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## Questions and Answers About Water Conservation and Drought in the Landscape

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Managers of landscapes in many urban areas are facing mandatory or voluntary water conservation targets. The following provides information and answers to some common questions about conserving water in landscapes.

**Q. Are there some easy things I can do to save water in a landscape?**

**A.** Check sprinkler irrigation systems regularly for physical and operational problems that reduce sprinkler system's efficiency. Correcting these problems can improve the uniformity of water application, reduce water waste by 10 percent or more, and greatly improve the health of plantings. Walk through an area while the irrigation system is running and repair or replace sprinklers that are broken, sunken, crooked, or clogged with soil or debris. Also, be certain that plants are not blocking or interfering with a sprinkler's spray pattern and that all emitters are of the same manufacturer and model.

**Q. Does a landscape have to be re-planted with specific drought tolerant or "California Friendly" plants to save significant amounts of water?**

**A.** No. Field research studies indicate that most established landscape trees, shrubs, and groundcovers, regardless of the species planted, perform acceptably with 20 to 40 percent less irrigation than they are typically given. These include many of the plant species commonly grown in existing landscapes.

**Q. What plants are actually drought resistant?**

**A.** Most commonly planted tree and shrub species along with many ornamental groundcovers and vines have at least some degree of drought resistance. These types of plants usually perform acceptably in a landscape with much less water than they are typically given once they are established. Some California native plants used for landscaping originate in the relatively cool, moist climate of the coast or in the Sierra Nevada foothills, making them susceptible to drought and prone to injury when grown in warmer and drier areas of the state if some summer irrigation is not provided.

No native or commonly used landscape plant is drought-resistant until it becomes established. All plants require a steady supply of moisture for about one year or more after they are first planted. Once woody landscape plants are established and have a deep root system, they typically perform acceptably with limited summer water.



**Q. How much water can be saved by removing all or part of a lawn?**

**A.** Water savings depends on the type of turfgrass planted, which plants, if any, will replace it, and how well the water applied to new plants is managed. If plant material is changed but irrigation practices are not, then little water savings will be realized. Turfgrass water requirements vary by species. Warm-season lawns, such as bermudagrass, zoysiagrass, and St. Augustinegrass, need about 20 percent less water than widely planted cool-season lawns, such as tall fescue. So, simply replacing a tall fescue lawn with a warm-season one will significantly reduce the water needs of a turf area. Warm-season grasses can remain alive and largely green, though not lush, when irrigated at the same level as trees and shrubs.

**Q. Will lawns or landscapes suffer if they are not irrigated every day in the summer?**

**A.** Established lawns and landscapes do not require daily summer irrigation except in a few extremely hot inland and desert areas that also have sandy or decomposed granite soils. Only newly planted lawns and landscape plants are likely to be damaged by not receiving daily summer irrigation.

Tall fescue lawns can perform well when irrigated 2 to 4 times per week in the summer, while bermudagrass and other warm-season lawns can usually be irrigated less frequently. Trees, shrubs, and groundcovers will perform well when irrigated every 5 to 10 days. Follow the approach described in the answer to the next question to reduce irrigation days and conserve water.

**Q. What is the best approach for conserving water in a lawn or landscape?**

**A.** The key to conserving irrigation water is to increase runtimes and extend the number of days between irrigation events rather than reduce the runtime and keeping the same frequent irrigation interval. To do this successfully, schedule slightly longer irrigation runtimes so that the entire root zones of plants are rewetted at each irrigation and gradually increase the interval between irrigations over a few to several weeks. This practice will save water in the end and allow plants to adjust. After extending the interval between irrigations, the water budgeting or seasonal adjust feature found on many controllers can be used to fine tune runtimes and achieve optimum water conservation.

Remember that tall fescue lawns normally have roots 6 to 12 inches deep while roots of bermudagrass and other warm season grasses are normally at least 12 inches deep. The majority of roots of trees, shrubs, and groundcovers are normally found within 12 to 24 inches of the soil surface.

In order to fully wet the soil to these depths without creating runoff or puddling of water will usually require scheduling two to four relatively short irrigation cycles of 5 to 15 minutes or so on each irrigation day, depending on slope, soil type, output of the irrigation system, and how much water is needed. Be certain the irrigation system is functioning well and water is applied uniformly over the area.

**Q. How much can irrigation be reduced without hurting a lawn?**

**A.** It depends on the species of grass that dominates the lawn and the amount of water currently being applied. If the lawn is primarily tall fescue or another cool-season grass and it is being well watered with no obvious drought symptoms or brown areas, then the amount of water can probably be reduced by 10 to 15 percent without seriously injuring it. You may see brown areas develop over time after reducing water by this amount, however. Brown areas that develop in lawns when water is reduced are often a sign that the irrigation system applies water unevenly rather than that the amount of water is too little to meet the turfgrass's needs.

If the lawn is predominantly bermudagrass or another warm-season grass and you are keeping it well watered, you can probably reduce the amount of water by up to 25 percent without seriously hurting it. If the lawn already has brown areas from too little water, then reducing the amount of water further may cause serious damage or death. Always gradually reduce the amount of water applied following the approach described above.

**Q. How much can irrigation be reduced without hurting trees, shrubs, and other landscape plants?**

**A.** The amount of water given to these plants can often be reduced by 20 to 40 percent because over irrigation is common. Gradual reductions applied over a few to several weeks using the approach described above is important so plants can adjust to less water, especially if the reduction is more than 10 percent.

**Q. When is the best time of day to irrigate?**

**A.** Irrigating during the very early morning hours is best, generally between 2:00 A.M. and 6:00 A.M. Evaporation is lower and usually there is little or no wind to disrupt the pattern of sprinklers during these hours. In addition, water pressure is more favorable for irrigation systems in many areas during this period. Nighttime watering in California does not normally cause greater incidence of plant disease because the humidity is relatively low. Contrary to common belief, midday irrigation does not harm plants.

**Q. If water becomes severely restricted, how should priorities be set to save landscape plants?**

**A.** Remove plants in crowded beds or low-priority plants competing for soil moisture with more important plants. When water is limited, most people choose to water fruit trees, landscape trees, and shrubs. Lawns, groundcovers, and bedding plants can be reestablished over a relatively short time, but trees and shrubs need years to mature and are less easily replaced. A few deep, thorough waterings spaced several weeks apart from spring through summer can be enough to keep most trees and shrubs alive when water is in short supply. Many tree and shrub species will drop leaves or wilt under severe water shortage, but will survive. Under-watered fruit trees probably will produce less if any fruit, but will survive.

**Q. How long will it take a lawn to die from lack of water?**

**A.** If you stop watering a lawn, it will gradually turn brown signifying it has died or become dormant. Depending on weather conditions, this may take from 1 to 6 weeks for most lawn grasses, but it might take longer for deep-rooted grasses like bermudagrass. The first signs of inadequate water will be wilting of grass blades and a blush-gray appearance. Next, leaf blades will yellow and eventually become brown. The lawn will probably not turn from a uniform green to a uniform brown, but will instead look mottled with green, yellow-green, gray, and brown areas. A lawn that recently turned brown from drought can often be revived with regular, thorough watering.

**Q. When should trees, shrubs, and other landscape plants be planted in a dry year or if drought is expected?**

**A.** Hold off planting until fall or winter to take advantage of cool weather as well as fall and winter rains. The planting site may be prepared in spring or summer, however.

**Q. How often should newly planted trees and shrubs be watered?**

**A.** The root balls of newly planted trees and shrubs need to be kept moist until a network of roots grows out into native soil. Newly planted container plants may need watering every day for several weeks during warm weather. Adding a 2 to 4 inch thick layer of mulch reduces water loss and weed problems.

Delaying planting until the fall can reduce the frequency of irrigation required to maintain moisture in the root balls of new transplants and takes advantage of fall rains.

**Q. If a lawn dies, or is damaged due to drought, when should it be replanted?**

**A.** Do not replant a lawn until there is enough water available from rainfall, irrigation, or a combination of the two. Assuming water is available, the best time of year to plant lawns is in the fall or spring for cool-season turfgrasses (tall fescue, rye, etc.) and late-spring or summer for warm-season turfgrasses (bermuda, zoysia, St. Augustine).

**Q. Will adding polymers or similar “water conserving” products to soil really conserve water?**

**A.** Polymers and similar products by themselves do not conserve water. They usually increase the amount of water a soil can hold, but plants still need the same amount of water. Thus, adding a polymer to a soil can extend the length of time required between irrigations but will not alter significantly the amount of water used by plants. Field research studies with polymers so far are relatively few and inconclusive. Results suggest that, although most polymers can extend the time between waterings, some lose effectiveness when fertilizers and other natural salts are present in the soil. They will provide little benefit in soils with high clay or high organic matter content. When using a polymer product, add enough polymers to effectively amend the soil to the depth where most of the plants’ roots are and mix it evenly into the soil. A large volume of polymer will be required to increase significantly the soil’s water holding ability especially where relatively deep-rooted plants like trees and shrubs are grown.

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