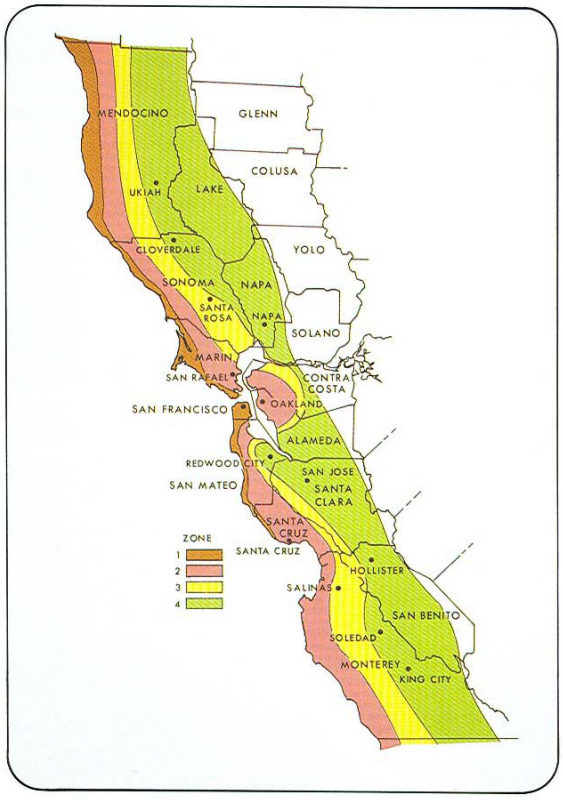
LAWN WATERING REQUIREMENTS ALONG CALIFORNIA'S CENTRAL COAST



Cooperative Extension **University of California**
Division of Agriculture and Natural Resources

LEAFLET 21432

Watering the lawn is a big part of residential water use. Knowing how much water to apply and how often is important to those who want, not only an attractive lawn, but efficiency and economy.

The term evapotranspiration (ET) describes the total amount of water used by your lawn. The daily rate at which water is used is called the "ET rate"—net water application in excess of ET is not used by the lawn, and thus is wasted.

Two factors largely determine ET rate and, hence, your lawn's watering requirements: grass species and climate. Lawn grasses are either cool-season or warm-season species. Warm-season species go dormant and turn brown in winter; cool-season grasses remain green. Cool-season grasses use more water than do warm-season grasses. Therefore, to use the watering information provided in this leaflet, you must know what type of grass you have.

Seasonal changes in the average daily ET rate roughly correspond to average daily total sunshine. ET rates are low in winter, increase in spring, peak near midsummer, and decline in fall. Other climatic factors affecting daily ET rates are air temperature, humidity, wind speed, clouds, and fog. The combination of grass type and these climatic factors determines the actual ET rate which, along California's central coast, increases with distance from the ocean.

When and how much to water

Three-day intervals between waterings are suggested. More frequent watering is usually not necessary; less frequent watering can lead to water stress or uneven irrigation for some sprinkler-watered lawns. Normally, grass will recover well if it is stressed mildly—it doesn't hurt to skip a watering occasionally, although in midsummer it is best to stay on schedule. Also, the occurrence of rain during a 3-day interval should be taken into account, either by delaying a watering as common sense dictates or by subtracting the amount of rainfall from the amount of water to be applied.

The "can test"

To determine the longest possible watering duration, you can do a "can test" by distributing several flat-bottom cans of equal size at various places on your lawn (fig. 1). Then run your sprinkler system for 15 minutes. Stop the sprinklers and measure the average depth of water to the nearest 1/16 inch in the cans (fig. 2). Use table 1 to obtain a multiplying factor. If the water levels in your test cans vary considerably, your sprinkler system may need adjustment or repair.

From the can test information, you can determine how long to run the sprinkler system, using the 3-day water requirements given in table 2 for your ET zone and grass type.

Common Lawn Grasses

Cool-season		Warm-season
Annual bluegrass	Kentucky bluegrass	Bermudagrass
Annual ryegrass	Meadow fescue	Kikuyugrass
Colonial bentgrass	Perennial ryegrass	Seashore paspalum
Creeping bentgrass	Red fescue	St. Augustinegrass
Hard fescue	Rough-stalked bluegrass	Zoysiagrass
Highland bentgrass	Tall fescue	

To learn how long to water your lawn every 3 days you must determine (1) your ET zone (see map), (2) the type of grass in your lawn (if you do not know or if you have both types use warm-season grass), (3) the monthly water requirement from table 2, and (4) the multiplying factor from table 1.

Using the above information, multiply the table 1 factor by the appropriate monthly water requirement from table 2 to find out how long to water every 3 days.

For example, it is June, you live in ET Zone 4, your lawn is in a warm-season grass, and your 15-minute can test showed an average depth of 1/2 inch. How long will it take you to water every 3 days? From table 1, under 1/2 inch, the multiplying factor is 30. From table 2, under warm-season grass in ET Zone 4 in June, the factor is .37. So, 30 × .37 = 11. You would water for approximately 11 minutes every 3 days during June.

Water penetration restrictions

Determining the amount of water needed by turfgrass using ET rates is important to efficient lawn watering, but other factors are involved. For instance, anything that restricts water penetration into the soil should be corrected. Two common problems are thatch accumulation and soil compaction.

Thatch is dead grass that builds up on the soil surface. It restricts water, air, and nutrient movement into the root zone. A thick layer should be removed in spring or fall by vertical mowing or by hand rak-

Table 1. Multiplying factor for determining watering time from the average depth of water measured in a 15-minute can test

	Average depth of water in cans (inches)										
	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4
Multiplying factor	120	80	60	48	40	34	30	27	24	22	20

Table 2. Turfgrass 3-day water requirements

	Cool-season grass				Warm-season grass			
	ET zone				ET zone			
Month	1	2	3	4	1	2	3	4
January	.08	.11	.10	.08	.06	.09	.08	.06
February	.13	.16	.15	.14	.10	.11	.12	.11
March	.18	.21	.21	.22	.14	.16	.18	.16
April	.24	.28	.29	.33	.18	.21	.24	.25
May	.28	.34	.36	.41	.20	.25	.30	.31
June	.33	.38	.40	.50	.25	.28	.34	.37
July	.30	.37	.40	.59	.23	.28	.34	.44
August	.28	.33	.35	.50	.21	.25	.31	.37
September	.24	.30	.31	.40	.18	.22	.26	.30
October	.18	.23	.24	.26	.13	.18	.19	.20
November	.12	.15	.15	.14	.08	.11	.11	.10
December	.07	.10	.10	.08	.06	.08	.06	.06

ing. Heavy traffic on turfgrass compacts the soil, which restricts air, water, and nutrient entry and hinders root development. Compacted areas should be aerified (cored).

Landscape features also influence irrigation practices. For example, turf in areas receiving more direct sunlight or considerable wind may require more irrigation than would turf not subject to these environmental factors. Check for areas that may require more or less water and adjust your watering accordingly.

Shade should also be considered in lawn watering. Turfgrass grown in the shade generally uses less water and can be watered lightly or less frequently than unshaded areas.

The roots of turfgrass grown under trees must compete with tree roots for water. Heavy but less frequent waterings are usually better for turfgrass grown under trees.

In coastal regions, where considerable dew regularly accumulates at night, this leaflet's recommendations for water requirements may be too high. If morning dew is common in your area, try reducing sprinkler operation time by 10 to 20 percent.

To broaden your understanding of turfgrass irrigation practices and the factors involved, the following UC leaflets provide useful information: *Lawn Aeration and Thatch Control* (Leaflet 2586) and *Efficient Lawn Irrigation Can Help You Save Water* (Leaflet 2944).

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Jerome B. Siebert, Director of Cooperative Extension, University of California.

20m–pr–8/87–HS/ALS

Fig. 1. Sprinklers operating on a lawn where cans have been distributed.

Fig. 2. Measuring depth of water for a "can test."

Authors

The authors are Richard L. Snyder, Extension Biometeorologist, Cooperative Extension, Davis, and M. Ali Harivandi, Area Farm Advisor, Alameda, Contra Costa, and Santa Clara counties.

Acknowledgments

Evapotranspiration information used to develop the ET zone map and table 1 were provided by W. O. Pruitt, Irrigation Engineer, Department of Land, Air and Water Resources, University of California, Davis.

Partial funding for this publication was provided by Automatic Rain Company, East Bay Municipal Utility District, and Rain Bird Sales, Inc., Turf Division.