Lawn watering often represents the largest amount of outdoor residential water use during the summer. About 50 percent of the water applied to lawns, however, is wasted. Most lawns could be maintained at equal quality with less than half as much water through more efficient watering and lawn management. Weather, soil, mowing and fertilizing all affect the water need of turfgrass, but the kind of grass, its use, thatch management, pest control and most other lawn care practices also have an effect.

The first step in reducing the amount of water used for the lawn is to assess all aspects of the growing conditions and the lawn care program. Changing the kind of grass may be in order but that alone will not have a large effect without a good management program. Establishing a new lawn requires considerably more water than maintaining mature grass.

The best time to start a water conserving lawn care program is at the beginning of the season. A lawn can be prepared in the spring for low water use in the summer, so plan ahead. Any changes made during severely hot weather when the lawn is under heat stress will be detrimental to the turf.

**Use Grasses That Require Less Water**

Warm season grasses (bermudagrass, zoysiagrass and buffalograss) require less water than cool season grasses (bluegrass, fescue and ryegrass). Keep in mind that warm season grasses do not grow well in shade and most lawns have areas shaded by trees, buildings and landscape construction. When nature is left to take its own course, warm season grasses will dominate the sunny areas and cool season grasses will dominate the shady areas. Although people sometimes object to the patchy look of two different kinds of grass, the total water use will be reduced.

Cool season grasses green up earlier in the spring and stay green later in the fall, a desirable characteristic. A longer growing season, though, means a longer watering season. Cool season grasses also require more water than warm season grasses during hot weather. Therefore, having a water conserving turf may require some compromise in appearance.

**Using Native Grasses**

An increased interest in using native grasses for lawns has developed in recent years due to the low water and maintenance requirements and naturalistic look of these grasses. Most native grasses are warm season grasses and must be planted in areas that receive full sunlight. Buffalograss is the most common native grass used for turfgrass. It grows best in areas with less than 25 inches of annual rainfall.

Once established, native grasses should be watered and fertilized very sparingly or not at all. Watering and fertilizing native grasses as much as regular lawn grasses causes them to become weedy and the low maintenance aspect is lost. Often, people want the low maintenance of a native grass and the look of a high quality lawn grass, but unfortunately this is not realistic.

<table>
<thead>
<tr>
<th>Turfgrass</th>
<th>Drought Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bermudagrass</td>
<td>excellent</td>
</tr>
<tr>
<td>Buffalograss</td>
<td>excellent</td>
</tr>
<tr>
<td>Zoysiagrass</td>
<td>excellent</td>
</tr>
<tr>
<td>Tall fescue</td>
<td>good</td>
</tr>
<tr>
<td>Bluegrass</td>
<td>fair</td>
</tr>
<tr>
<td>Ryegrass</td>
<td>poor</td>
</tr>
</tbody>
</table>
One must consider if the site is suitable for growing native grasses and if the natural look fits the surroundings. Under suitable conditions native grasses can save water and maintenance, but the cost of seed is high and watering is generally required to get them established. Weeds are the major problem in establishing native grasses for a lawn.

**Good Soil Preparation Can Save Water**

Typically, lawns are planted around buildings after construction on soils that have been graded, filled, trenched and compacted by heavy trucks and construction equipment. The site is usually an undesirable mixture of varying depths of different soil types and degrees of compaction. Too often the problems are graded over and covered with grass and are not immediately apparent to the new resident.

Compacted soils restrict rooting, resulting in a problem turf of poor vigor that needs frequent watering. Fine textured clay and silt soils have the greatest degree of compactability. Shallow rock layers and southern slopes also cause watering problems.

Ideally, topsoil should be removed and stock piled before construction. After construction, the subsoil should be tilled and graded to final shape, then the topsoil applied at a uniform depth throughout the lawn area. Before planting, till in a 2-inch layer of peatmoss, compost or other organic matter to a depth of 6 inches. Do not add sand to clay or silt soil unless enough sand can be added so the final mixture is at least 85 percent sand. Otherwise, adding sand makes the soil harder.

Soil improvement while maintaining an existing turf is more difficult. The most practical and inexpensive approach is aeration. The small holes left in the turf improve water infiltration and rooting. The other choice is to remove the turf, reconstruct and reestablish the turf. This is expensive but may be the best option in some situations.

**Weather Affects How Much and When to Water**

Weather has the greatest effect on the condition of the grass and the amount of watering needed. Weather factors that influence how much and when to water include temperature, sun, wind, humidity and natural rainfall. The combined effect of these interrelated factors depends on how extreme any one or more of the individual factors may be or how long they last.

Much water is wasted if good judgement is not used in taking into account the current local weather conditions. Watering on a calendar basis or automatic irrigation system with a time clock interval can be quite wasteful.

Soil moisture sensors measure the actual moisture content of the soil and eliminate much of the guesswork. They are available for a reasonable price. Moisture sensors can be hooked up to an automatic sprinkler system.

In the future, computer programs will be available that take into account local weather conditions, soil conditions, type of grass, lawn care program and a number of other factors to determine how much to water. It can also be programmed into the automatic irrigation system. In the meantime, good judgment must be used.

**How to Water Efficiently**

How much and how often to water is largely determined by weather and soil conditions. Only enough water to ensure turf survival during adverse weather conditions is actually necessary. Maintaining a dark green lawn at all times during the growing season will require a great amount of water.

The best way to water is to soak the soil to a depth of 6 to 8 inches at such a rate that all water is absorbed by the soil with no run-off. Wait until the grass shows signs of wilting but not until severe wilting and browning of the foliage occurs.

It takes about an inch of water to soak a soil properly but some soils require more and some less. Poking a long screwdriver or rod into the soil will reveal the depth of water penetration. Moist soil can be easily penetrated and the probe will stop when it reaches dry soil.

The watering interval may vary from once every two or three weeks during cool spring and fall weather to twice a week during severe drought. The most extreme case of over watering lawns is watering every day. This kind of watering schedule causes shallow rooting and the turf will not survive for more than a few days if water restrictions are imposed. Too much watering is not only wasteful but harmful to the turf. Frequent watering increases the chance of disease and shallow rooting hastens thatch buildup.

Applying an inch of water on 1,000 square feet requires 623 gallons of water. This amount multiplied by the number of thousand square feet of lawn area, and than multiplied by the number of times the lawn is watered for the season amounts to a tremendous amount of water. Calculating the amount of water used should be convincing enough to water no more often than is necessary.

**Fertilizing Affects Water Use**

A reasonable amount of fertilizer is needed to maintain a dense, healthy turf of good color. Excessive fertilizing promotes excessive growth requiring extra watering and mowing. Certain diseases are promoted by a lush, green turf.

Fertilizing should be minimal or not done at all during severe heat or drought conditions. Maintain a moderately green color during favorable weather but accept a lighter color during weather stress. Do not try to maintain a lush green color at all times.

**Watering According to the Weather**

<table>
<thead>
<tr>
<th>Weather Affect</th>
<th>Water Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooler temperatures</td>
<td>High temperatures</td>
</tr>
<tr>
<td>Cloudy or overcast</td>
<td>Bright sunlight</td>
</tr>
<tr>
<td>Low wind</td>
<td>High wind</td>
</tr>
<tr>
<td>High humidity</td>
<td>Low humidity</td>
</tr>
<tr>
<td>Rain or showers</td>
<td>No rain</td>
</tr>
</tbody>
</table>
Mowing Affects Water Use

Most people like the look of a short mowed lawn, but when a lawn is mowed short it is less drought resistant and requires more frequent watering. Also, short mowed lawns are more likely to be invaded by weeds.

Cool season grasses will be most drought resistant when mowed at 2½ to 3 inches. This will encourage deeper rooting. Additionally, the foliage will be longer, shading the soil surface and keeping it cooler during hot weather. Warm season grasses thrive in the summer heat and, consequently, will tolerate shorter mowing during the summer.

**Key Points to Remember**

1. Select adapted grasses that require less water.
2. Till soil as deeply as possible before planting so the grass can develop deep roots.
3. Apply water at a rate that it is absorbed into the soil and no run-off occurs.
4. Early morning hours are the most efficient time to water. Night watering may favor disease development.
5. Water less in the spring and fall, increase slightly during summer drought.
6. Deep, infrequent watering is more efficient than frequent, shallow watering. Once a week is enough for average conditions, twice a week during severe drought.
7. Adjust watering frequency according to the weather. Following a calendar program will waste water.
8. Soak the soil to a depth of 6 to 8 inches, then don’t water until the turf shows signs of needing water.
9. Fertilize only enough for acceptable color. Excessive fertilization results in extra watering and mowing.
10. Mow at the high end of the recommended range for each species. This will improve drought resistance by encouraging deeper rooting.
11. Keep thatch layer less than ½ inch thick. Excessive thatch causes the turf to be less drought resistant.
By
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