

Watering Lawns and Other Turf

Don Taylor, Extension horticulturist
Department of Horticulture

Minnesota has an abundant supply of water; even so, the demand for water sometimes exceeds the amount readily available. Lawn irrigation can take a large amount of water and sometimes much of it is unnecessary. Efficient watering practices are important to all homeowners who want to conserve water, maintain a healthy turf, and reduce maintenance costs.

Should I irrigate my lawn?

Minnesota's climate makes lawn irrigation optional.

Figure 1 shows the average rainfall and the average potential evapotranspiration for each month at four places in Minnesota. Potential evapotranspiration is the estimated amount of water a lawn would use if water is always plentiful in the soil. As would be expected, the graphs differ somewhat depending on the area of the state. Generally, the amount of rainfall is greater than the amount of water needed by grass plants in each month of the year except June, July, August, and September. Consequently in most years, lawn irrigation from October through May should be minimal.

More water is used during the summer months by grass than is replaced by rainfall. If supplemental irrigation is not added, some turfgrasses have mechanisms to survive the dry period. Kentucky bluegrass will go dormant and use very little water. During dormancy the plants stop growth of leaves and shoots, causing the existing turf to turn brown. The plants usually do not die, although the leaves cease growing. When adequate water returns, new growth will occur with no long-term damage. The fescue grasses do not go dormant but are quite drought tolerant and grow very slowly under dry conditions, thus using less water.

Not all grass plants are sufficiently tolerant of dry periods to go without irrigation in Minnesota. Perennial ryegrass and some of the improved varieties of Kentucky bluegrass are not as drought tolerant as the older common Kentucky bluegrass types. These grass plants may require irrigation for maintenance of a quality lawn.

If you choose not to irrigate, you should remember that for several months the lawn may be brown. However, when the temperature cools in the late summer, the grass will green up and grow again.

There are exceptions when it is important to keep the grass growing throughout the summer by supplemental irrigation. Any turf that is affected by or is recovering from pest damage such as disease, insects, or excessive weed growth, should receive plenty of water to aid recovery. Any area that has been recently seeded should be watered frequently. Whenever possible, areas subjected to wear, such as ball fields or play areas, should be watered to maintain tolerance to traffic and aid recovery.

If you decide to keep your lawn green during the summer by irrigation, here are some suggestions.

How much water should I use?

The amount of water to apply depends on the soil type and the wetness of the soil. The preferable method is to thoroughly wet the soil down to a depth of 5 inches. If the soil is initially very dry, it may take $\frac{1}{2}$ inch of water to wet a sandy soil down to a depth of 5 inches, while $1\frac{1}{2}$ inches of water may be needed to wet a clayey soil down that far. Once the soil is thoroughly wet to a depth of 5 inches, any additional water will simply drain below the root zone.

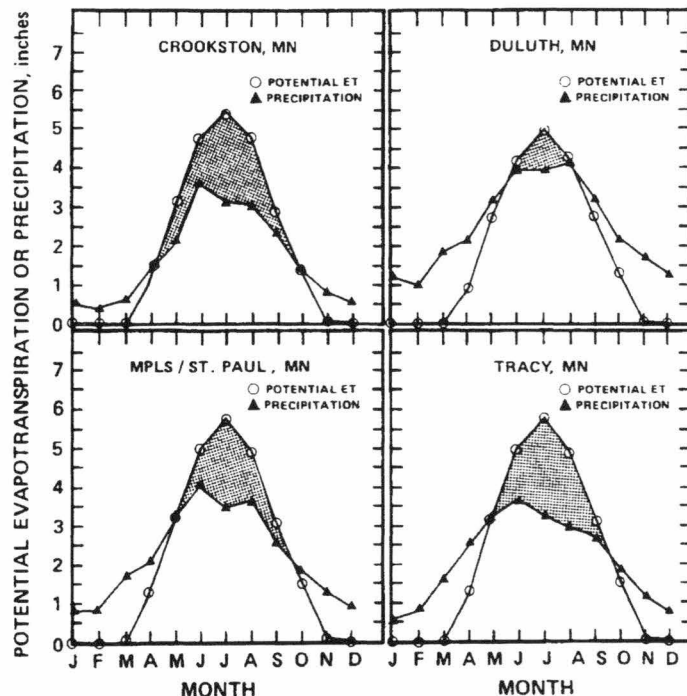


Figure 1. Average monthly evapotranspiration and precipitation values for four sites in Minnesota. Shaded area indicates time when rainfall needs to be supplemented by irrigation. Evapotranspiration values were determined using the method of C.W. Thornthwaite.

Occasional extraction of soil cores after normal irrigation can help give some idea of how deeply you are watering. Another easy method is to sink a shovel into the soil and spread the hole so you can see how far the water has penetrated. Then remove the shovel and press the soil into place with your foot.

Several aspects of lawn sprinkling are important. First, determine how uniform and how much water is applied in a normal irrigation. This can be done by placing a row of equal-sized, straight-sided cans in a line at one or two foot intervals from the sprinkler and out to the farthest point of watering. Following a normal sprinkling of known time, measure the amount of water collected in each can. Then determine the appropriate placement of sprinklers and length of time to water for a uniform distribution of the desired amount of water.

Second, remember that water should not be allowed to run off the surface or to form puddles, as these lead to poor distribution and efficiency of water. Occasionally, the rate at which water can enter the soil is less than the amount applied by the sprinkler after watering has continued for a time. If you notice water running off the surface or forming puddles but you still want to apply more water, turn the water off for 15 minutes, then resume watering until the desired amount has been added.

IN PARTNERSHIP ...

College of
Agricultural,
Food, and
Environmental
Sciences

UNIVERSITY OF MINNESOTA

UNIVERSITY OF MINNESOTA
Extension
SERVICE

The graphs in **figure 1**, for an average year, indicate that lawns use about 4 to 6 inches of water per month during June, July, and August. The precipitation during each of those months is usually 3 to 4 inches, so it is appropriate to schedule lawn irrigations to add about 1 to 1½ inches per week minus any rainfall received during the hot summer months.

How often should I water?

This is not an easy question to answer because frequency will be affected by grass species, soil texture, climate, exposure, and intensity of use. Ideally, the grass plants should dictate the watering program. Slight wilting, a color change to a more greyish or bluish-green shade, or footprinting (when plants will not rebound after walking on them) are indications that irrigation is necessary.

It is desirable to keep the interval between waterings as long as possible without allowing the plants to go into water stress. Deep, infrequent irrigations cause plants to develop deep, strong root systems that can extract water from a much larger volume of soil than the shallow roots associated with light, frequent irrigations.

Some areas of the lawn will probably dry faster than the rest. This is common on southern exposures, sunny areas, borders of sidewalks, and slopes. Hand watering of these areas may save water by extending the interval between waterings of the entire lawn.

When should I water?

The most efficient time to water lawns is probably early in the morning hours from 4 to 8 a.m. Less water is lost to evaporation due to lower temperatures and less sunlight. Also, wind velocities are usually lower than they will be later in the day so distribution is improved. Water demand on municipal systems is usually less at that time as well.

Midday watering, though good for the plants since it cools the plant temperatures and reduces heat stress, is not as efficient because some of the water evaporates before getting into the soil.

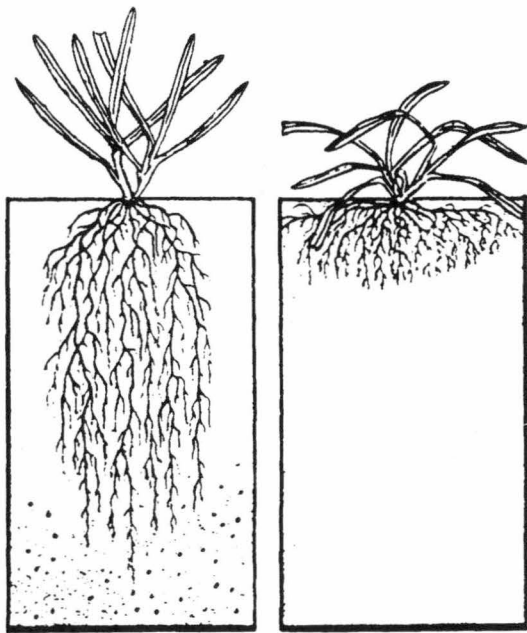


Figure 2. Deep and infrequent irrigation tends to cause grass roots to grow deeper into the soil, making the plants more drought tolerant. Shallow and frequent waterings lead to shallow-rooted plants with less drought tolerance.

Watering in the evening should be avoided. If the grass plants go into the nighttime hours wet, they will remain wet for extended periods of time. This may favor the growth and development of turfgrass diseases.

When should I syringe?

Syringing is a very light application of water to wet the leaves of the grass but not necessarily to get water down into the soil. Usually syringing is done during the hot part of the day to cool the turf and reduce heat stress.

There are three situations in which syringing might be considered on home lawns. The first is if the turf is infested with one of the patch diseases. Daily syringing during high temperatures can reduce the severity of damage considerably. The second situation is if the lawn is newly seeded. Germinating seedlings have minimal root systems and can easily die from water stress. Light, frequent waterings are necessary until the plants are established and have developed adequate root systems. Syringing during hot temperatures will help keep the seedlings cool and moist. The third situation is when an established turf is showing stress on a hot day but cannot be watered adequately until later.

Lawn Watering Tips

1. Consider whether lawn irrigation is necessary in your situation.
2. Lawn irrigation would normally be minimal in spring until June.
3. Add 1 to 1½ inches of water per week (minus any rainfall) during the summer months.
4. Keep the intervals between irrigations as long as possible.
5. Water in early morning hours for greatest efficiency.

This publication was reviewed by Deborah L. Brown, Extension horticulturist, Department of Horticulture.

FS-02364-A
Reviewed 1998

www.extension.umn.edu

Copyright © 1998, Regents of the University of Minnesota. All rights reserved.

Additional copies of this item can be ordered from the University of Minnesota Extension Service Distribution Center, 405 Coffey Hall, 1420 Eckles Avenue, St. Paul, MN 55108-6068, e-mail: order@extension.umn.edu, or place credit card orders at (800) 876-8636.

Produced by Communication and Educational Technology Services, University of Minnesota Extension Service. In accordance with the Americans with Disabilities Act, this material is available in alternative formats upon request. Please contact your University of Minnesota county extension office or, outside of Minnesota, contact the Distribution Center at (612) 625-8173.

The University of Minnesota Extension Service is an equal opportunity educator and employer. Printed on recycled paper with minimum 10% postconsumer waste.