mulch can soak up a lot of the water you apply; you may want to water two days in a row. If you are watering individual plants, it can be helpful to create "wells" around them to hold water. It's generally useful to fill the well, go water something else, then come back after the water has sunk in and fill the well again. You may need to repeat this pattern two or three times to completely saturate the root zone. Don't forget to disconnect and drain the hose after watering. Winter watering is not a chore that many people enjoy, but the pay-off in benefit to the garden makes it worth it.

Key Points to Remember

- Be certain to shut down your irrigation system properly before the first hard freeze
- Even in the fall and winter root systems remain active
- Most plants need moisture when dormant in the fall and winter
- In the fall you will only need to hand water about once per week on average, tapering off to every two weeks by January
- In the dead of winter you will only need to water about once per month