



Turf in times of drought

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Traditionally, the turf of choice in Cheyenne has been a carpet of bluegrass. Bluegrass is lush and hardy, but in our semi-arid climate, it requires a substantial amount of watering. Even worse it is often overwatered. One of the easiest ways to reduce water use without any expense is to better manage your existing turf. It is estimated that over 50% of people who have bluegrass over water their turf. Bluegrass is very shallow rooted and if it receives regular watering, the roots become even more shallow. For instance, if you water every day or every other day, the roots have no need or reason to grow deeply. They instead become dependent upon these regular waterings. If you skip a day or two of watering, the lawn can instantly become noticeably stressed.

You can actually train your bluegrass turf to survive and even thrive on less frequent watering. By watering less frequently, but for a longer period, the root system will be forced to search deeper for more water and will survive well on less total water. In all but the hottest parts of summer, try to water no more frequently than once every 3 to 4 days or even longer. If you have very sandy or poor soil, you may only get by with once every 3 days.

The way you maintain your lawn can alter how much water it needs. If you mow your turf too short, it will become more prone to stress and require more water. Short mown turf is also more susceptible to weeds. The best mowing height is 2-3". Never mow off more than 1/3 of the total length of the blade—this means mowing at least once per week and maybe more in spring. It is also better to let the lawn clippings drop even if you don't have a mulching mower. Lawn clippings add valuable organic matter to the soil, thus enabling more water holding ability and reducing the overall fertilizer requirement.

Core aeration is an important part of healthy lawn maintenance. Core aeration removes small plugs from the soil. Aeration of turfgrass is important because it allows better water, air and fertilizer penetration by relieving soil compaction. This prevents water run-off and improves the health of plants. For best results, aerate in the spring and fall under moderate soil conditions when a 6-inch screwdriver can be easily inserted into the soil. Avoid aerating a lawn when the weather is hot and dry.

Water restrictions and Kentucky bluegrass turf

Most bluegrass turf will survive a watering regimen of twice per week. In fact some turf and landscapes may even become healthier. However, the turf may look spotty and might suffer more in the warmer microclimates of your yard such as areas adjacent to concrete or against south and west facing walls or fences.



If water restrictions mandate the elimination of turf irrigation for longer periods such up to a month, your bluegrass will likely enter a dormant state where the turf will fade towards brown. When regular watering is resumed, the turf will usually reawaken and green-up as before. For bluegrass to stay alive in dormancy, a minimal amount of water is still required. Instead of providing the common one to one and a half inch of water per week, bluegrass can stay in dormancy on as little as 1/2 to 3/4 inch every three to four weeks. This is often provided by



natural precipitation. If there is no precipitation and no supplementary watering, the turf may sustain some permanent damage after four weeks or more. Allowing bluegrass to go into dormancy during the hottest part of summer is a good strategy to reduce overall water consumption.

Fertilizer

It is a good practice to avoid all lawn fertilization 30 days prior to a lawn going into dormancy from a water conservation mandate. It is recommended that you do not pick up your lawn clippings whether or not you use a mulching mower. The clipping will actually return nitrogen to the soil. As a result, you can reduce fertilization by another 30 percent. Overall it is a good idea to only use fertilizers labeled as “slow release,” as these are more efficient and less nitrogen ends up in ground water. Also, reduce overall fertilization by 1/4 to 1/3 during twice per week watering restrictions to reduce the speed at which your lawn grows and to help the turf conserve water.

Reducing bluegrass turf

Another way to reduce your yard’s water requirement is to reduce the amount of total bluegrass turf in your landscape. Ask yourself if you really need that much turf in your yard. Perhaps a lush plot of bluegrass at your front entry and out your back door is all you really need. Bluegrass is among the most wear-tolerant groundcovers for high traffic areas that are frequently used by children and pets. However, large areas of Kentucky bluegrass waste water. In the other non-bluegrass areas of your yard consider creating zones of mostly drought resistant plants including native trees, shrubs and plants. You can also add landscaping that includes patios, decks and mulches.

If you are going to make the decision to reduce bluegrass, then you need to first kill out the bluegrass turf prior to landscaping. This is commonly done with a single application of the herbicide Roundup™, and “Kleenup,” which does not affect the soil, even when directly sprayed. It is only absorbed through green, growing leaves and takes up to 2 weeks to work. Glyphosate is the active ingredient in Roundup™, and “Kleenup.” Apply glyphosate with care because if it is windy and material lands on other plants, it may kill them.

After the turf has been killed, simply leave the dead grass in place. It will act as a mulch and prevent erosion, especially on sloped areas. You can plant directly into the dead turf. If you have an automatic sprinkler system, be sure to make adjustments so water is only applied to the remaining turf areas and not your low water use zones.

BLUEGRASS ALTERNATIVES

Turf-type tall fescue-

This turf choice, turf-type tall fescue, is by most accounts, almost indistinguishable from bluegrass. It is dark green and lush like bluegrass. The only noticeable difference is that the leaf blade may be slightly thicker than bluegrass. It uses about 1/3 to 1/4 less water than bluegrass (about 3/4” per week). In addition, there are “dwarf” varieties of turf-type tall fescue that need 50% less mowing in late summer than does bluegrass. Turf-type tall fescue is also more shade and “dog waste” tolerant than is bluegrass. Unlike bluegrass, it is not self-healing, as it does not spread with underground shoots . This means that if you get a small dead spot in the turf-type tall fescue, it won’t grow in like bluegrass. The upside to this is that fescue won’t grow into your flowerbeds. Another advantage is that the turf type tall fescue can get by with up to 50% less nitrogen fertilization but will tolerate fertilizer levels commonly given to bluegrass. High amounts of lawn fertilizer required by bluegrass turf have been tied to ground water pollution. Less nitrogen fertilizer means less pollution.

Fescue seed is easier to establish than is bluegrass. The turf-type tall fescue germinates in only 10 days versus 20 days for bluegrass. Turf-type tall fescue is also available as sod (which is a bit more expensive than bluegrass sod).



There are many other types of fescue grasses such as “fine fescues,” “Kentucky 31” and others that have attributes quite different than the turf-type tall fescue. Be sure to get the fescue labeled “turf-type tall fescue” for best results.

While there are many positives to growing turf-type tall fescue it does have a few concerns. Unlike Kentucky bluegrass, turf-type tall fescue does not go into dormancy during extended hot, dry periods. If turf-type fescue goes through an extended period of drought in summer, it may die back and get a patchy look with areas of soil between clumps of grass. This patchy look can also occur naturally over time. To return to a thick-looking turf try overseeding into the patchy areas with more turf type tall fescue seed. This is best done in spring when you can maintain good moisture for a couple of weeks. Sow turf-type fescue at a rate of 5 lbs per 1000 sq. ft.

Prairie grass mixes-

For drier conditions you can opt for prairie grass mixes that usually include the drought tolerant crested wheatgrass in the mix. Some may even include wildflowers. You can also grow just crested wheatgrass as a turf alternative, as it is drought tolerant and easy to establish (sow seeds in early spring). Unfortunately, wheat grasses usually create a rougher look than most turfs, as it is a bunch-grass that often has patches of soil surrounding each grass clump. As a result, it will not have the neat turf appearance. However, there are some newer varieties of crested wheatgrass that are not as “bunchy” and form a sod. The newest sod-forming wheatgrass is known as “Roadcrest.” It has finer leaves and a shorter growth. It can be established where it receives 10 to 20 inches of moisture per year. If Roadcrest wheatgrass receives more than 20 inches of moisture it will probably decline. Wheat grasses may turn brown and go dormant in the hottest part of summer. Sow crested wheatgrasses at 2 lbs. per 1000 sq. ft.

Buffalograss-

Buffalograss is a sod forming, warm season turf that is very drought resistant requiring $\frac{1}{4}$ inch of moisture per month. Compare this with Kentucky bluegrass which needs 1 to 1 and a half inches of moisture per week. Being a warm season turf, buffalograss will be a bit slower to green up in spring and will go dormant a little earlier than cool season grasses like fescue and bluegrass. Buffalograss has a rougher, greenish-gray appearance that is different than a green bluegrass sod. Still, it can be handsome in a yard.

Buffalograss is not suitable for every location. It does best in areas that receive full to half day of sun and moderate to little foot traffic. It doesn't do well in sandy soils and it will not tolerate constant or heavy foot traffic. Still, it can provide an excellent alternative to bluegrass. Many people like the softening look that buffalo grass creates in the landscape. The big advantage of buffalograss is that it is very low-maintenance, requiring little if any supplemental watering (after the first year or two of establishment) and rarely needs mowing, if ever.

Buffalograss includes both female and male plants. Female plants bear flowers closer to the ground than do the male plants and create a neater looking turf. The only way to insure an all female turf is to start with small plants rather than seeds as seeds can develop into both male and female plants. These plants are often called plugs.



One variety developed for the High Plains is called “Legacy®” buffalo grass which is available as a small plant plug. Legacy® is available from Todd Valley Farms (1-800-869-8544).

The plugs arrive by mail in mid to late spring and are planted on 18” centers. After a full season of growth these plugs fill into the voids with a solid sod turf.

You can also sow buffalo grass from seed. This may not look quite as uniform as the female plant plugs but still is acceptable to many. “Cody” is the preferred seed variety for our altitude and is generally sown at a rate of 3 to 4 lbs per 1000 sq. ft. It is important to sow in late May and cover the seed to a depth of ½ inch. Water once every 4 days until you see germination.

Warm season grasses such as buffalograss need 70% less fertilizer than bluegrass. Buffalo grass is best fertilized when the temperatures are hot. Apply one light application about mid-June and another at the beginning of August. Do not fertilize in the first establishment year.

Fine Fescue Mixes

Newest to the drought-tolerant lawn options are grass mixtures composed mostly of fine fescues such as Canadian blue fescue, sheep fescue, creeping red fescue and hard fescue. Canadian bluegrass seed is also often added to these mixes. The one important requirement is to grow these fine fescues only in areas where the soil is well-drained. These varieties will not perform well in wet soils. However, they survive fine in shady and sunny spots alike. Fine fescue mixes require regular, but light irrigation. Some speculate that these mixtures will perform well on 50% of the normal irrigation that Kentucky bluegrass requires. These fine fescue mixtures do well under severe drought conditions. However, fine fescue turf that is in full sun may turn brownish during prolonged 90-100 degree heat. When cool weather returns, so does the coloring. Fine fescue mixtures usually do best with a lawn mower set a minimum of 2” or higher.

The final results . . .

As you can see, there are many strategies for reducing the water requirements of your turf. Whether you decide to do a better job of managing the turf you have, reduce the total amount of turf, convert areas to some turf alternatives or all of the above, the main goal is to end up with a good-looking yard. The good news is that any or all of these strategies will save you time, money and create a handsome landscape.

Please see these related documents available at the Cheyenne Botanic Gardens or on the web:

- **Water Conservation Basics:**
- **Water Wise Trees and Shrubs**

on our web site at <http://www.botanic.org> click on Gardening.