

# Basic Principles of Water Management

## Best Management Practices

*This fact sheet addresses basic principles involved in managing the water requirements of plants growing in our lawns, garden, and landscapes. Other publications in this series include specific watering guidelines, which are the result of collaboration among agents and specialists with K-State Research and Extension.*

Proper watering requires familiarity with plant water requirements, site characteristics, and soil conditions. Microclimates in each landscape influence how much and how often to water. Regularly check soil moisture, then use common sense to supplement rainfall to maintain uniform moisture in the plant root zone.

### Common variables affecting irrigation

The amount of water plants need depends on several factors. Soil type, other site characteristics, plant species, cultural practices, and weather conditions are some factors that influence moisture demand.

**Landscape Soil.** The soil on sites that were disturbed during home-construction is anything but consistent. Landscape soils often consist of compacted or inverted soil and hard pan layers. Buried construction debris and pockets of sand or cement may interfere with drainage and root development. A shallow layer of off-site topsoil, deposited on the surface, may hide what lies beneath. Landscape variability makes it hard to predict limitations on plant growth. Become familiar with your site's soil conditions and adjust accordingly.

**Site Characteristics.** Slope and exposure to the elements can influence how much supplemental water landscape plants will require. Exposure to sun and drying winds increases moisture demand, but protected or shaded sites might require less water. Consider man-made structures, such as buildings, berms, hardscape, because they alter natural patterns of sunlight, wind, and water infiltration and retention.

Foundation plantings growing where a wide eave sheds water away from the house may not benefit from rainfall as much as plants growing further from the building. Note where downspouts from rain gutters empty into a foundation planting; it may keep soil too wet at times. Compacted or sloping soils contribute to water runoff, while hardscaped surfaces — patios, decks, driveways, and sidewalks — may restrict the available rooting area, impede water infiltration, and interfere with oxygen entering the soil.

**Plant Species.** Learn about moisture requirements of plants growing in your landscape. Some plant species are drought tolerant, even suitable for low-water plantings, while others require uniform soil moisture and resent even brief periods of intermittent drought. Note: It is wise to group plants with similar water requirements.

**Cultural Practices.** Maintenance practices used to care for plants in lawns, gardens and landscapes will influence water use efficiency. For example, fertilization promotes growth that may increase water usage. Closely mowed lawns require more



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frequent watering. Shearing shrubbery may force growth that increases water demand. Controlling weeds reduces competition for soil moisture. Mulching around plants can cool the soil, reduce water loss, and suppress weed growth. Lawns with a thick thatch layer require more water. Core aeration improves water infiltration and achieves a better rooting environment. The closer plants are spaced in gardens and flower beds, the more moisture required per unit of space. On the other hand, spacing plants close enough so foliage from adjacent plants overlaps and shades the soil surface, reduces surface moisture loss.

## Check moisture

Adjust your watering schedule based on soil moisture content. Check moisture by using a trowel to expose the top few inches of

soil. Or probe the soil using a metal rod or long screwdriver. You will meet resistance when encountering dry soil. A hollow soil probe — used to extract cores of soil — is one of the best tools a gardener can have for monitoring soil moisture. These may be available at local garden centers, or they may be able to order one for you.

## Automatic watering systems

Landscape plants growing under the pattern of an automated turfgrass irrigation system may or may not need supplemental watering. Trees benefit from less frequent, but deeper watering. Automatic irrigation systems that apply low water volumes several times a week may cause trees to drown. Ideally, automated irrigation systems should permit

watering turfgrass separately from landscape beds and borders.

Because automated irrigation systems don't account for environmental variables, it's best to turn them on and off manually when necessary to support plant growth. Use automatic settings when you will be gone for an extended period. Some irrigation systems use in-ground sensors to activate a watering cycle based on the soil's moisture content. These should be checked regularly and recalibrated as necessary.

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