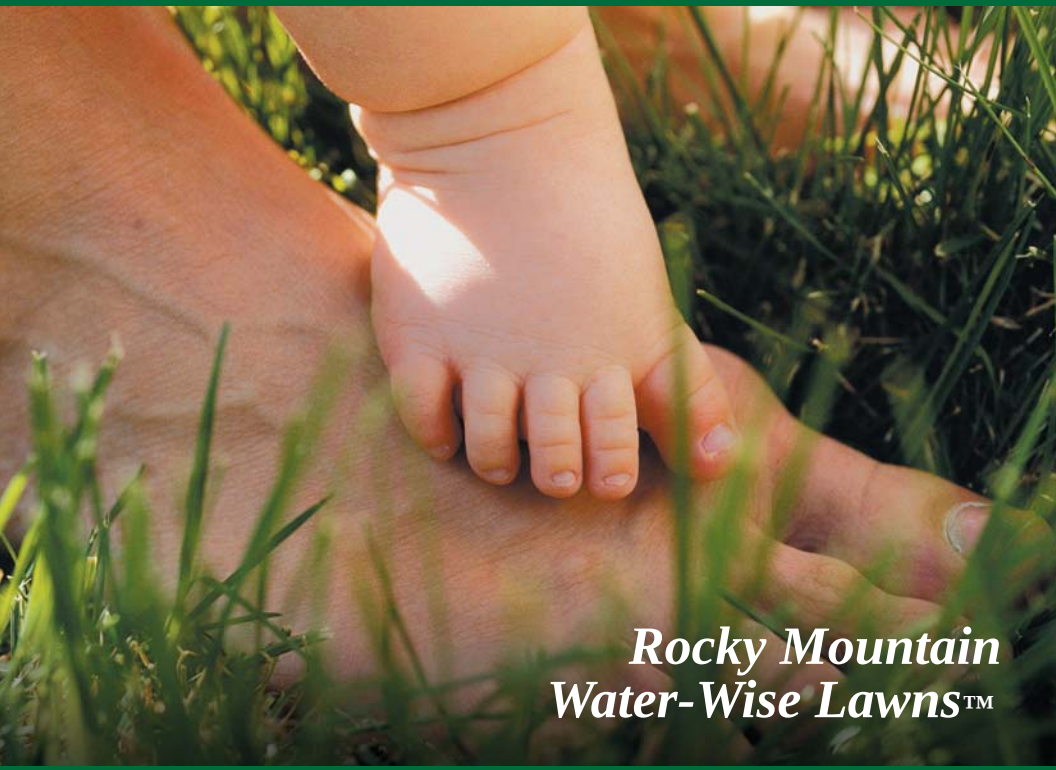
Lawn Care Guide



Rocky Mountain Water-Wise Lawns™

How To:

- Conserve Water Resources
- Recognize and Control Lawn Pests
- Maintain a Healthy Lawn
- Water Lawns Properly
- Prepare for Turf
- Install Turf
- Buy Turf

Also Includes:

- History of Lawns
- Lawn Aesthetic and Financial Benefits
- Lawn Environmental Benefits

And Much, Much More!

Chanshare
FARMS

Mission

- **Supply premium products and services at a competitive price**
- **Create long-lasting relationships with our customers, vendors, and strategic partners**
- **Enrich the lives of our customers, employees, and shareholders**
- **Be good stewards of the land while beautifying and conserving the environment**
- **Empower people to help themselves and others**

This Lawn Care Guide was originally published during the sixth year of a drought. It is dedicated to promoting correct preparation, installation, and care principles. Drought or no drought, water conservation in the arid West must be a center focus priority. Lawns will continue to be an important part of the American landscape. Suburbanites have traditionally grossly over-watered both lawns and landscapes. This excess cannot be tolerated, nor can the excessive use of pesticides and herbicides.

Those who love landscape art must be dedicated to landscape science: the preservation and protection of our environment. It is our conviction that lawns are an important part of the American landscape, even in, and perhaps especially in arid climates. Many of the errors and false notions of the past must be eliminated, allowing for the perpetuation of this uniquely American tradition. This Care Guide is just a start, and will likely never be "complete".

Chanshare Farms
Tremonton, Utah

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Published by Chanshare, Inc.

Contents

Chapter 1
Lawns
History, Benefits, Types

Key Points

- Turfgrass lawns are an American tradition.
- Turfgrass has been used throughout history in arid regions to beautify and enhance the human environment.

History of Turfgrass

The First Turfgrass Lawns

Archeologists date the first use of turfgrass lawns to Persian kings. They used turfgrass as a portion of their gardens starting somewhere around 500 B.C. Soon thereafter, Greeks and Romans also adopted this form of decorative landscaping. Turfgrass lawns made their way into Chinese landscapes around 100 B.C.

Turfgrass in Europe

In the Middle Ages, kings in Europe used turfgrass lawns to entertain, play lawn games, and in their ornamental gardens. Livestock and serfs cut the grass.

In 1661, Louis XIV of France, and his landscaper, Andre Le Notre, used a huge grass terrace, sculptures, and hedges at the Palace of Versailles.

Some in the English aristocracy, seeing the formal French garden style, formulated their own gardening style. The Landscape Gardening School was created to promote and teach this style. This style incorporated lakes, streams, rolling hills, and groves of trees, in contrast to the French formal lawn.

With the development of lawn sports such as bowls, golf, cricket, soccer, and croquet, the English design evolved into green open spaces for use and not just for decoration.

Turfgrass in America

European immigrants coming to America brought with them the idea of turfgrass lawns. By the mid 1700s, some prosperous Americans had developed lawns in American landscape designs.

In 1741, Henry Middleton established landscapes at Middleton Place near Charleston, South Carolina. This project took 100 slaves nearly a decade to complete.

George Washington, Thomas Jefferson, and others used European landscaping principals to complete their estates. The use of lawns was a central theme in these landscapes.

In 1830, Edwin Beard Budding invented the lawnmower. Before the lawnmower, lawns were kept well-trimmed using livestock or laborers. The lawnmower changed the way a lawn was cut, and encouraged the use of lawns in the landscape.

Around 1920, gas-powered lawnmowers began to appear.

In 1947, William Levitt used turfgrass lawns to connect individual homes into the first modern subdivision in Levittown, Long Island, New York.

Intermountain West

While most lawn varieties have been imported from Europe and perpetuated in the United States, bluegrass is native to the Intermountain West. Early Mormon pioneers valued beautiful landscapes and brought seed from all over the world. Upon arrival, water infrastructure was the immediate priority. City Creek, north of Temple Square in Salt Lake City, provided the first irrigation water to crops, plants, and trees. Native grasses were transplanted and flourished in the valley soils.

Common use of improved turfgrass lawns in the landscape did not flourish until the mid 1960s when Dave Pennington imported turf from Denver and then harvested bluegrass seed from Midwest prairies. He planted the first Utah "sod farm" in what is now West Valley. By the year 2000, turfgrass sodding of residential and commercial properties was a common practice.

Future

There will continue to be demand for turf in America. Research continues to document the practical, environmental, aesthetic, and financial benefits of lawns. Outdoor landscaping is a significant industry that has a huge impact on the economy of the state of Utah.

Ingenious past development of water resources has protected our right to enjoy wonderful landscapes in the arid West. Education and joint cooperation between the green industry, government entities, and water providers will protect this legacy for future generations.

Benefits

Lawns are as American as the automobile, fast food restaurants, telephones, televisions, computers, and in-ground sprinkler systems. The advent of the lawnmower, wide experimentation by many dedicated scientists at American universities, and the commercialization of landscaping plant materials has facilitated the ability of all Americans to enjoy what, prior to World War II, was only available to the rich and powerful.

Practical Benefits

Turfgrass provides a relatively inexpensive, attractive, natural, and environmentally beneficial way to cover the ground surrounding a home.

A lawn helps keep a home clean. Turfgrass lawns prevent mud and dirt from being tracked inside the home. Turfgrass is tough enough to withstand traffic that may destroy other, more fragile forms of ground covers.

A lawn also absorbs and disperses sound waves, resulting in a quieter environment by muting the noise generated by activity surrounding the lawn.

For many homeowners, life doesn't allow much time for exercise or outdoor activities. Lawn care and gardening are great forms of exercise in an invigorating outdoor environment. Nothing smells better than a fresh cut lawn or dirt that is freshly turned.

A lawn provides a place to relax, a place to have a picnic or party or lemonade stand, and a place to play. Most homeowners appreciate living near a neighbor with a healthy turfgrass lawn. Lawn games, such as lawn bowling, croquet, nickel-a-weed, golf, badminton, lawn tennis, rugby, football, soccer, making grass whistles, and hobbies like lawn mower racing and snowmobile racing on grass are a great way to improve your quality of life.

Environmental Benefits

When properly managed, a turfgrass lawn protects the environment. Turfgrass lawns can absorb hundreds of pounds of pollution from air and water. Pollutants from automobiles, industry, and other sources are filtered by turfgrass before toxins contaminate groundwater, lakes, ponds, rivers,

and streams. Lawns protect the soil from wind and heavy rain erosion, and trap many airborne dust particles.

Turfgrass is an efficient plant for converting carbon dioxide into oxygen. An average residential lawn of 5000 square feet produces enough oxygen every day to meet the needs of eight people.

Healthy turfgrass lawns are also an effective cooling agent. Lawns make our homes and commercial buildings more comfortable in the hot summer months, and reduce our dependence on indoor air conditioning. It is not uncommon to reduce temperatures by 15 to 25 degrees over hardscapes.

Turfgrass lawns act as a firebreak for homes in a high-vegetation area. A healthy lawn may be the deciding factor in determining home safety during a wildfire.

Native plant enthusiasts point to water waste, chemical pollution, and the cost of maintenance as reasons for not promoting lawn areas. Plants do not waste water…people do. People make choices to be lazy and overuse herbicides and pesticides.

Chanshare supports responsible use of water, beneficial mowing practices, and the minimal use of chemicals in the landscape.

Environmentally, a lawn more than pays for itself by filtering the air and the water, cooling the environment, and providing pleasant open spaces for everything else that goes on around our homes and parks.

Urban Population Benefits

Turfgrasses are the only groundcover that can handle the constant traffic and trampling that come with a dense urban population, especially as demands for recreation increase. Turf is sometimes criticized for being an "unnatural community", but any urban area is far from natural.

Aesthetic Benefits

The well-designed turfgrass lawn adds beauty and pleasantness to its surrounding. A landscaping scheme that uses a turfgrass lawn as its centerpiece benefits the entire community by providing an attractive contrast to a home's hardscape. An appropriate lawn/landscape design allows easy access to planting

areas, and encourages family participation in all areas of the landscape.

Financial Benefits

The cooling effects of a turfgrass lawn can reduce the electricity costs of an air conditioned home. Cooler exteriors reduce interior cooling requirements. Water not used on a landscape may well be used at the power plant to generate electricity for cooling.

It is widely accepted that an attractive landscaping scheme will add 15 to 25 percent to the value of a home. Generally, a well-balanced landscape can be established for much less than 10 percent of the new home value.

Lawn Types

Ground Covers

Grass lawns, synthetic lawn, meadow and wildflower meadow, hard landscaping, ground cover plants, flower gardens, and vegetable gardens, and other options may cover the ground. A turfgrass lawn is the most popular choice of ground cover in the Intermountain West. Most people who choose to cover ground with one of these alternatives do so to minimize over-growth of other plants, for weed control, and for other reasons. Ground cover and landscapes require some level of maintenance.

Luxury Lawns

Luxury lawns are generally tightly mowed and require exact watering, care, and mowing practices. These lawns are intended to be looked at and not played on. Luxury lawns are mostly for public display. Few private or public gardens meet this criterion. The gardens at Temple Square in Salt Lake City are an example of a luxury lawn.

Sports Fields

Golf, Sports, and Public Park Lawns are commonly used as open areas for public and/or private use. Specialty turf sod production to establish these lawns is in great demand. Custom turf grass sod blends, exact seedbed preparation, and scientific maintenance practices are required to meet specific needs.

Homes & Businesses

Utility Lawns are most common. Most written lawn care informa-

tion is provided for this type of lawn. These lawns have many uses including but not limited to being walked on, played on, and for public use and to facilitate public entertainment.

Starter Homes

Second Rate Lawns are more common among first time homeowners. Ground preparation is not a priority, funds are limited, and time dedicated to the lawn design is limited. Care is not taken to select improved cultivars of turfgrass. Price alone is the determining factor in making the turf selection.

Newer lawns that are not cared for generally meet the second rate or utility lawn types.

Worn out lawns generally result from a lack of care or from having been established for many years. Lawns wear out over time. New improved cultivars are constantly being introduced, inviting the upgrade of lawn cover areas.

Most turfgrass sod buyers desire a luxury lawn but will not invest the time, money, or effort to reach this standard. Homeowners do not like to be classified as having a utility lawn and certainly would not like to be classified as having a second rate or worn out lawn. As with all landscapes, great lawns require excellent plant material and, moreover, an investment of time and effort.

Summary Points

- Turfgrass lawns have a rich history beginning in 500 B.C.
- Recognizing the many benefits, people have used turfgrass throughout history in arid environments to beautify and enhance their surroundings.
- Through better "Best Management Practices", our water resources can be conserved while enjoying beautiful landscapes.
- Lawns become worn out over time. Proper care increases longevity and improves appearance.

Chapter 2
Soil & Soil Preparation

Key Points

- Different types of soil have different drainage and chemical characteristics.
- Modifying your soil can build the ideal growth environment for a turfgrass lawn.
- Proper soil preparation is the first key to a healthy lawn and will improve efficient use of water.
- Properly prepared seed beds promote better lawns
- Non-compacted soil will allow turfgrass sod to more easily establish deep root systems.
- Moistening the seedbed prior to planting will require less water for establishment.

Different Types of Soil
Soil Structure

Soils are composed of clay, sand, and silt. The differences between these three materials are in their particle size and the way the materials hold and drain water.

A mixture of the three materials is sometimes referred to as loam. Sandy loam contains about 25 percent clay, 50 percent sand, and 25 percent silt. Clay loam contains about 50 percent clay, 25 percent sand, and 25 percent silt.

Sandy loam is generally considered to be the pre-ferred soil mixture for turfgrass lawns. Sandy loam has good water drainage and yet will hold moisture and is the best for providing the needed nutrients for turfgrass development.

Moisture Test

A quick way to determine soil structure:

1. Collect a small amount of soil in the cupped palm of your hand
2. Add a small amount of water (spit).
3. Work the moisture into the soil with your finger.

* One large ball = clay soil.

* Soil resists balling up = sandy soil.

* Soil forms into clumps of uniform size = desirable sandy loam.

Soil Test

Unfortunately, most gardeners who wish to grow and maintain a lawn do not have perfectly blended sandy loam soil with which to work. If you are interested in documenting your soil type and the nutrients held therein, a soil test could be used to determine the soil composition where the turfgrass will be grown.

Most garden centers, and nurseries carry soil test kits. Soil tests can help identify what nutrients are needed for proper turfgrass health. Anyone can develop an excellent lawn with the addition of organic matter, fertilizer, and proper soil preparation.

Soil Test Timing

The best time to take a soil sample is before the turfgrass is planted. Soil samples should be taken from the turfgrass root zone, between two and ten inches below the surface. Samples can be taken periodically if you feel that the turfgrass is not performing as desired. A good time of year to take these soil samples is in late winter, when anything growing in the soil is dormant and the soil is most stable. Soil tests are only a tool.

The Best Soil Test - "Read" Your Lawn

No test can replace your observations while watching how your turfgrass responds to the different treatments you make during the year. Record these observations and refer to them often when making fertilizer, herbicide, and pesticide decisions.

Infiltration (Drainage)
Water, Air & Nutrients

The infiltration of water into the soil and the speed at which water moves in the soil is important. Soils must drain properly to promote good turfgrass health.

Soil that does not drain well (both on the surface and internally) will inhibit good plant health.

If surface drainage is too great, a larger volume of water will be required to keep the lawn healthy. Much of this water will be wasted.

Soil compaction must be held to a minimum for both infiltration and drainage. During the construction process, keep heavy equipment removed from planting areas. Manage the construction site so that the soil can be prepared properly.

Compaction, infiltration and drainage is affected by the amount of clay in the soil. Clay soils hold water more than sand or silt. However, compaction prevents infiltration. Too much clay in the soil inhibits internal drainage, but too little clay prevents the soil from holding water long enough.

Prepare the Seedbed

A properly prepared seedbed will help your turfgrass sod become established more quickly and will require less irrigation.

Note: The top of the soil, when fully settled, should be at least 2 inches below cement edges.

Adding Material to the Soil

If the soil test determines that the soil mixture is not ideal, other steps can be taken to improve soils.

The addition of organic material is recommended. An ideal soil mix contains approximately twenty to twenty five percent organic material.

To add organic material to the soil first till up the soil bed 6-8 inches, spread the organic material in a layer two to three inches deep, and mix in by tilling again. Repeat the process if more material is desired. Adding up to10# per 1000 sq. ft. of a 16-16-8 Fertlizer with the organic material will give your new turf a huge boost and help your root system to explode lower into the root zone quicker.

Organic Material

Organic material not fully decomposed is not as beneficial to the soil as material that has been fully composted. The organisms that do the job of decomposing the organic material use nitrogen. This process will deprive the turfgrass roots of nitrogen until the organic material has been sufficiently decomposed. Most cities have recycling programs that provide composed materials.

Remove Debris

Rocks, bricks, dirt clods, old tin cans, sticks, tree stumps, junk, building material, or anything else larger than one-half inch in size can cause problems. Remove any debris from the seedbed.

Add Fertilizer & Organic Material

Now is the time to add organic material and fertilizer, and work the additives into the soil. Chanshare recommends that decomposed organic material and 16-16-8 fertilizer be incorporated into the soil. Working the additives into the native soil will improve soil quality, will add needed oxygen and water, and will loosen soil so roots can penetrate the native soils quickly.

Salty Soil

Many soils in the arid West contain higher than normal salt levels. Commercial fertilizers (with the exception of phosphorous) increase salt levels. Historically high water use has leached salts away from grass root zones. Heavy fertilization is not recommended or required. Care should be taken to apply as little fertilizer as possible to maintain lawn health and minimize plant growth.

A soil salt problem can be improved with proper drainage by leaching the salts away from plant roots.

Till the Seedbed

Tilling the soil improves the seedbed in several ways. After surface debris has been removed and any organic material and soil additives have been applied, use a roto-tiller to work the soil in your seedbed.

Tilling loosens the soil, allowing the root structure to become better established. Tilling helps control weeds that may be germinating in the seedbed.

Tilling helps to expose debris hidden in the soil. Tilling combines organic material and soil additives into the seedbed in an even manner. Tilling encourages proper oxygen and water infiltration by shattering compacted soil.

Hand Raking

After tilling, rake the seedbed. Raking the soil will smooth the seedbed. Turfgrass sod tends to accentuate the small hills and valleys that may exist in the planting area. Take great care to smooth the ground.

After raking the bare soil several times to settle the soil, encourage weed germination and check water patterns.

Watering bare soil settles the soil and encourages weed sprouting prior to sod installation.

Water Conservation

Chanshare Water Wise Turf™ has been placed in most environments in the region. Whether there is a drought or not, correct soil preparation practices promote healthy lawns. The first key to a water-conserving lawn is proper soil preparation.

Even within the same subdivision, planting areas are different. Improper soil preparation hampers water conservation and the development of healthy lawns.

Chanshare recommends that Mammoth Gripper™ head clamps and spikes be used to stabilize all sprinkler heads. Stable heads can increase water distribution efficiency by 10 to 20 percent.

Final Grade

After the final grade the top of the soil, when fully settled, should be at least two inches below cement edges.

Water the bare soil several times to:
- Settle the soil.
- Encourage weed germination so weeds can be killed by tilling, hand weeding, or herbicide application before sod installation.
- Check water patterns, and adjust sprinklers to ensure even watering.

Summary Points

- Sandy loam soil is the preferred soil.
- Incorporate composted organic material and 16-16-8 fertilizer into native soils to a depth of 6 to 8 inches to encourage healthy lawn growth.
- A seedbed that has been prepared properly will produce a better lawn.
- Pre-watering bare soil settles the soil and encourages weed growth prior to planting.
- Mammoth Gripper™ head stabilizers can improve water distribution efficiency by 10 to 20 percent.
- Pre-watered soil will establish a healthy lawn. Less water will be required during grow in.

Chapter 3
Turfgrasses

Key Points

• Choosing the correct turfgrass is important.
• Chanshare Farms recommends a proprietary blend of bluegrass cultivars in cool season climates grown specifically for their early and late season green-up, high drought tolerance and low maintenance requirements.

Turfgrass Choices

Turfgrass varieties fall into two basic categories: cool season and warm season. Cool season grasses green up earlier in the Spring and remain green later in the Fall. While many lawn care practices apply to both warm and cool season grasses, this care guide focuses mainly on cool season turfgrasses.

Cool season grasses grow best in the Spring and Fall, when temperatures range from 40 to 90 degrees, and grow actively when the temperature ranges from 60 to 75 degrees.

Cool season grasses develop root growth in temperature ranges from 33 to 75 degrees, and the roots grow actively in temperatures from 40 to 65 degrees.

Cool season grasses generally stop growing when the temperature exceeds 90 degrees. Bluegrass goes dormant during long stretches of hot, dry weather if supplemental water is not applied. Appropriate watering practices are required to keep cool season grasses green during hot summer months.

Contrary to popular belief, allowing bluegrass to go dormant during hot dry summer months during periods of extreme drought is an acceptable practice.

Cool Season Grasses
Fescue

Several different varieties of fescues are available. Fescues gener-

ally are well adapted to cool, moist climates and have good shade-tolerance characteristics. Some varieties of fine fescues are more tolerant of insects, and are more able to withstand heat and cold extremes. Some varieties of tall fescues have better tolerance to drought and heat provided roots can penetrate the soil more deeply.

Most fescues are not rhizomateous, meaning that the plant does not use rhizomes, or special roots that grow into separate plants, to expand. Therefore, damaged areas must be replaced, unlike bluegrass, which is rhizomateous and will repair itself.

Different varieties of fescues are sometimes mixed with different types of bluegrass to meet specific customer wants. While fescue has become very popular in some climates, most fescues are not as wear tolerant as bluegrass, as shown in wear studies conducted by Michigan State University. While this variety is currently in vogue, it has not yet proven long-term viability in the arid Rocky Mountain West. Fescues are more susceptible to snow mold than bluegrass.

Ryegrass

Ryegrass is a bunchgrass that has a high wear tolerance and germinates quickly. For these reasons, ryegrass is sometimes mixed with other types of cool season turfgrasses such as bluegrass. Ryegrass can be used as a lawn turfgrass, or it can be used as an erosion-control device. This type of cool season grass may be seriously damaged by extremely cold winters, but is considered drought-resistant and can maintain its color and texture longer under heavy drought conditions. Most Ryegrass is not rhizomateous.

Bluegrass—Most Popular Variety

Certain bluegrass cultivars are native to the Intermountain West.

However, most popular cultivars of bluegrass have been imported from Europe or other parts of the United States. Because of their high adaptability to native soils, seed imported from other regions has made bluegrass the most widely accepted cool season grass in the region. Bluegrass is easily the most popular and versatile cool season turfgrass in the northern United States.

Scientists and turfgrass breeders have developed many different cultivars of bluegrass; over 70 different cultivars are currently available. These different cultivars are often blended to achieve an ideal bluegrass for a specific location or use requirement.

Different cultivars of Kentucky bluegrass are also sometimes mixed with other types of cool season turfgrasses when the need dictates.

Bluegrass/Rye Mixes

Ryegrass and bluegrass can be mixed to change the overall appearance and quality of the turfgrass lawn. The high wear tolerance and quicker germination of the ryegrass can help to improve the bluegrass base.

Bluegrass/Tall Fescue Mixes

Different varieties of fescues are sometimes mixed with bluegrass. The drought and shade tolerance of tall fescues, or the ability to withstand temperature extremes and the moisture tolerance of fine fescues are sometimes used to complement the positive attributes of bluegrass.

The Turfgrass of Choice

While rye, fescues, prairie June grasses, Buffalo grass, and others have come into vogue from time to time and may have specific uses in certain situations, improved cultivars make bluegrass the proven lawn of choice in cool season regions.

The most dependable lawn for the Intermountain West is a blend of several cultivars of bluegrass. Chanshare Farms' proprietary seed mix includes several cultivars of Kentucky bluegrass chosen specifically for their high drought tolerance and low maintenance requirements.

Chanshare's bluegrass blend:
- Has excellent color.
- Greens up early in the Spring and stays greener longer in the Fall.
- Is highly disease-resistant.
- Has fine leaf texture and high plant density.

• Is shade-tolerant.
• Requires minimal input (fertilizer, water, pesticides).
• Adapts easily to high altitudes.
• Has excellent wear tolerance.
• Is known for high horizontal and low vertical growth.
• Is drought-tolerant.

The leading agricultural colleges in the United States conduct national seed trial annually. Chanshare has always chosen seed blends that provide quality lawns and promote good water conservation.

Summary Points

• Being in vogue does not determine long-term viability.
• Ryes, fescues, and Buffalo grass have specific applications and uses.
• Bluegrass is the lawn of choice in cool season climates of the United States.

Chapter 4
Turfgrass Installation Processes

Key Points

- Chanshare offers turfgrass sod installation services, using trained, experienced installers.
- The soil should be moist, but the surface should be dry enough to walk on.
- Start at a straight edge, and place the sections of turfgrass sod as close together as possible (do not overlap).
- Stagger the seams to allow the sections to knit together.
- Lay the turfgrass sod across the face of a slope, not vertically up and down the slope.
- Rolling your new turfgrass sod is acceptable but generally not necessary.

Buying Turf

Important: Use the Turf Buyer's Checklist at the back of this Care Guide when purchasing turf. It will help build your knowledge of turf and growing practices.

Damp Soil

If the soil is dry, water the area thoroughly two or three days before installing turf. A deep watering is critical to ensure the soil is moist to a depth of six to eight inches. The soil should be damp, but not muddy as turf is placed.

When Sod is Delivered

When the turfgrass sod is delivered, immediately check the moisture content. If the turfgrass sod is not damp, spray the turfgrass sod with a light spray. **Do not lay dry turfgrass sod.** The lack of moisture will impede plant growth. Lightly wet the sod pieces so that root sections have access to moisture. If the turfgrass is allowed to spend too much time on a pallet a condition called "burning in the pallet" can occur. This condition is fatal to turfgrass sod.

Lightly Water Edges

It is not uncommon for turf to dry out during cutting and shipping. Moisten the top and edges immediately upon delivery.

If your ground is not dry enough when you are installing the turfgrass sod or the ground is so soft that you create low spots when you

step on the newly placed turfgrass sod, it is a good idea to stand or kneel on a sheet of plywood when installing. Using plywood helps prevent damage to the turfgrass sod and avoid the problems that can come with installing turfgrass sod on wet or soft ground.

Prevent Low Spots

When installing sod on soft or muddy ground, cut 1-foot by 1-foot square sheets of plywood to walk on for even weight distribution.

Chanshare Can Install Your New Turfgrass Lawn

Chanshare Farms offers turfgrass sod installation services. The benefits of hiring trained, experienced, professional turfgrass sod installers are many:

- Professional turfgrass sod installers are fast and efficient.
- They leave a clean installation job
- They use their experience to solve unusual problems.
- Professional installation generally leads to healthier, more successful turfgrass lawns.

If you choose to install your new turfgrass sod yourself, handle the pieces of turfgrass sod carefully. Do your best not to stretch or tear the sections of turfgrass sod as you are removing them from the delivery pallet and placing them on the seedbed.

It's a good idea to limit traffic on new turfgrass sod as much as possible. During installation, keep the soil moist at all times.

Do it Yourself

Starting Out

The best way to start installing turfgrass sod in your yard is to find a straight edge perpendicular to the ground slope, such as a driveway or sidewalk. If you don't have any straight edges to help guide you, you can create a straight line by using a rope line.

To ensure a good start, lay an entire row of turfgrass sod sections along the straight line, and then start the next row.

Place the sections of turfgrass sod as tightly together as possible against each other, but do not overlap the edges.

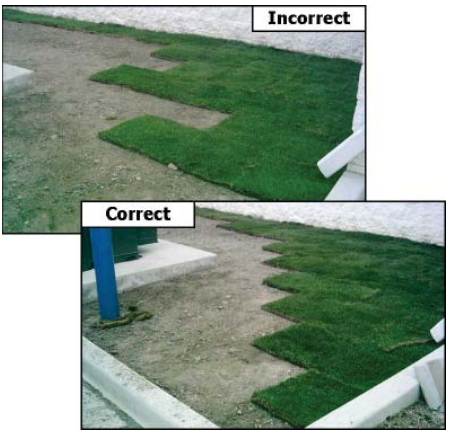
If the turfgrass sod sections are placed so that the edges overlap, the turfgrass roots in the portion of turfgrass sod that is on top will not be able to knit into the seedbed.

Shrinkage

Sometimes the sections of sod will shrink a bit. If the pieces of turfgrass sod are not placed as tightly together as possible, large gaps may develop in the seams between each section, requiring top dressing with plugs or topsoil.

Stagger the Seams

Lay the next row of turfgrass sod so that the seams between the sections of turfgrass sod do not line up with the seams in the first row. The simplest way to do so is to cut a whole piece of turfgrass sod in half, and use a half-piece as the first piece in the next row, in a stair-step pattern like you see on a brick house.



The seams will fill in over the next few months, but if they are not staggered, you are creating lanes for excess water to run, possibly encouraging erosion damage. In addition, not staggering the seams may channel the wheels of your lawnmower into those seams, which will result in an uneven cut and scalping. Staggering the seams helps to lock the sections of turfgrass sod together, and keeps the edges of each turfgrass sod piece from losing moisture too quickly.

Over Dressing

Some gaps are normal when installing turf. Fill in the gaps with playground sand or topsoil. Avoid cutting small pieces of turfgrass sod, as the smaller pieces trend to dry out more quickly.

Use a knife or sharp tool to trim the pieces of turfgrass sod to fit the various features of your yard. Sometimes it is impossible to avoid small turfgrass sod pieces. When you are forced to use them, take special care to ensure that the small pieces are watered sufficiently.

The first irrigation of new sod should include 1/2" to 1" of water. This will help adhere the sod to the soil and provide a good base tokeep the sod moist in the future.

In hot weather hand watering sod as it is installed is advisable. It is advisable to keep the sod moist until the sprinklers can be turned on.

Installing Turfgrass Sod on Hillsides

Lay the turfgrass sod across the slope of a hillside, and not up and down the slope. On a slope, it is especially important to stagger the turfgrass sod sections. Staggering the pieces of turfgrass sod will secure them in place.

On steep slopes, the turfgrass sod may need to be anchored for the first few weeks to allow the roots to knit into the seedbed and keep the turfgrass sod pieces in place. Drive six-inch wire landscaping pins or wooden dowels into each sod section to fasten to the seedbed below keeping the pieces in place. Avoid hitting these pins when mowing, and remove them once the roots of the new turfgrass lawn have established themselves into the seedbed.

Summary Points

- Dampen the soil prior to sod installation.
- When sod is delivered, check for moisture.
- Chanshare Farms offers turfgrass sod installation services.
- Stagger the seams to avoid erosion.
- Lay the turfgrass sod across the face of a slope, not vertically up and down the slope.
- Rolling new turfgrass sod is permissable but not generally necessary.
- Add a heavy application of water soon after the sod is installed.

Chapter 5
Watering Systems

Key Points

• Proper design, care, and management practices produce a bluegrass lawn that is a beautiful part of a water conserving landscape.
• Proper irrigation system design is essential.
• Soil and E.T. sensors are available to determine proper watering rates to maximize water conservation.
• A system should be at least 70% effective.
• Place plants by watering requirements creating "Hydro Zones" (or mini ecosystems).
• Choose a watering system that matches your personality and lifestyle.

Water Conservation

Most experts agree that bluegrass watering can be cut by 50 percent with proper management practices. Less than 21 inches of supplemental water is all that is required. Substantial public information is available on this subject. Water measuring kits are available to determine irrigation system application rates and efficiency. Sprinkler system design is extremely important. Members of the Utah Irrigators Association (UIA) stand ready to suggest landscaping and sprinkler design specialists who are committed to water conservation practices. They can be located at www.utahia.org.

After sod is established deep watering is important. Water more deeply, and water less often. This practice aids in developing a healthier root system for all plants. Shallow roots do not withstand summer heat. "Plants do not waste water … people do."

Landscape design can have a considerable effect on water conservation. Make sure that your landscape does not include design features that make effective watering difficult. Narrow strips of lawn less than 8 feet wide generally cannot be watered efficiently. It is important to design your landscape so that plants requiring the same amount of water are in the same watering zone.

Flood irrigation was first used as a means of watering lawns. However, current watering system de-

signs, and the increased placement of homes on sloped terrain, do not generally allow for this practice. By properly designing, installing, and watering your landscape you can water as efficiently as flood irrigation

Hose–End Sprinklers

Hose-end sprinklers, also called portable sprinklers, are an alternative to an automatic in-ground sprinkler system. Dragging a hose around the yard is more time consuming and less convenient, however, hose-draggers have proven to be very water conscientious and more in tune with their landscapes. When cost is a factor and your time is not, hose-end sprinklers can be an effective way to water your landscape.

In-Ground Sprinklers

Most new lawns residential or commercial areas are watered by in-ground automatic sprinkler systems. Chanshare recommends that a Certified Irrigation Designer (CID) help design your system. If a contractor is installing the system, use a Certified Irrigation Contractor (CIC). If you choose to install your own system, classes are available through the Utah State University Extension Service. Many home centers, nurseries, greenhouses, and garden centers offer free advice and training. Ask if the instructor is I.A. certified.

When watering turfgrass lawns, sprinkler heads should spread the water evenly using large water droplets. Sprinkler heads that mist or fog cause excessive water loss through evaporation. Water pressure should be adjusted to eliminate mist or fog.

An in-ground sprinkler system can be adapted to fit a wide range of conditions, from the smallest sec-

tion of lawn to a large landscape where turfgrass is just part of the landscaping scheme.

Water Patterns
Important: Water patterns should reach from sprinkler head to head for maximum efficiency.

Backflow Preventers

A **backflow preventer** connects the main line of the sprinkler system to the household water system, and keeps sprinkler water from flowing back into the home's potable water system.

If you are currently in the process of building a home, ask your homebuilder to install this valve as a part of the home construction process. This will save you time and money later.

Sprinkler Design

A great deal of literature is available on this subject, both in print form and on the Internet. Most sprinkler supply companies have websites that offer sprinkler design help.

Sometimes, the company where you purchase your sprinkler system supplies will design your system for little or no additional cost. The best option is to consult a Certified Irrigation Designer. These experts will assist you in designing an effective sprinkler system, and will often credit the design fee when chosen to supply and/or install your sprinkler system.

Sprinkler System Efficiency
Check and Adjust Often

To obtain the most efficiency out of your sprinkler system, you must check and adjust your system often.

Unfortunately, no sprinkler system is 100 percent efficient. A good system will meet and exceed 70% efficiency. Nothing can substitute for the turfgrass owner inspecting the lawn regularly for proper irrigation, and adjusting the watering system as needed. Learn to "Read Your Lawn." Nothing can help more in water conservation than the inspection of the landscape and adjustment of the watering system on a regular basis. You must learn to read your plants watering needs.

Setting a timer to come on every day is irresponsible. When using an in-ground system with a timer, Chanshare recommends that you spend the extra $200 to $500 to install either a soil moisture sen-

sor or an E.T sensor. Some areas have rebates available to help pay for these sensors. Set the system to apply the equivalent of 20 inches of supplemental irrigation water each year. Ask your designer, landscaper, or sprinkler parts supplier for details.

Household Water Conservation

When water supplies are low, the focus of water conservation measures falls on the Green Industry, and especially those involved with lawns. Research shows that restrictions that allow watering on selected days or within a given time, and even rationing restrictions have not yielded the desired result. Much water can be conserved inside the home.

Summary Points

- With proper design, care, and management practices, a bluegrass lawn becomes a beautiful part of a water conserving landscape.
- Many resources are available to aid those who wish to do it themselves.
- A properly adjusted and maintained automatic in-ground sprinkler system with a soil moisture or E.T sensor and timer can keep supplemental water use under 21 inches per year.
- Hose dragging is a great way to water a landscape.
- In-house water conservation can potentially save enough water to fulfill the water needs of outdoor landscape in times of severe water shortage.
- Learn to "Read Your Lawn."

Chapter 6
Watering Guide

Key Points

- New turfgrass lawns have watering needs that change as the turfgrass becomes established.
- Proper watering techniques are a critical aspect of lawn watering, equal in importance to the issues of when to water and how much to water.
- Knowing the application rate of your sprinkler system will help determine how much time is needed for proper lawn watering.
- Adjusting watering times seasonally will save water and money.
- Stressing a healthy lawn will help promote deeper root growth.

New Turfgrass Sod

Water makes up 70 to 80 percent of the weight of our turfgrass lawns, and the clippings alone are nearly 90 percent water. While most people are concerned about not watering their turfgrass enough, the fact is that more water is wasted and many lawns are damaged or destroyed by over-watering. Newly installed turfgrass sod has very important watering needs. Proper watering immediately after installation will have an impact on how well the lawn flourishes for years to come.

Irrigate as Sod is Installed

Important: Apply 1 inch of water as sod is being installed. After making certain that the soil is moist 6 to 8 inches below the surface, allow water to stabilize before making additional applications.

The First Week

Turfgrass requires water to grow. Your new lawn's best friend is water. New sod should be kept moist for approximately two weeks. This moisture will allow the roots to grow down into the soil.

Do not leave the sod soaking in water. This will reduce root growth.

The number of times that water needs to be applied will depend on temperature, wind, reflected heat, and other factors. Learn to "Read Your Lawn."

Begin watering new turfgrass sod while the sod is being installed. Apply at least one inch of water so that the soil beneath the turf is saturated. Ideally, the soil six to eight inches below the surface should be kept moist but not saturated.

Pull back a corner of the turf and push a screwdriver or other sharp tool into the soil. The tool should penetrate easily into the moist soil six to eight inches. If not, more water is needed.

Regardless of the type of sprinkling system you use, make absolutely certain that water is applied to all areas of your new lawn. Corners and edges are easily missed by sprinklers and are particularly vulnerable to drying out faster than the center portion of your lawn. In addition, areas near buildings dry out faster because of reflected heat and require more water.

Runoff may occur on some soils and sloped areas before the soil is adequately moist. To conserve water and ensure adequate soak-in, turn off the water prior to runoff. Wait 30 minutes to an hour and restart the water in the same area. Repeat this process until proper soil moisture is achieved. In hot weather sod may need to be watered briefly 3 times a day around 1/8" the first week.

The Second Week

In cooler temperatures for the first two weeks, soil six to eight inches below the surface should be kept moist. During the second week, watering every other day, or every third day, usually accomplishes this task. Unusually hot, dry, or windy periods will cause your new lawn to need increased watering amounts and frequency. Water 1/8" twice daily the second week if high temperatures persist.

As the turf starts to knit its new roots into the soil, pulling back one corner of the turfgrass sod to test soil moisture will be harmful to the lawn. However, you can still test the soil by pushing a screwdriver into the turf and checking for moisture. If the first six to eight inches of the soil are not moist, the lawn needs to be watered. Learn to "Read Your Lawn."

If high temperatures, or high winds are present, you can reduce the temperature of the turfgrass surface by lightly sprinkling. This light sprinkling does not replace the need for deeper watering which will become even more critical to continue during adverse weather conditions.

The Third Week

In cooler temeratures during the third week, you can begin to water your lawn less often. Water 1/8-1/4" daily if high temperatures remain.

The best practice is to water early in the morning. Doing so will take advantage of the daily start of the turfgrass growing cycle. Watering early also takes advantage of lower wind speeds, higher water pressure and lower temperatures.

Reading Your Lawn

Learn to "Read Your Lawn". Usually, an area of the lawn will turn a blue-gray color before the rest of the lawn. When this condition appears, apply 1 inch of water to the entire lawn.

The Fourth Week

Continue to water your new lawn. Each week you should cut back one day between watering until you are watering only once a week. Follow the watering guide on page 32 to conserve water.

Summer Watering

During the hot summer most lawns will survive on 1-1 1/2" of water a week (after they are well established), coming either from applied water or from rainfall. Provided water is applied evenly and saturates the underlying soil depth, this amount of water is all that is required for proper lawn health.

Recent studies indicate that only 19 to 23 inches of applied water is needed to keep an established lawn green all summer long. Proper mowing and fertilizing will also conserve water.

Summer Dormancy

Allowing a bluegrass lawn to go dormant in summer is acceptable during seasons of extreme drought after the turf is well established (usually after one year of growth).

Watering Tips
Avoid Watering in the Wind

If this is not possible, then have the system designed for windy conditions. When planting a landscape, avoid placing plants in front of sprinkler heads where the spray pattern will be distorted. A drip or low volume system is a good alernative in shrub or flower beds.

Don't Set It and Forget It

The mistake most homeowners make is that they "set it and forget it". The control of an automatic sprinkler system needs to be adjusted with the changes in the weather and the seasons.

Inspect Your Watering System Often

Inspect the system after each use for effectiveness, and check for damaged or moved sprinkler heads at least once a month. Regularly check for broken heads, or heads that are not popping up or spraying properly. Explore using Mammoth Gripper™ head stabilizers to help stabilize heads.

Apply the Same Amount of Water Each Time

The best way to water is to apply the same amount of water every time the sprinklers come on. Think of the soil under the turfgrass as an in-ground reservoir. When the sprinklers come on, the reservoir in the soil will fill. After the sprinklers turn off, the turfgrass roots will utilize the water from the in-ground reservoir.

Promote Deep Root Growth

Deep roots are important to great lawns. Having a deep turfgrass root zone will result in less frequent watering.

In the Spring you may only need to water every 10 days and then increase your watering cycles to once every 6-7 days during the heat of the summer. Once established follow the watering guide on page 32 to keep supplemental water less than 24".

Apply Water Evenly in Specific Use Zones

An important aspect of a sprinkling system is to apply water as evenly as possible. If a system is not designed properly, there will be areas of the lawn that receive more water than others. Poorly designed systems will also cause the reservoir in some areas of the soil to be smaller and will result in dry spots. If you have dry spots, either add a head to your sprinkler system or use a hose end sprinkler to water

that spot. Do not just turn on your sprinkler system more often or run it for longer times.

Soil Moisture and Envirotranspiration (E.T.) Sensors

Conscientious gardeners will learn to "Read Their Plants and Lawns" and apply supplemental water only when needed. New technologies are available to tell timers when to apply water. In-ground soil moisture sensors and E.T. sensors are available for this purpose. Most nurseries and sprinkler supply outlets have these sensors available. Rebates may be available for those who choose to utilize these modern technologies.

Finding the Application Rate

Use tuna cans or the catch cup test to find out how much water each station applies in a given period of time. These cups can also be used to find out how uniformly the system applies water. A more uniform system saves water and promotes a healthier lawn. Catch cups are available through the USU Extension Service.

Place the Catch Container

Define each station's irrigation zone (the area watered by the station). Place the cups in the irrigation zone and run the station for five to 25 minutes. For zones that overlap, place cups between the heads of the different zones and run the zone being tested and the overlapping zone for the same amount of time.

Collect the Water

Run the station for 5 to 25 minutes to determine how long it takes to fill the cans. Note the amount of water in each catch container. If the readings are not close to being even, then the sprinkling system should be adjusted.

Calculate the Run Time

Determine the time required to apply one-half inch of water. If runoff occurs when filling the cups to the one-half inch line, try using several start times. Divide the run time by the number of start times to determine the adjusted run time.

- Adjusted run time = Run time / Number of start times

You now have calculated the time required to apply one-half inch of water at the station you just ran. To apply 1 inch of water with each application, double the run time. Repeat the steps for each station.

Setting the Controller

It is our recommendation to water 1 to 1.5 inches of water every time water is applied. See the watering chart at right for frequency. to find how many minutes to set the controller use the following formula:

Watering Minutes =
(1"/Water Applied in 1 hour)X60

Watering in Utah

A typical northern or central Utah lawn has a water demand curve that begins in mid-April, rises to a peak in July, and then falls rapidly until mid-October. Lawns in southern Utah have a different demand curve. Adjusting your timer monthly to better follow this demand curve will save you water and money. An easy way to do this is to keep the minutes constant and increase or decrease the number of days between watering as shown in the table above.

North/Central Utah
Watering Suggestions
For Established/Trained Lawns

April No irrigation recommended, unless needed under extremely dry or windy periods
May 1 inch every 10-14 days
June 1 inch every 7-10 days
July 1 inch every 6-7 days
Aug. 1 inch every 6-9 days
Sept. 1 inch every 7-10 days
Oct. A good soaking to a depth of six to eight inches around the middle of the month.
Nov. - Mar. No irrigation recommended unless unusually warm and lawn shows signs of stress.

* Adjustments to watering schedules must take into account soil types. For Sandy Soils water more frequently using the same inches of water (i.e. May - 1/4" every 2-3 days). For clay soils to prevent run off, run your complete sprinkler system twice in one day applying half the water each time.

Stressing Your Turfgrass Lawn

Ever heard the expression "Whatever doesn't kill you only makes you stronger"? In order to make your turfgrass lawn heartier, try stressing it out!

By going an extra day or two without water on an overwatered lawn, you are promoting deeper root growth. The deeper the roots are

allowed to penetrate the soil, the better overall health of you lawn. Roots will only grow as far as they need to in order to get water. If you are always giving them water up near the surface of the lawn, the roots have no incentive to grow deeper. You can easily check your watering depth by using a soil probe or screwdriver.

Try waiting as late in the spring as possible to water. The longer you wait, the healthier your lawn will be in the summer months. And don't worry. Killing your blue-grass lawn by extending periods of time between watering is virtually impossible. The lawn may turn brown in some areas, but it's just the turfgrass plant going dormant, not dying. Adding water in a timely manner will make that golden brown dormant spot spring back to life. Learn to "Read Your Lawn."

Daily Watering Time

If watering multiple times per day schedule watering at the following times:

3 times daily - 6 a.m., Noon, 6 p.m.
2 times daily - 6 a.m., 2 p.m.
Once daily - 5-6 a.m.

Summary Points

- Saturate the sections of sod as they are being installed.
- Keep the sod and soil moist for two weeks and up to 1 month.
- Adjust your sprinkler system to promote deep root growth.
- Adjust your timer; don't just set it and forget it.
- Blue-gray color indicates the need for watering. If several areas experience this simultaneously, system adjustments are probably needed.
- Learn to "Read Your Lawn."

Notable Projects

Fine Homes
Everywhere

LDS Temple
Vernal, Utah

Sports Complex
Kaysville, Utah

Moonlight Basin Golf Course
Big Sky, Montana

McKay Dee Complex
Ogden, Utah

Chapter 7
Turfgrass Maintenance

Key Points

- Proper mowing promotes a healthy, weed-free, water-conserving lawn.
- Different types of lawnmowers are suited to different mowing applications.
- Properly fertilizing your turfgrass lawn encourages healthy plant growth.
- Aerating and removing excess thatch encourage turfgrass lawn health.

Mowing

A lawn that is properly mowed, fertilized, and watered has far fewer problems. A well-kept lawn remains dense, attractive, and provides numerous quality of life benefits.

The First Mowing

Wait at least a week to mow your newly installed turfgrass lawn. Mow new turfgrass sod diagonally to avoid seams. Cut the grass about two to three inches high to promote a healthy, weed-free, water-conserving lawn. Keep mower blades sharp.

The Benefits of Clippings

Instead of bagging lawn clippings, leave them on your lawn by mulching. Clippings are 90 percent water; thus, leaving the clippings is another form of watering. Clippings also help to hold the fertility levels in your lawn higher for a longer duration.

Mowing Direction

Each time you mow your lawn, mow in a different direction than you used the time before. This allows proper growth by cutting the grass blades on different angles.

Mowing Height

Is your lawn shorter than your carpet? Mowing your lawn at such a short length may hurt the grass, could waste water, and will produce more green waste.

By raising your mower height another one-half to one inch, you are promoting lawn health. The turfgrass blades will shade each other as they grow longer, reducing the lawn's overall water need.

Mow Long to Promote Root Growth

During periods of drought cut lawns to a height of three inches, and remove no more that one-third of the leaf blade height per mowing. Lower the mower height the last few times you mow in late Fall to reduce snow mold problems in the winter. Longer blades will promote a deeper root system.

Mowing too low scalps the grass (removes more than one-third of the leaf blade height). This practice can have a detrimental effect on the overall health of your turfgrass plants.

Lawnmowers

Reel-Type Mowers (Residential Use)

Hand-pushed reel mowers are effective for small lawns. The simplicity and ease of use that a reel mower provides, along with the lower cost and lower noise level makes the reel mower ideal for small yards.

Walk-Behind Mowers

Walk-behind rotary mowers come in two basic varieties: gas-powered or electric.

Electric mowers are quiet and easy to maintain and operate because they do not require the maintenance and supplies of a gas mower. Dragging a cord around with the lawnmower limits the range of a corded electric mower, and battery life limits the range of a rechargeable electric mower. Like the reel mower, electric mowers are better suited to smaller lawns. Electric mowers reduce noise and air pollution. An electric mower can be adequate for a medium-sized lawn's mowing needs. Electric mowers are more expensive than push mowers, but less expensive than higher-end gas mowers.

Gas-powered mowers represent a higher level in mowing convenience. Self-propelled mowers use a portion of the engine's power to

make the wheels spin, while push mowers do not. When cutting larger expanses of turfgrass, or when mowing on a slope or hillside, a self-propelled mower can make the task of mowing the lawn a less time-consuming affair. Gas-powered mowers have the ability to mulch the grass clippings, delivering organic material that is rich in nutrients and moisture.

In response to environmental concerns, gas-powered mower technologies continue to improve. Research in this area should be encouraged.

As with reel mowers and electric mowers, walk-behind and self-propelled gas mowers offer aerobic exercise and the chance to spend some time out-of-doors.

Riding Lawnmowers

Riding lawnmowers and lawn tractors with mower attachments offer an easier way to cut very large grass areas. While most reel and walk-behind mowers cut a path 18 to 22 inches wide, a riding lawnmower's deck cuts a path that can be 48 inches wide or more. Lawn tractors and riding lawnmowers are much more expensive to purchase and maintain than walk-behind mowers.

Fertilizing

Warning: Excess fertilizer applied to a landscape increases the likelihood of harmful chemicals running off into streams or seeping into groundwater. The combination of over-watering and over-fertilizing can be dangerous to plants, animals, and humans. Appropriate fertilization encourages healthy plant life. Fertilize as sparingly as you can. Using too much fertilizer over-stimulates plant growth, making your lawn more susceptible to dry conditions. Plants generally need fertilizer to stay healthy.

- A starting point is three applications of fertilizer with approximately one pound of available nitrogen (N) per 1000 square feet, applied on Memorial Day, Labor Day, and Halloween.
- Keep good records of treatment and results.
- No fertilizer is needed during the dormant season (November to

March).

- Do not apply fertilizer at temperatures higher than 85 degrees F (32 degrees C).
- When fertilizing during the summer season, apply fertilizer in the morning.
- Mixing pesticides with organic and chemical fertilizers can cause harmful chemical reactions and may cause serious damage. Read and follow directions carefully.
- When applying granular fertilizer, water immediately.

Over-Fertilization

Over-fertilizing causes excessive growth, seed development, and can be harmful to the environment. Lawns need some fertilizer, but prudence is reommended. remember fertilizers are salts and plants don't like much salt.

The Three Main Nutrients

Nitrogen (N), phosphorous (P), and potassium (K) are the three najor nutrients lawns need. Nitrogen is the nutrient required most, although too much nitrogen can cause excessive top growth. Percent nitrogen (by weight) is always the first of three numbers on the fertilizer bag, followed by phosphorous and potassium. For example, a 24-6-12 fertilizer contains 24 percent nitrogen. In most cases, a rate of one pound nitrogen per 1,000 square feet is suggested for each fertilizer application. If high percentage nitrogen fertilizers are used, then less actual fertilizer is needed.

New Urea based fertilizers (16-16-8) contain 50% quick release and 50% slow release. This product slows "flash" growth and encourages minimal fertilizer application.

When to Apply

Late fall (Halloween) is a key time for fertilizing lawns in cool season environments, regardless of what type of maintenance program the lawn falls under. Research has also shown benefits of late fall fertilizer applications after grass growth has about stopped but the lawn is not yet dormant. Roots continue to grow after winter sets in. Spring applications are suggested for late April. In most cases, avoid fertilizing in the hot weather months. The schedule following this paragraph outlines fertilization based on how many applications are to be made annually and the desired lawn quality. Use controlled-release, nitrogen based fertilizers in May, August, and October.

The total amount of nitrogen should be spread over the application schedule. Be careful not to over fertilize in the Spring to minimize rapid flush growth.

# of Aps./Year	Ap. Date
One (Low Quality Lawn)	Late Oct. (Halloween)
Two (Med. Quality Lawn)	Late May, Early Sept. (Memorial Day, Labor Day)
Three (High Quality Lawn)	Late May, Early Sept., Late Oct. (Memorial Day, Labor Day, Halloween)
Four (only w/ irrigation) (High Quality Lawn)	Late May, Early July, Early Sept., Late Oct. (Memorial Day,Independence Day, Labor Day, Halloween)

Specialized fertilizer can be used in the following ways and at different times of year to address specific lawn care issues. Chanshare has recently had best results with 16-16-8 fertilizer.

- Winterizer fertilizers are typically high in potassium, and although advertised for fall application can be applied in spring as well. Potassium helps increase lawn cold tolerance and disease resistance.
- Weed & Feed products contain a broadleaf weed killer for weeds such as dandelions (fall application) others contain a preemergence herbicide to control crabgrass (spring application).
- It is recommended that two pounds of nitrogen and 2 pounds of phosphate per 1,000 square feet be tilled into the top 4 inches prior to turf installation.

Other Care Practices

Lawn Clippings

Leaving clippings on the lawn rather than bagging them reduces green waste and can eliminate one application of fertilizer each year.

Aerating

Your turfgrass plant's roots need oxygen. Heavy lawn traffic will compact the soil. Compacted soil restricts air, fertilizer, water and root penetration.

Aerating lawns is the act of using a tool to poke holes two to four inches in length and .5 inch in diameter in the lawn. Poking these holes allows air, nutrients and water to penetrate the root zone. Aerations encourages deep root penetration.

Aeration provides microbial action needed to convert organic material

such as mulched lawn clippings into nutrients. Adequate aeration is important for lawn health.

Aerating in Moist Soil

When aerating, make sure the soil is moist down to at least four inches. Soil that is too wet will cause a muddy mess, but soil that is too dry will make the job much more difficult and less effective. Aerate your lawn in more than one direction.

Manual aerating tools are available that remove two to four plugs at a time. However, for anything larger than the smallest lawns, renting a power aerator and using it to loosen the compacted soil, or hiring a professional lawn care specialist with his own power aerator, is the best practice.

Removing Excess Thatch

Thatch is the buildup of root material on top of the soil at the base of turfgrass plants. If the layer of thatch is deeper than one-half inch, the thatch should be thinned. Excess thatch can interfere with effective watering as well as air and fertilizer penetration.

Excess Thatch

Over-watering and not watering deeply enough are the two main causes of excess thatch.

Aerating removes some of the thatch, but sometimes aerating alone is not enough to solve the problem. Power thatch removers, usually called power rakes, are available to remove excess thatch. A power rake will not remove all of the thatch, and can often cause damage to the crown of the turfgrass plant. Some experts suggest that power raking be done only when renovating a lawn. Contact a professional lawn care specialist to perform the service for you. A metal gardening rake is usually an effective tool for removing thatch.

Summary Points

- Healthy lawns, like all parts of a balanced landscape, require work: mowing, watering, fertilizing, and aerating.
- Choose a lawnmower that is suited to your lawn size.
- Fertilize enough, but do not overfertilize.
- Aerating and removing excess thatch promotes lawn health.
- Use pesticides and herbicides sparingly.

Chapter 8
Weed, Pest, and Disease Control

Key Points

- The best way to control common turfgrass diseases is to develop a healthy lawn.
- A 100 percent weed-free lawn is not a realistic expectation.
- Weeds can be controlled, but the level of control depends on your commitment and budget.
- Cutworm and Billbug can be challenging for turfgrass lawns in the arid West.

Weed Control

Even though countless hours and dollars are spent trying to prevent them, weeds are a fact of life. A 100 percent weed-free lawn is not a realistic expectation. The best way to control weeds is to take the necessary steps, such as proper fertilizing, aerating, irrigating, and mowing, to promote the growth and development of a thick, healthy lawn.

When turfgrass sod is installed, the weed barrier is broken. Within four weeks of the installation of your turfgrass sod, a turfgrass expert should evaluate your lawn to determine if the roots are adhering to the native soil and recommend appropriate care regiments.

Hand-Weeding

Hand-weeding can be tedious work, but hand weeding is also the most effective and environmentally friendly way to remove weeds from your lawn.

Herbicides

Herbicides are chemicals that kill plants. Specific herbicides have been developed that will kill broadleaf plants like dandelions but will not effect narrow-leaf or grassy plants. Under the right circumstances, herbicides can effectively control weeds. In all cases, herbicides should be used sparingly.

Pre-emergent Herbicides are applied before weeds have germinated. A pre-emergent herbicide kills seeds as they germinate but has no effect on growing plants. **Post-emergent Herbicides** are applied while the plant is growing. The herbicide can kill growing plants, from seedlings to mature plants. Always read and follow the label directions.

Types of Weeds

The most common weeds that grow in a cool season turfgrass lawn are presented hereafter. This information is provided by *Weeds of the West* (Tom D. Whitson, et al. Jackson WY, Pioneer of Jackson Hole, 1992). Chanshare would like to extend a special thanks to Dr. Whitson for this information.

Bentgrasses

Creeping bentgrass and colonial bentgrass are perennial grassy weeds. Bentgrasses grow low to the ground, to a height of eight to 20 inches tall. They reproduce from stolons that root and creep along the soil's surface. Pulling or digging out the weed is the best way to control bentgrasses, if at least three-quarters of the root system can be removed. Treating with a selective post-emergent herbicide may control bentgrasses, but the best solution is to consult an expert. As a weed, bentgrass is difficult to control.

Dandelion

Dandelion is a perennial broadleaf weed. It grows with leaves clustered at the top of the root. Dandelion reproduces from seeds and from new shoots from the roots. Dandelion can be controlled by pulling, digging, spot treating, or treating the entire lawn with a selective broadleaf post-emergent herbicide in late fall or late spring. If pulling or cutting the weed out of the lawn, at least three-quarters of the long taproot must be removed, or the plant will likely return. Continued hand-weeding can weaken the plant until the bluegrass eradicates the weed.

Watergrass

Watergrass is an annual grassy weed. The seeds lay dormant and generally don't germinate in temperatures less than 85° F. It usually doesn't show up until after new sod is laid in higher temperatures. Watergrass is generally a lighter green color than bluegrass and grows quicker than cool season grasses. When laying new sod watering the grass as it is being laid will decrease the likelyhood of watergrass germinating. Products which include the herbicide Quniclorac are effective against watergrass and other grassy weeds once they have sprouted and will not negatively affect cool season grasses. Watergrass roots are shallow and will quickly die off after the first hard frost and should not return after winter without any herbicides or other care.

Junglerice

Junglerice is an annual grassy weed. It grows upright, two to three feet in height. It is found in lawns, cultivated areas, and waste areas. Young plants are lime green with reddish-purple stems and have roots protruding from the base of the stem. Pulling or digging out the weed is the best way to control Junglerice, if at least three-quarters of the root system can be removed. Treating with a selective post-emergent herbicide can also control Junglerice.

Kochia

Kochia is an annual broadleaf weed. It grows tall and narrow, to a height of one to six feet, with many branches and tiny leaves. Pulling or digging out the weed is the best way to control Kochia, if the whole root system can be removed. Spot treating with a selective herbicide specific for broadleaf weeds can control Kochia.

Large Crabgrass

Large crabgrass is an annual grassy weed. It grows six inches to two feet tall. It reproduces by seed or by rooting along the stems spreading out from the plant base. Large crabgrass is a problem in lawns, gardens, and other cultivated areas. It can be controlled by applying a pre-emergent herbicide in late winter or early spring, and by developing a thick, healthy lawn. Applying a post-emergent herbicide marked specifically for crabgrass can kill established plants, or by digging the weed and soil out, and replacing the soil.

Longspine Sandbur

Longspine sandbur is an annual grassy weed. It sometimes grows erect, but usually spreads along the ground, eight inches to two feet in length, and forms dense mats. Longspine sandbur prefers to grow in gravely or sandy soils. Digging out or pulling the weed by hand can be very effective in controlling Longspine sandbur. It can also be controlled by spot-treating the weed with a selective herbicide labeled specifically for sandbur in early to mid-summer, or by applying a pre-emergent herbicide in early spring.

Orchardgrass

Orchardgrass is a perennial grassy weed. It grows upright in clumps up to four feet tall. It is often used in pastures, but has become a problem when it invades lawns and flower gardens. Treating with a selective post-emergent herbicide, or by digging the weed and soil out, and replacing the soil may control small patches of orchardgrass.

Poa Annua / Annual Bluegrass

Poa Annua is an annual with more or less flattened stems that are spreading or erect. The stems are from 2 to 12 inches long, sometimes forming dense clumps. The leaves are bright green and soft with the tip curved and prow-like. Digging out or pulling the weed by hand can be very effective in controlling Poa Annua. Apply a pre-emergent herbicide in late summer or early Fall unless you plan on reseeding the lawn in the fall. Treating with a selective post-emergent herbicide can also control Poa Annua.

Redstem Filaree

Redstem filaree is an annual or biennial broadleaf weed. It grows along the ground, usually to a height of 1 inch with stems up to 2 feet long, green in color. Pulling or digging out the weed is the best way to control Redstem, but spot treating with a selective herbicide specific for broadleaf weeds can control Redstem.

Quackgrass

Quackgrass is a perennial grassy weed. It grows upright in a clump to a height of 1 to 3 feet tall. Quackgrass is spread by seed or by rhizomes that are able to penetrate very hard ground and sometimes roots of other plants. Quackgrass is often a problem in lawns and home gardens. Rhizomes can produce new plants even when broken away from the original plant. Once established, quackgrass is difficult to control, often requiring that the whole area be treated and killed by a non-selective herbicide, and then the lawn in that area must be re-established. Consult an expert for this condition. The best way to prevent quackgrass is to develop a thick, healthy turfgrass lawn.

Tall Fescue

Tall fescue is an annual grassy weed. It grows in tufts to a height of up to four feet, green in color. Tall fescue is a deep-rooted and long-lived forage species. Pulling or digging out the weed may control tall fescue, but the roots are sufficiently sturdy that this method does not always work. A lawn-care professional can spot-treat the plants with a selective herbicide not available to homeowners that will kill tall fescue plants.

Tumble Pigweed

Tumble pigweed is an annual broadleaf weed. It grows along the ground, usually to a height of six inches tall, green in color. Tumble pigweed usually grows in cultivated or disturbed sites. Tumble pigweed can be controlled by pulling or digging the weed by hand or by spot treating with a selective herbicide specific for broadleaf weeds. A pre-emergent herbicide applied just before the last expected frost could help control the weed.

Rust

Rust gets its name from the orange, "rusty" appearance it gives leaf blades. Rust tends to flourish in conditions of morning dew, shade, high soil compaction, and low-fertility. The best prevention for rust is to fertilize, aerate, water well in the morning hours, reduce shade, mow more frequently and bag grass clippings. If rust has been a problem in the past, mow frequently and remove clippings from the lawn. fungicides such as Triadimefon and Anilazine can be applied every 7-14 days until improvement is seen.

Weed Control in Newly Planted Turfgrass Lawns

Turf grass farms are certified noxious weed free by the state of origin. Healthy turf creates a natural barrier that will not allow foreign weed seeds to germinate and sprout.

This natural weed barrier is broken when turf is harvested; a newly planted lawn is susceptible to invasion by foreign weeds and grasses either from the soil attached to the new sod or from the soil under the newly placed turf grass sod.

Special care taken to follow the watering and care instructions contained herein will promote a healthy grow-in phase and minimize the possibility of weed germination.

An inspection by a trained turf specialist about three weeks after installation is appropriate if you do not feel comfortable with your own diagnosis.

Herbicides

Most foreign plants, either broadleaf or grasses, can be controlled with herbicides currently on the market. Consult your local nursery or green house for more details and make sure to read and follow application directions carefully.

There is no substitution for expending enough physical exercise to maintain a healthy lawn cover area. Weeds are a fact of life. Weed seeds are inherent in native soils and topsoils. They are airborne and are carried into planting areas by a variety of sources. Weeds are inescapable.

Applying herbicides is an extreme measure that should only be used under extreme circumstances. Sometimes a weed infestation cannot be controlled any other way, but in most cases hand weeding is an acceptable alternative. Lush green lawns are the key to effective weed control. Herbicides should only be used as a last resort and then very sparingly and selectively.

Hand Weeding—Lawn Friendly Weed Eradication

Hand weeding is an effective and environmentally friendly way to remove weeds from your lawn.

Nickel-A-Weed

Pay your children (or the neighborhood kids) a nickel for each weed they pull from you lawn and landscape. Turn it into a game or competition to introduce children to the landscape in a fun and creative way.

Many tools have been invented to facilitate hand weeding. These tools can be purchased at the local garden center. Numerous types of broadleaf weeds and grasses can be controlled by hand weeding.

Always cut off the taproot of the plant as deep into the soil as possible. Some tougher weeds, such as dandelion, may require several cuttings to weaken the plant sufficiently for the lawn to choke out the weed. Always hand weed plants prior to the plant going to seed to be sure they are not promulgated.

Another Alternative

Boiling water can be applied to the taproot of plants to kill them. Make sure the water is boiling and slowly poor water over the center portion of the plant. Boiling water cooks the roots and kills the plant.

Insect Control

Most insects are beneficial to our lawn ecosystem; only a few are not. **A newly installed lawn is a magnet for all types of insects.** Insects from neighboring dry fields and vacant lots are immediately drawn to newly watered lawn areas. Generally only two insects cause damage to cool season turfgrass lawns: billbugs and cutworms.

Billbug

The larvae do most of the damage inflicted by this insect. Billbug larvae are white legless grubs, and are three-eights inch to one-half inch in length. The adult billbug has a long snout used for chewing on plants and burrowing.

Billbug damage appears as a small circular pattern that turns yellowish brown as billbugs feed on the turfgrass. The larvae feed on turfgrass roots and crowns, and the attacked turfgrass pulls easily out of the soil. White debris that looks like sawdust may be found around the area where billbugs are feeding.

Adult billbugs that have survived the winter will become active in the early spring. Soon thereafter, the adult billbug will lay eggs on the stems of the turfgrass plants. As the eggs hatch into grubs, the grubs move from the stems to the crowns and root of the turfgrass plants.

Cutworm

Cutworm larvae are smooth, plump, and usually curl up when bothered. The larvae are most often black, brown, or gray, some are striped or spotted, and most grow to a maximum length of about two inches. Cutworm larvae hatch into moths.

Cutworms attack both newly seeded and established turfgrass lawns at the soil level, leaving small patches of brown grass, usually one to two inches wide.

Late summer is the time cutworm moths lay their eggs. The larvae hatch soon thereafter, and spend the winter in clumps of grass. The larvae start feeding in the spring and mature into moths in the early summer.

Other Insects

Other insects such as white grub and sod web-worm may cause damage but are not as common. If you have followed the instructions contained herein and you do not feel comfortable with your diagnosis contact the Utah State University

Extension Service or a local lawn care professional for assistance.

Environmentally Friendly Insect Control

If you suspect that insects are damaging your lawn a simple test can be taken to identify the magnitude of the problem. The two insects mentioned herein do not like lemon based dish soap water solutions. Mark off a one square yard area of the infected area. Mix a solution of two cups of soap to one gallon of water and apply evenly over the infested area. If more than 5 worms make their way to the surface you have a problem that should be spot treated. If no more than 5 worms appear the problem will most likely take care of itself.

Few insects negatively impact a cool season lawn. Pesticides should only be used in very extreme conditions and then only sparingly. Both billbug and cutworm normally can be controlled with spot control methods. Pesticides for this purpose can be purchased at local garden centers. A granular grub preventor can be applied during May to prevent grub infestations.

Caution: Herbicides and pesticides are generally not very selective. In addition to killing unwanted weeds and insects, they may also kill desired insects and sometimes other animals.

Unintended Consequences

A lawn without insects or earthworms will not attract songbirds that are attracted to healthy lawns and gardens. Be very careful when using these chemicals.

Disease Control

Healthy bluegrass lawns do not regularly suffer from grass diseases. Proper watering, fertilizing, mowing, thatching and aeration will minimize the potential for lawn diseases.

Fairy Ring and Mushrooms

Poorly composted materials incorporated into native soils can encourage a fungus known as Fairy Ring. After prolonged wet weather, mushrooms may appear around the outer edge of the fungus. These are the most common diseases in this region. Both can be controlled with adequate nitrogen application, aerating the ring to improve water penetration and frequent mowing.

There are new biological adds that can help with fairy ring. Contact Chanshare at 866-SOD-EASY for more information or assistance controlling Fairy Ring.

Snow Mold

Snow mold is common in cold weather climates in the early spring after prolonged snow cover. Snow mold will generally not kill bluegrass but some common-sense practices can be observed to minimize snow mold effects.

- In the late fall gradually lower the lawn blade length to approximately 1 ½ inches. Blades laid over by heavy snow pack enhance snow mold growth in the spring.
- Fertilize the lawn in October to insure healthy plant life during the winter.
- As the snow melts in the spring lift the lawn blades by hand raking or aerating.

Other Lawn Challenges

Sod Going To Seed

Some bluegrass cultivars have a natural tendency to produce seed in the spring. Some Springs cause more seed production than others. In order to remove the seed lower the blade on your mower by 1 or 2 spots and bag your clippings. After 3-4 mowings the seed pockets will be eliminated.

Summer Dormancy

The picture above shows how a lawn can return to a lush green after a period of dormancy. Whenever the average temperature reaches

over 90 degrees it is an acceptable practice to let a rhizomateous lawn (such as bluegrass) go into dormancy. In such heat it requires much more water to keep your lawn green. Decreasing the amount of water you apply to your lawn will force the roots to dig deeper and create a healthier lawn. Once average temperatures drop below 85 degrees you can continue normal water practices and your lawn will return to a lush green color.

Other Challenges

Female animal urination spots, dry spots, scalped or dull mower injury, chemical burns, low spots with poor drainage and root competition from trees and plants are other lawns challenges, and require specific attention.

Dog Urination Spot Cure

To cure dog urination spots, add one tablespoon of vinegar per gallon of drinking water to decrease the acidity of the urine.

Summary Points

- Only use herbicides and pesticides when absolutely necessary and then very sparingly.
- A 100 percent weed-free lawn is simply not a realistic goal.
- Weeds can be controlled, but the level of control depends on your commitment level and budget.
- Two insects, cutworm and billbug, can be especially challenging for turfgrass lawns.
- The best way to control common turfgrass diseases is to develop a healthy lawn.
- Use herbicides and pesticides sparingly.
- Hand-weeding can be turned into a fun game.
- Learn to "Read Your Lawn."

Turf Buyer's Checklist

Where are you located? _____

If I decide to buy sod from you may I visit your farm? ☐ Yes ☐ No

Do you provide the following?

A weed and pest expert on staff?	☐ Yes ☐ No	A Customer Service Department?	☐ Yes ☐ No
Professional installation crews?	☐ Yes ☐ No	A lawn care expert on staff?	☐ Yes ☐ No
A published Care Guide?	☐ Yes ☐ No	References close to my location?	☐ Yes ☐ No
A warrantee?	☐ Yes ☐ No		

Details _____

_____

_____

Is your company a member of the following?

Intermountain Turf Producers	☐ Yes ☐ No	Dunn and Bradstreet registered	☐ Yes ☐ No
Better Business Bureau	☐ Yes ☐ No	Sports Turf Manager's Association	☐ Yes ☐ No
Utah Nursery & Landscape Association	☐ Yes ☐ No		

Is your company:

Licensed with the State of Utah?	☐ Yes ☐ No	Certified Nurseryman?	☐ Yes ☐ No
A licensed contactor?	☐ Yes ☐ No	Certified noxious weed-free?	☐ Yes ☐ No

Dou you have a website? ☐ Yes ☐ No

Web address _____

What type of turfgrass do you sell? _____

Why? _____

How many different cultivars in your seed blend? _____

What is the process for placing an order? _____

_____

When you deliver the turf:

What do I need to know when I call in my order? _____

How far in advance should I order my turf? _____

Will the pallets be spotted? ☐ Yes ☐ No Will you pick them up? ☐ Yes ☐ No

At what cost? _____

What is your pallet deposit? _____

Where can they be returned? _____

Will you refer me to dependable designers and landscapers? _____

_____

Free advice: You are spending your hard-earned money on a 20-year investment. Take the time to investigate those with whom you are doing business. Visit the farm. Meet the people. Do business with people you like.

Frequently Asked Questions

When you harvest grass at the farm, do you have to replace the topsoil?

No. We have two fields from which we have harvested turf for 25 years. These fields are more productive than newer fields. Bluegrass produces millions of hair roots and develop from rhizomes.

Why is my new sod (or established lawn) turning a blue-gray color in some areas?

This blue-gray color is telling you that your lawn needs more water (sometimes induced by an over-application of nitrogen). Apply one inch of water to the entire lawn immediately. Watch for the first area in the lawn to turn blue-gray and apply one inch again. We call this learning to "Read Your Lawn" and applying the right amount (one inch of water) to encourage healthy lawn growth.

Why is my new lawn turning golden yellow?

Your lawn has not been watered enough or is going into summer dormancy. It has gone past the blue-gray stage. If it is a new lawn, you did not pay enough attention to the new lawn's needs. Quickly apply water to the new lawn until moisture is at least 6 inches deep. Poke a screwdriver in to the soil to test moisture depth. Continue applying water in one-inch increments until you know that the soil profile is full to a depth of at least 8 inches. Your sod will recuperate and begin to turn green again.

Why has my new sod turned a straw yellow?

Your lawn is in trouble and may not be salvageable. Saturate immediately and keep saturated for two days. Let water percolate down and keep soil moist. Do not create a swamp by over-watering. This will hasten the death of the new lawn. If you have doubts, call an expert now.

Why are some areas of my lawn lush green and other parts blue-green or yellow?

You probably have bad water patterns. Get out a hose and do some dragging. Then get serious about adjusting your sprinkler system that was probably not properly installed in the first place.

Why is the rest of my lawn green and the parts next to the house on the south and west sides turning yellow?

Reflected heat. Your house is probably white or light pastel color. This area needs more water, but don't water this area during the heat of the day. Water droplets magnify heat from the house and make the problem worse.

Why is my new lawn having trouble growing under established trees?

Most generally the lawn is competing with the tree top roots for moisture. Lawns need sunlight and the shade could be too intense. Some fescues and cultivars of bluegrass will do well under established trees, but start by increasing the water to the trouble area knowing that you have an up-hill battle competing with the tree roots.

Why is this guide so focused on water use?

Bluegrass lawns are wonderful for arid environments. The Persian weren't wrong then; we are not wrong now. Wise water use, combined with other best management practices, is the key to a beautiful, healthy lawn. People are wasting a valuable natural resource by grossly over-watering lawns and polluting the environment with harmful chemicals. The Green Industry must be responsible with the resources available to it and send the message that plants do not waste water but that people do. The Green Industry cannot afford to be the scapegoat for irresponsible water planning and administration. In addition, environmental protection is one of the major planks in our mission statement. We believe in this stuff.

Why is Chanshare Farms dedicating the resources to produce this Care Guide?

Our people are passionate about our chosen field of expertise. We are men and women of agri-business who are close to the land and are dedicated to the preservation of the agrarian lifestyle. We want to share a small piece of what we love with our friends in urban America.

References

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The Lawn Expert, Dr. D.G. Hessayon (London, Transworld Publishers, 2002)

Maintenance Manual Jim Puffer Landscape, Inc., Jim Puffer (Layton, Utah 1999)

Ortho's All About Lawns (Des Moines, Meredith Gardening Books, 1999)

Scotts Lawnscaping (Des Moines, Meredith Gardening Books, 1994)

Scotts Lawns, Nick Christians with Ashton Ritchie (Des Moines, Meredith Gardening Books, 2002)

The Lawn: A history of an American Obsession, Virginia Jenkins (Washington D.C., Smithsonian Institute Press, 1994)

Water Right—Conserving Our Water, Preserving Our Environment (International Turf Producers Foundation)

Weeds of the West, Tom D. Whitson, et al. (Jackson, Pioneer of Jackson Hole, 1992)

Xeriscape Handbook, Gayle Weinstein (Golden, Colorado, Fulcrum Publishing, 1999)

Web Library

Below is a list of websites that have great information concerning lawn care and water conservation.

www.American-Lawns.com
www.Chanshare.com
www.extension.USU.edu
www.Fulcrum-Gardening.com
www.LawnandLandscape.com
www.LawnInstitute.com
www.pubs.unl.edu
www.SimpleGiftsFarm.com
www.Scotts.com
www.Sunset.com
www.TrufGrassSod.org

Notes:

Use these pages to make notes of your annual maintenance regiment and how your lawn reacts to watering, fertilizing and mowing.

Notes:

Notes:

More questions about your lawn? Contact the experts!

Chanshare
FARMS

P.O. Box 306 ~ 10785 W. 12800 N.
Tremonton, UT 84337
1-866-SOD-EASY
www.chanshare.com

Hang this next to your sprinkler control box!

"This guide is the only one of its kind in the intermountain region. Most of the information we have had in the past has come from the east or west coast. I am very pleased to be a part of bringing this information to the people of our area."

-Dr. Frank WIlliams - Professor of Horticulture, Brigham Young University

"I have been associated with Chanshare Farms for many years. They are truly dedicated to the science of producing and maintaining bluegrass lawns in the Intermountain West. This Lawn Care Guide has information I have seldom seen elsewhere."

-Gary Ballingham - Owner, Grass Roots

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