

Lawn Care for Cochise County

Cochise County is a unique area in Arizona. It experiences both hot summers and cold winters because of its elevation. For this reason, there are different kinds of lawn grasses grown in the county. Many can be found within a few hundred yards of each other.

Management factors involved in maintaining these lawns are very different, depending on the kind of grass found in the lawn. There are two main groups of lawn grasses grown in Southeastern Arizona. These are warm season and cool season grasses.

WARM SEASON GRASSES

Warm season grasses are actively growing in Cochise County from late April (when the soil temperature warms above 65°F) until mid-October, and go dormant during the winter cold. These grasses require high air and soil temperatures so they can make food. Growth will start to slow in September, turn a straw-colored brown during the fall and become dormant after the first hard frost.

Spreading warm season grasses include Bermudagrass, buffalograss, St. Augustine and zoysia. Bunch warm season grasses include a Cochise County native – blue grama.

Hybrid Bermudagrasses produce no pollen or seed. There is a tremendous variety of growth habits among the Bermudagrass hybrids.

All Bermudagrasses produce specialized vegetative parts which make them desirable as turfgrasses. These are above-ground runners (stolons) and below-ground runners (rhizomes).

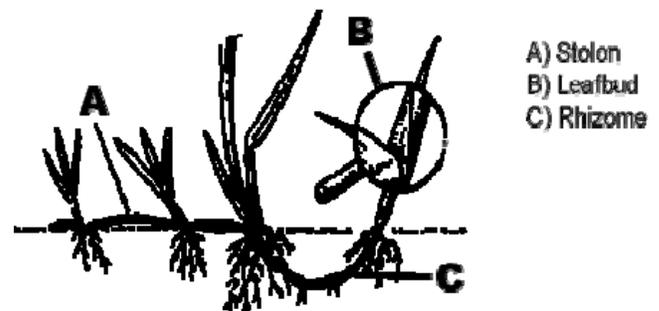
These structures also help Bermudagrass recuperate after stresses such as heavy foot traffic or excessive heat or cold.

COOL SEASON GRASSES

These grasses grow best during the spring and fall seasons. They struggle during the summer because of high temperatures, and may or may not go dormant during the winter cold. Generally, cool season grasses are bunch grasses, meaning that they do not spread by runners. They include perennial ryegrass (PR), annual ryegrass (AR), tall fescue (TF) and Kentucky blue grass (KBG) which does produce rhizomes.

CHARACTERISTICS OF WARM AND COOL SEASON GRASSES COMPARED

See *Table 2. Grass Characteristics*



ESTABLISHMENT AND RENOVATION

See *Table 3. Management Schedule for Establishment and Renovation* for planting dates.

SOIL PREPARATION FOR PLANTING TURF

Soil quality and preparation are important steps in planting a new lawn. Begin by removing the existing vegetation. Use a non-selective herbicide

like glyphosate (Round-Up, Doomsday) to kill the weeds that are growing. The weeds must not be moisture stressed when they are sprayed. Let the herbicide dry on the leaves for 12 hours. Regardless of the method of establishment, make sure that no pre-emergent herbicide has been used within 90 days prior to establishment. If not, rooting may be severely inhibited.

Dig into the soil and get a feel for the soil particles. Is it mostly sandy, loamy, or very fine -- clay like?

- Sandy soils drain quickly, and have good root growth.
- Clay soils tend to drain poorly and become compacted.
- Soils which are 50-60% sand with the remainder smaller particles are best for a lawn.
- It is much easier to add fine soils to coarse sandy soils than to add large amounts of sand to dense clay soils.
- Most soils are more easily modified by adding organic matter such as plant parts, shredded bark, horse or cattle manure.

To properly add organic matter, do the following:

- Wet the soil and let it drain 2 days.
- Roto-till the soil as deep as possible.
- Wet the soil again and let it drain 2 days.
- Roto-till again.
- Add the organic matter on top of the tilled soil.
- Roto-till again as deep as possible.

If the ground is hard, roto-till it first and apply two pounds of fertilizer (ammonium sulphate, ammonium phosphate or urea) per 1,000 feet². Mix it into the soil; do not leave it on the soil surface.

SPREADING SEED

- Level the soil as best as possible.

- The new soil needs to be settled by watering.
- Rake the soil so it has small furrows.
- Place the seed on the soil using a spreader.
- Put half of the seed down in one direction and stop.
- Put the other half of the seed down perpendicular to the first half.
- Lightly rake the seed in, and roll the soil lightly with a roller.
- Top dress with ¼ inch of composted steer manure, which will act as a mulch and hold moisture and warm the soil to aid seed germination. Rollers and spreaders are available for rent.

INSTALLING SOD

If sod is installed, repeat the steps above. Then

- Make sure the soil is firm enough that the sod will not sink when it is walked on. Roll the sod in two directions and water it twice a day until it roots.
- When the sod can no longer be picked up by grasping it with your hands, it has rooted.

MAINTENANCE

WATERING

See *Table 1. Lawn Watering Guidelines.*

FERTILIZING

Grasses often require supplementary fertilizer, since they are constantly producing new leaves, shoots and roots. The most needed fertilizer element is nitrogen (N), followed by phosphorous (P) and potassium (K).

A 'balanced' or 'complete' fertilizer contains all three of these nutrients.

- The relative amount of these three elements is called the fertilizer 'ratio.'
- Popular lawn fertilizers are sold in ratios of 4-1-2 or 3-1-2.
- The amount of each element is listed on the

fertilizer label as the percentage by weight (of N, P & K) in the container.

- A 50 lb. bag of 20-6-4 is 20% N, 6% P, and 4% K. Therefore, this 50 lb. bag has 10 lbs. of N, 3 lbs. of P, and 2 lbs. of K. This equates to a ratio of 5-1.5- 1, meaning there is 5 times as much N, and 1.5 times as much P as there is K.

To calculate the amount of fertilizer needed for a lawn area:

- Determine the area to be fertilized and the amount of nitrogen needed to cover the area (See *Table 4. Cultural Management Calendar*).
- Divide the amount of N needed by % of N in bag. Example: You have a 1,000 ft² area and want to apply ½ lb of N. From a 20-6-4 bag of fertilizer, you will want 2.5 lbs of fertilizer from the bag ($0.5 \div 20\% = 2.5$ lbs.)

Starter Fertilizers

- Are generally high in P (20% or more).
- Should be applied to soils before establishment, after over-seeding, or during a renovation.

Seasonal Fertilization

Do not apply a full year's fertilizer requirement in one application. See *Table 4. Cultural Management Calendar* for application schedule.

Fast vs. Slow Release

- Fast release fertilizers can be taken up readily by turf, but can burn the turf if over-applied.
- Slow release fertilizers feed the lawn over a longer period of time.
- Slow release fertilizers should be used only during active growing periods (summer for warm season grasses and spring and fall for cool season grasses).

Iron (Elemental and Chelated)

Iron is an important supplementary fertilizer element, especially for soils with a pH >7.5.

- It should be applied during the growing season as ferrous sulphate (20% iron).

- Repeat applications are necessary.
- Apply at a rate of 3/8 lb. per 1,000 ft² as a spray for Bermudagrass, and 1/3 lb. per 1,000 ft² for perennial ryegrass.
- It will temporarily turn the turf black.
- It must be watered in.

Cheleated Iron is available and applied to the grass blades or soil. It is more expensive, provides rapid greenup and lasts longer.

- Cheleates come in both powder and liquid forms.
- They are usually applied in a spray solution from 2 to 4 ounces of product per 1,000 ft.² (**read the product label**).

Application Rates

See *Table 4, Cultural Management Calendar* for application rates.

DETHATCHING LAWNS

Lawns can build up thatch, which is a layer of non-green stems and roots that exists between the true soil surface and the true green vegetation. A small amount of thatch is acceptable, between ¼- ½ inch, since thatch absorbs compaction and protects the base of the plant. However, if thatch becomes excessive, bad things can happen. The roots will grow in the thatch and the plant will lose hardiness in both summer and winter. Water penetration will be limited. Also a spongy, thatchy turf is subject to mower scalping.

Thatch forms to a much greater extent on stolon and rhizome producing grasses. Therefore, Bermuda and zoysia tend to produce more thatch than KBG. The bunch grasses, such as annual and perennial ryegrass, as well as tall fescue, produce minimal thatch and do not need to be dethatched (removal of thatch). Generally, the lower growing hybrid Bermudagrasses and zoysias produce more thatch.

Dethatching is accomplished by using a power

rake or verticutting machine. These power-driven units have either fixed, rotating, or spring tine blades which uplift the thatch. Dethatching rakes may be used for small areas. Dethatching is a disruptive process, and must be done at a time when the grass is growing actively so it can recover quickly.

- Collect the thatch by raking or by mowing debris.
- Follow with 1.0 lb -N- per thousand square feet from either a balanced or a nitrogen-only fertilizer.

- Irrigate after each fertilization.
- Follow with reseeding if the damage is severe.

Schedule

See *Table 4. Cultural Management Calendar* for dethatching schedule.

MOWING

See General Rules for Mowing below for mowing heights, and *Table 4. Cultural Management Calendar* for mowing schedules.

GENERAL RULES FOR MOWING

Mowing is critical for proper turfgrass management. Follow these rules for a healthy lawn:

- Rule 1: Never remove more than 1/3 of the height at any one time.
- Rule 2: The closer you mow, the more often you must mow.
- Rule 3: Mow within the accepted range of the specific grass.
- Rule 4: Do not mow when the lawn is wet.
- Rule 5: Use the proper mower.*

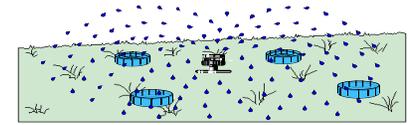
<u>Suggested Mowing Heights in Inches:</u>	<u>Desired Height</u>	<u>Mow at this Height</u>
Warm Season Grasses:		
Bermudagrass (seeded)	1.0 - 2.0	1.5 - 3.0
Bermudagrass (hybrid sod)		
‘Midiron’	1.0 - 2.5	1.5 -3.0 (1.5- 2.0 best)
‘Tifway’ (3x/week)	0.5 - 1.0	0.75 - 1.5
‘Tifway’ (2x/week)	1.25	1.5
‘Tifgreen’ and Tifdwarf’ (2x/week)		
‘Santa Ana’	0.75 - 2.0	1.0 - 2.5
‘Texturf 10’	0.75 - 2.0	1.0 - 2.5 (1.5-2.0 best)
Zoysia (2x/week)	1.5 - 2.5	2.0 - 3.25
Buffalo	1.5 - 3.0	2.0 - 4.0
Blue grama	1.5	2.0
St. Augustine (2x/week)	1.5 - 2.5	2.0 - 3.25
Cool Season Grasses:		
Kentucky bluegrasses	1.0 - 2.5	1.0 - 3.0
Perennial ryegrass (2- 3x/week)	1.5 - 3.0	1.5 -3.5 (1.0-2.5 best)
Annual ryegrass	2.0 - 3.5	2.5 - 3.5
Tall fescue (2x/week)	2.5 - 4.0	3.0 - 4.0 (2.0-3.0 best)

* Use reel- type mowers for heights of 1- 1/4 inches or less.
 * Use rotary mowers for heights of 1- 1/2 inches and higher.

Table 1. Lawn Watering Guidelines *Efficient turfgrass watering means wetting the soil just below the root zone, then allowing the soil to dry before watering again.*

WHEN?

Watering in the early morning is the most effective time. Less water evaporates, less wind and fewer disease problems will occur.



HOW OFTEN? (Watering too much = More mowing, money and diseases!)

Water lawns *once every three or four days*. During the hot summer months lawns do not need to be watered every day. Third or fourth day watering promotes deeper root growth, which makes the lawn more water efficient. To determine the watering depth, push a soil probe (a ¼ - ½” diameter, smooth metal rod or long screwdriver) into the ground. The probe should penetrate 8- 12” for most grasses or 18-24” for fescues. If penetration is deeper, water is being wasted. The probe will stop when it reaches dry soil. Water again when the probe won’t penetrate more than 4 inches. Look for signs of stress: Does the grass stay flat after it is step on? Is it a dull green? Are the leaf blades curling? If so, then it is time to water.

HOW LONG?

How long to water depends upon two factors:

1. How quickly the sprinklers put water on the lawn (**SPRINKLER OUTPUT**).
2. The amount of water the grass needs to stay healthy (**SUGGESTED WATERING SCHEDULE**).

WATERING TIMES

1. DETERMINE THE SPRINKLER OUTPUT USING THE TEST.
2. USE THE SUGGESTED WATERING SCHEDULE.
3. MANUALLY WATER THE DRY SPOTS RATHER THAN INCREASING THE APPLICATION RATE.
4. IRRIGATE FOR THE NUMBER OF MINUTES INDICATED EVERY 3-4 DAYS.

SPRINKLER OUTPUT TEST

1. PLACE 4 to 6 EMPTY TUNA FISH OR CAT FOOD CANS AROUND THE LAWN.
2. RUN THE SPRINKLER FOR 15 MINUTES.
3. MEASURE THE DEPTH OF WATER IN EACH CAN WITH A RULER & RECORD.
4. CALCULATE THE AVERAGE DEPTH.
5. CATCH CANS WHICH VARY BY 20% MORE OR 20% LESS WATER THAN THE AVERAGE USUALLY INDICATE POOR SPRINKLER PERFORMANCE PROBLEMS, RESULTING IN UNEVEN COVERAGE. FIND THE CAUSE AND CORRECT IT. USE THE SAME TYPE AND BRAND OF SPRINKLER HEADS & THE RECOMMENDED OVERLAP.

If water run-off occurs, water using the "cycle-soak" method. To do this activate the system until run-off begins. Stop irrigating and allow the water to soak in. Afterward, run the system again to complete the recommended watering time. This can be automated using a second start time in the same program or by running a separate program found on most irrigation timer clocks.

SUGGESTED WATERING SCHEDULE FOR WARM, COOL SEASON AND OVERSEEDED GRASSES

Irrigate for the Number of Minutes Indicated Every 3-4 Days

Warm Season Grass- Use 19.50 gallons/ft ² /year						
	If the Sprinkler Output in 15 minutes, in Inches is:					
	1/8	1/4	3/8	1/2	5/8	3/4
Jan	No Supplemental Irrigation Needed					
Feb	No Supplemental Irrigation Needed					
March	No Supplemental Irrigation Needed					
April	44	22	15	11	9	7
May	73	37	24	18	15	12
June	85	43	28	21	17	14
July	51	26	17	13	10	9
Aug	39	19	13	10	8	6
Sept	51	25	17	13	10	8
Oct	23	12	8	6	5	4
Nov	No Supplemental Irrigation Needed					
Dec	No Supplemental Irrigation Needed					

Cool Season Grass- Use 30.75 gallons/ft ² /year						
	If the Sprinkler Output in 15 minutes, in Inches is:					
	1/8	1/4	3/8	1/2	5/8	3/4
Jan	No Supplemental Irrigation Needed					
Feb	No Supplemental Irrigation Needed					
March	50	25	17	13	10	8
April	72	36	24	18	14	12
May	91	45	30	23	18	15
June	106	53	35	26	21	18
July	68	34	23	17	14	11
Aug	54	27	18	14	11	9
Sept	65	32	22	16	13	11
Oct	42	21	14	11	8	7
Nov	35	17	12	9	7	6
Dec	No Supplemental Irrigation Needed					

Overseeded Grass- Use 29 gallons/ft ² /year						
	If the Sprinkler Output in 15 minutes, in Inches is:					
	1/8	1/4	3/8	1/2	5/8	3/4
Jan	14	7	5	3	3	2
Feb	23	12	8	6	5	4
March	50	25	17	13	10	8
April	44	22	15	11	9	7
May	73	37	24	18	15	12
June	85	43	28	21	17	14
July	51	26	17	13	10	9
Aug	39	19	13	10	8	6
Sept	51	25	17	13	10	8
Oct	23	12	8	6	5	4
Nov	35	17	12	9	7	6
Dec	13	7	4	3	3	2

Example: If the average sprinkler output is ¼ inch (in 15 minutes) and it is April, water for 22 minutes for warm season grass, 36 minutes for cool season grass, and 22 minutes for overseeded grass. Water again in 3-4 days.

Table 2. Grass Characteristics

Warm Season Grasses (uses 19.50 gallons of water per square foot per year):			Comments		
Bermudagrass	Produces above ground runners (stolons) & below ground runners (rhizomes)				
Arizona Common	seeded	Predominant warm season seeded grass	Medium leaf texture and density		
'Nu-Mex Sabara'	seeded	Medium leaf texture and density			
'Cheyenne'	seeded	Medium leaf texture and density			
'Sunburst'	seeded	Medium leaf texture and density			
'Midiron' (aka EZ Turf)	hybrid*	Resembles common bermuda but better cold tolerance and winter survival.			
'Tifway'	hybrid*	Very fine in texture (narrow leaf blades) and more shoots per square inch.	Requires lower mowing height and increased mowing frequency	Predominant sod; high maintenance	
'Tifgreen'	hybrid*	Very fine in texture (narrow leaf blades) and more shoots per square inch.	Requires lower mowing height and increased mowing frequency	High maintenance; cousin of Tifway	
'Tifdwarf'	hybrid*	Very fine in texture (narrow leaf blades) and more shoots per square inch.	Requires lower mowing height and increased mowing frequency	High maintenance; cousin of Tifway	
'Santa Ana'	hybrid*	Very fine in texture (narrow leaf blades) and more shoots per square inch.			
'Texturf 10'	hybrid*	Like common Bermudagrass in appearance			
Blue grama grass	seeded	Cochise County native bunch grass that often produces below ground runners	Lower water use and fertilizer requirements	Fine leaves, drought tolerant	Slow growing, moderately durability
Buffalograss	seeded	Small hairs on leaves; produces above-ground runners only (stolons)	Lower water use and fertilizer requirements	Drought tolerant but slow to recover, not for high traffic areas	
St. Augustine grass	sod or plugs	Coarse, with wide dull-green leaves with notched tips; above-ground runners only	Tolerates shade	Not as aggressive as Bermudagrass	
Zoysia (slow to establish)	seeded	Produces above and below ground runners	More shade tolerant than Bermudagrass, < than St. Augustine grass		
*Hybrids produce no pollen or seeds and are established from either sod, springs (stolon pieces) or plugs					
Cool Season Grasses (uses 30.75 gallons of water per square foot per year):					
*Annual ryegrass (AR)	seeded	Wide leaves, planted as overseed on top of Bermudagrass, requires winter watering and mowing, usually dies in the summer	Survives for one season	Least popular cool season grass	Bunch grass
Kentucky blue grass (KBG)	seeded or sod	Produces below-ground runners only (rhizomes) which produce a thick dense turf; "canoe keel" leaf tips	Certain varieties are fairly shade tolerant, like 'Glade' and 'Nugget'		
*Perennial ryegrass (PR) "Clump Grass"	seeded	Narrow, dark green leaf & shiny underside; lives for several years; does not produce above- or below-ground runners	Fairly wear-tolerant during the fall and spring seasons	Slight shade tolerance	Bunch grass, produces individual shoots called tillers
*Tall fescue (TF)	seeded or sod	Leaf blade is wider than perennial ryegrass, varies between 1/8 – 1/4 of an inch, leaf margins have small, upward point hooks	Good heat tolerance, poor drought tolerance; summer water needs: 1.5-2.0 inches per week	Bunch grass, do not mix other grasses	More heat tolerant than perennial ryegrass, deep rooted

* Plant at recommended seed rate or lawn will be "clumpy"

Table 3. Management Schedule for Establishment and Renovation of Warm and Cool Season Grasses for Southeastern Arizona

Method	When to plant	Application Rate	Watering - Once established follow <i>Lawn Watering Guidelines, Table 4</i>	Fertilizing (per 1,000 sq. ft.)	Mowing - see <i>General Rules for Mowing</i>
WARM SEASON GRASSES- Bermudagrass, Blue Grama, Buffalograss, St. Augustine, Zoysia					
Seeding	++ June 1-Aug 15 ++ June for buffalograss	1.5-2.5 lbs per 1,000 sq. ft. Buffalograss: 3-5 lbs per 1,000 sq. ft. Blue grama: 3-5 lbs per 1,000 sq. ft.	Water 3-4x daily until seed emerges, then 1x daily for 10-15 minutes (1/4-3/8" water) for another 7 days, after that water 1x every other day or every third day as needed.	see <i>Soil Preparation for Planting Turf</i>	Mow at desired height
Sod	++ June 1-Aug 15 ++ June for buffalograss	Lay sod in brick fashion, staggering edges and roll in place	Water 2x daily for 1-14 days until it roots. Then 1x for another 5-7 days. After that water every day or two for 15-20 minutes (3/8-1/2" water) for 2 weeks , then every third day.	see <i>Soil Preparation for Planting Turf</i>	Mow at desired height
Plugging	++June- July ++ June for buffalograss	Set in holes at one foot centers, cover plugs with slight amount of soil	Water 1x day during hottest part of day until rooted.	Once rooted, fertilize with 1/4 lb. of N per	Mow at desired height
Sprigging or Stolonizing (cut pieces of shoots with leaves)	++June- July	Set in holes at one foot centers, cover plugs with slight amount of soil	Water 3-4x daily from 9:00 a.m. - 3:00 p.m. for 10-15 minutes until rooted (7-10 days), then water 2x day during heat of day for another 5-7 days. After that water 1x daily for another 7 days, then every other day or every third day as needed.	Once rooted, fertilize with 1/4 - 1/2 lb. of N 1-2x weekly	Mow at desired height
COOL SEASON GRASSES- Tall Fescue (TF), Kentucky Bluegrass (KBG), Ryegrass - Annual (AR) & Perennial (PR)					
Seeding	+ Mar 15-Apr 30 ++ Aug 15-Sept 15 ++ Sept 15-Oct 30	KBG: 1.5-2 lbs per 1,000 sq. ft. TF or PR : 6-8 lbs. per 1,000 sq. ft. AR: 8-10 lbs. per 1,000 sq. ft	Water 2x daily from 10:00 a.m. - 2:00 p.m until seed emerges, then water every 1 to 2 days until 1st mowing.	see <i>Soil Preparation for Planting Turf</i>	When 2 inches tall, mow to 1.5 inches. Next mowing, mow at desired height
Sod	+ Mar 15-Apr 30 ++ Aug 15-Sept 15	Lay sod in brick fashion, staggering edges and roll in place	Water 2x daily for 1-14 days until it roots. Then 1x for another 5-7 days. After that water every day or two for 15-20 minutes (3/8-1/2" water) for 2 weeks , then every third day.	see <i>Soil Preparation for Planting Turf</i>	Mow at desired height

++ = First choice, + = Second choice

Table 4. Cultural Management Calendar for Warm and Cool Season Turfgrasses for Southeastern Arizona

	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEPT	OCT	NOV	DEC
WARM SEASON GRASSES (Bermudagrass, buffalograss, zoysia)												
Seeding & Sodding						++	+					
Mowing					◆					◆		
Fertilizer (Nitrogen only) Lbs. N/1,000 Ft. ²					N 0.5	N 0.75-1.0	N 0.75-1.0	N 0.75-1.0	N 0.5			
for buffalograss						0.5	0.5 OR 0.5					
Irrigation- inches H ₂ O/week				<1.0	1.0-1.25	1.25-1.75	1.25-1.75	1.25-1.75	1.0	<1.0		
Pre-emergent weed control			+	++					++	+		
Dethatching and Aerifying						++	+					
Overseeding with ryegrass									+	++		
COOL SEASON GRASSES (Kentucky blue grass, fescue, perennial & annual ryegrass)												
Seeding & Sodding			+	+					++	+		
Mowing			◆								◆	
Fertilizer (Nitrogen only) Lbs. N/1,000 Ft. ²				N 0.5	N 1.0	N --	-- --	-- --	N 0.75	N 1.0		
Irrigation- inches H ₂ O/week			0.5	0.5-1.0	0.75-1.25	1.5-2.0	1.5-2.0	1.5-2.0	1.25-1.5	1.0	<1.0	
Pre-emergent weed control			+	++					++	+		
Dethatching & Aerifying for Kentucky blue grass			+						++	++		
			early							early		

++ = First choice + = Second choice