



**MASTER GARDENER**  
COLORADO STATE UNIVERSITY  
EXTENSION



# Turfgrass Management

# Learning Objectives

At the end of class, the student will be able to:

- Describe how lawn management practices influence turf quality and why incorrect management decisions lead to common lawn care problems.
- Describe which grass species are best-adapted for lawn use, and the most important factors to consider when choosing a species for a new lawn (or when renovating an existing lawn)
- Describe how mowing height and frequency affect the aesthetic quality and stress tolerance of turfgrass; why grass clippings should be recycled back to the lawn during mowing.
- Describe why nitrogen is the most important nutrient in a lawn fertilization program, how and when to fertilize a lawn, and how to select the appropriate lawn fertilizer.
- Describe the environmental factors affecting turf water use and how to use that knowledge to most effectively irrigate a lawn (how MUCH water to apply, and how OFTEN?).
- Describe thatch, understand why it forms in the lawn, what common problems its accumulation may cause, and how thatch is most effectively managed.
- Describe the negative effects of soil compaction on turf health and how to improve soil physical conditions by using common cultivation practices.
- Describe how to establish a new lawn, using seed, sod or plugs. What is meant by lawn renovation and how this process can be used to improve the quality of an existing lawn.
- Describe the most common lawn weeds, why weeds occur in the lawn, and how to most effectively manage weeds using cultural practices and, if necessary, herbicides.
- Describe the process of diagnosing common lawn problems and know where to find the most useful resources (books, websites) to assist in the diagnostic process
  
- CMG volunteers approach diagnostic situations as a process. Students will be able to:
  - Describe concepts of *Plant Health Care* (PHC; IPM as it applies to lawn care)
  - Outline the life cycle of a lawn and describe how lawn/turf needs change with the age of the lawn
  - List steps in the diagnostic process
  - Using the diagnostic process, diagnose routine lawn pest problems

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# **References**

## **Colorado State University Extension**

### **Grass Species Selection for the Home Lawn**

#### *CMG GardenNotes*

- Best Turf Varieties: Variety Recommendations for Bluegrasses, Tall Fescues, Fine Fescues Ryegrasses, and Buffalograss – #562
- Buffalograss Lawns – #565
- Fine Fescue Lawns – #564
- Hybrid (Kentucky X Texas) Bluegrasses for Turf Use in Colorado – #563
- Native Grass Lawns – #567
- Sources of Grass Seed, Sod and Plugs for Colorado Lawns – #566
- Turfgrass Species Selection Guidelines – #561

### **Mowing**

#### **Extension Fact Sheets**

- Lawn Care - #7.202
- Eliminate Grass Clipping Collection - #7.007

### **Lawn Fertilization**

#### *CMG GardenNotes*

- Calculating Fertilizer Rates – #233
- Iron Chlorosis – #223
- Organic Fertilizers – #234
- Plant Nutrition – #231
- Soil Tests – #221
- Understanding Fertilizers – #232

#### **Extension Fact Sheets**

- Lawn Care - #7.202
- Nitrogen Sources and Transformations – #0.550
- Organic Materials as Nitrogen Fertilizers – #0.546
- Soil Testing – #0.501
- Soil Testing – Selecting an Analytical Laboratory – #0.520
- Soil Testing – Soil Test Explanation – #0.502
- Soil Testing – Soil, water and plant testing – #0.507

### **Lawn Irrigation**

#### **Extension Fact Sheets**

- Lawn Care - #7.202
- Irrigation: Inspecting and Correcting Turf Irrigation Systems - #4.722
- Watering Established Lawns - #7.199
- Operating and Maintaining a Home Irrigation System\_ - #7.239

### **Thatch and Compaction Management**

#### *CMG GardenNotes on Lawn Care*

- Earthworms and Nightcrawlers in the Home Lawn - #554

### ***CMG GardenNotes on Soils***

- Earthworms – #218
- Estimating Soil Texture – #214
- Introduction to Soils – #211
- Iron Chlorosis – #223
- Managing Soil Tilt – #213
- Soil Compaction – #215
- Soil Drainage – #219
- Soil pH – #222
- Soil Tests – #221
- The Living Soil – #212

### **Extension Fact Sheets**

- Lawn Care - #7.202

### **Lawn Establishment and Renovation**

#### **Extension Fact Sheets**

- Lawn Care - #7.202
- Renovating the Home Lawn - #7.241

#### **CSU TurfNotes**

- Lawn Renovation: Terminology and Guidelines - #820

### **Turf Weed Management**

#### **Extension Fact Sheets**

- Lawn Care – #7.202
- Control of Weedy Grasses in Home Lawns – #3.101

#### ***CMG GardenNotes***

- Broadleaf Weed Control in Lawns – #8552

### **The Diagnostic Process**

#### ***CMG GardenNotes***

- IPM: Plant Health Care – #101
- The Diagnostic Process – #102

### **Books**

- ***Integrated Turfgrass Management for the Northern Great Plains***. 1997. Baxendale, F.P. and Gaussoin, R.E. (eds.) University of Nebraska. Publication EC97-1557. 236 pages.
- ***Fundamentals of Turfgrass Management***. 2003. Christians, N.E. John Wiley & Sons. 368 pages. 2nd edition.
- ***Identifying Turf and Weedy Grasses of the Northern United States***. 2005. Pederson, D. and Voigt, T. University of Illinois Extension. 63 pages. Publication C1393. <http://www.pubsplus.uiuc.edu>
- ***Lawns: Your Guide to a Beautiful Yard***. (2002 and 2007). Christians, N., Ritchie, A. and Mellor, D. Meredith Publishing. 1<sup>st</sup> edition ISBN 0696212706; 2<sup>nd</sup> edition ISBN 9780696229695.
- ***Weeds of the West***. 1991. The University of Wyoming. 630 pages.

# **Review Questions**

## **Turfgrass Species/Variety Selection**

1. What is the best grass to plant in Colorado lawns?
2. What is the best grass to plant if you don't want to water a lawn?
3. What grass can grow with only a "little" irrigation?
4. Can zoysiagrass grow in Colorado? What will happen if I plant it anyway?
5. What is the best grass for a shady lawn?
6. Which grass grows best in salty soil?
7. What is the best grass to plant over my septic leach field?
8. What grass can I plant if I don't want to mow my lawn very often?
9. I would like to have a backyard putting green. What kind of grass is used?

## **Mowing the Lawn**

1. What is the best mowing height for lawns?
2. My neighbor mows their lawn 2 or 3 times a week. I mow only on Saturday morning. Who is right?
3. Should I mow higher or lower during the summer?
4. Will I have less turf disease if I mow my lawn shorter in the fall, just before winter?
5. Shouldn't grass clippings be collected because they create thatch in lawns?
6. My lawn gets a brownish cast after I mow. What is the problem?

7. I see wheel marks in my lawn after it is mowed. What causes this to happen?
8. How should I mow my lawn when it gets very tall?
9. Do I have to buy a mulching mower to return my grass clippings?
10. What is the best mower? Rotary or reel?
11. Can I compost my grass clippings, or use them as mulch, in my gardens?

## **Lawn Fertilization**

1. What is the best fertilizer for my lawn?
2. How often should I fertilize my lawn?
3. How important is it to use a "complete" lawn fertilizer?
4. Is liquid lawn care better (or worse?) than dry/granular lawn care?
5. How do I know if I am applying the correct amount of fertilizer to my lawn?
6. Should I "winterize" my lawn? What does that mean, and what does it do for my lawn?
7. Is it OK to fertilize after aerifying my lawn?
8. Isn't organic fertilizer better for my lawn than synthetic fertilizer?
9. Will I have to fertilize more or less if I leave my grass clippings on the lawn?
10. Should the fertilizer that I use have iron in it?
11. Should sulfur be used to lower a lawn's pH?

## **Lawn Irrigation**

1. Doesn't Kentucky bluegrass need more water than all other lawn grasses?
2. For how long should I run my sprinkler system?
3. Is it OK to water my lawn every 3-5 days, even though my neighbors water their lawns every day?
4. Is it bad to water my lawn every day?
5. Will I get "fungus" if I water at night?
6. At what time of the day is it best to water my lawn?
7. Should I water my lawn in the winter?
8. I have brown spots in my lawn, even though I water every other day. What is causing these dry spots?
9. My new tall fescue lawn (which is supposed to save water) seems to need as much water as my old bluegrass lawn. What is the problem?
10. How should I water my newly seeded/sodded lawn?
11. Should I water my lawn after I fertilize it?
12. Should I ever water my buffalograss lawn?
7. What is the best time of the year to aerate a lawn?
8. How many times per year should a lawn be aerified?
9. How deep should the aeration core holes be?
10. What should I do with all of those plugs that the aerifier pulls out?
11. Should I topdress the lawn with something to fill in the aerification holes?
12. Does wearing golf spikes aerify my lawn? What about "lawn aeration sandals"?

## **Thatch and Compaction Management**

1. What is thatch?
2. Why do my neighbors' lawns NEVER seem to get thatchy, while mine always seems to be that way?
3. Can I topdress my lawn to get rid of thatch?
4. Do power rakes (dethatchers) work well?
5. Are there any liquid or granular "dethatching" products that work? How about ones which claim to relieve soil compaction?
6. What are some symptoms of soil compaction in a lawn?
5. Is it better to seed or sod a new lawn?
2. What time of the year can lawns be sodded?
3. When is the best time to seed a lawn?
4. Does soil really need to be tilled before planting a new lawn?
5. Should I bring in topsoil before I plant my new lawn?
6. Before planting my new lawn, how much sand should I add to my soil to loosen it up and improve its drainage?
7. How important is it to amend soil before planting a lawn?
8. What is the best soil amendment?
9. Is hydroseeding a good way to start a lawn?
10. Is "plugging" a good way to start a buffalograss lawn? How does it work?
11. Does "overseeding" help a lawn in any way?
12. When is the best time to overseed a lawn?
13. Is there a way to start a new lawn without going through the process of removing old sod and tilling the soil?

14. How does lawn renovation differ from starting a new lawn from scratch?

### **Weed Management in Lawns**

1. Where do lawn weeds come from? How do they get into a lawn?
2. How do I get rid of the crabgrass in my lawn?
3. Is it important to identify lawn weeds before spraying them with a herbicide? Why?
4. I used a preemergence herbicide this spring and I still have weeds. What went wrong?
5. Can I aerify or dethatch my lawn after I apply my preemergence herbicide?
6. What is the best way to get rid of dandelions? Can I use a preemergence herbicide for dandelions?
7. Is it OK to pull weeds?
8. Do “weed-and-feed” products work well?
9. Are there any “organic” or “natural” weed control products that work?
10. What is the best way to control weeds in my newly seeded lawn?
11. Weeds have come up in the “seams” in my new lawn. Should the sod company replace the sod?
12. What is the best time of the year to spray for weeds?
13. What is the best herbicide to spray for dandelions and other broadleaf weeds?
14. Is it better to spray the entire lawn, or just spot-treat individual weeds? Won't I miss some weeds if I spot-treat?
15. Is it OK to spray lawn weeds growing under my trees? Will the trees be OK?

### **Miscellaneous Lawn Questions**

1. How do I take care of “dog spots” in my lawn?

2. I have high and low spots in my lawn. How can I level them out?
3. Will my lawn care companies mowers and aerifiers bring diseases into my lawn from other lawns?
4. When should I do soil testing on my lawn?
5. If I want to expand my garden areas, what is the best way to kill off areas of my lawn?
6. Is it OK to flood a part of my lawn to make a skating/hockey rink for my children?
7. Can I empty the water from my swimming pool onto my lawn without killing the grass?
8. How long can grass seed last if I don't use all of it?
9. What kind of grass do I have growing in my lawn? How can I find out?
10. My lawn is “lumpy”, but my neighbor's is not. What causes the lumps, and why do I have them?

### **Plant Health Care and the Diagnostic Process**

1. Define IPM and PHC.
2. Describe concepts central to PHC?
3. Give examples of common PHC tools used in home lawn care.
4. What is the PIC cycle? What does it explain about lawn problems?
5. In diagnosing *contributing* disorders, why is it important to also identify the *predisposing* and *inciting* factors to the extent possible?
6. List the four steps in the diagnostic process.
7. Give examples of BIOTIC (living) factors that cause turf problems.
8. Give examples of non-living (abiotic) factors that cause lawn problems.
9. Why is it important to correctly identify the turf species in a lawn that is having problems?

10. Define *symptom* and *sign*. Give examples of each.
11. Explain why it is important to understand what is normal versus abnormal when dealing with lawn problems?
12. Why is it important to know the AGE of a lawn as part of the diagnostic process?
13. Why is it important to “start from scratch” with every diagnostic situation?

### **Diagnosing Abiotic Lawn Disorders**

1. Explain how knowing the context of the situation helps in diagnosing the disorder.
2. Explain how painting a mental picture of a lawn problem helps in diagnosing a disorder.
3. Explain how repeating back the details in your own words helps in diagnosing a disorder.
4. Explain how to tactfully change directions with a client when the evidence for the cause of a lawn problem leads down another road.
5. Why is it important to discuss management options ONLY after the problems have been diagnosed?
6. In the landscape setting, what is the universal limiting factor for root growth?
7. What percentage of lawn problems are related to root/soil/water issues?
8. Describe techniques to evaluate soil/root disorders and soil compaction.
9. Why is it important to know if a client uses a professional lawn care company, or is a do-it-yourselfer?

10. Why is it important to look at the ENTIRE landscape (trees, flowers) when diagnosing a lawn problem?
11. Why look to see if the problem is occurring in the back yard/front yard as well – or in neighboring lawns? What can that tell you?
12. What kind of tests can be done to determine whether or not chemical injury has occurred on a lawn?

### **Diagnosing Biotic Pest Problems on Lawns**

1. List the four steps in the diagnostic process.
2. What is the “disease triangle” and how does it apply to diagnosing lawn disease problems?
3. What percentage of summer lawn problems in Colorado are related to irrigation amount/frequency, or other aspects of lawn irrigation?
4. If a client tells you that they get the SAME problem every year, in the same part of the lawn, what are some potential causes of the lawn problem?
5. What is the proper way to obtain a sample of turf for diagnostic purposes? How should it be stored and transported?
6. What do you tell a client who believes that “fungus” has been tracked onto their lawn by a lawn care company’s mowing or aeration equipment?