Mowing Practices

“The major reason for the decline in many turf areas is poor mowing practices such as cutting too low or too infrequently or using a dull blade.” - Emmons

Mowing Height

<table>
<thead>
<tr>
<th>Species</th>
<th>Recommended Mowing Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine fescues</td>
<td>1.5 - 3.0</td>
</tr>
<tr>
<td>Ken. Bluegrass</td>
<td>1.5 - 3.0</td>
</tr>
<tr>
<td>Per. Ryegrass</td>
<td>1.5 - 3.0</td>
</tr>
<tr>
<td>Tall fescue</td>
<td>1.5 - 3.5</td>
</tr>
<tr>
<td>Colonial bentgrass</td>
<td>0.5 - 1.0</td>
</tr>
<tr>
<td>Creeping bentgrass</td>
<td>0.125 - 0.5</td>
</tr>
<tr>
<td>Zoysiagrass</td>
<td>0.5 - 2.0</td>
</tr>
</tbody>
</table>

Mowing Frequency

Consistent low mowing results in shorter roots and thinner turf; thus, more weed and pest problems and poor turf quality.

As a general rule, at any given mowing, only remove 1/3 of the turf at a time.

Grass Clippings

- Return clippings whenever possible
  - Add nutrients, organic matter to the soil

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Average Content by Dry Matter Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>4.0%</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>0.5%</td>
</tr>
<tr>
<td>Potassium</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

- Must mow using 1/3 rule so that clippings are small enough to fall to soil surface and decompose

Keep a sharp blade!

A dull blade creates torn, jagged edges which:
- Increases water loss
- Increases disease
Alternate Mowing Directions

Reduces ruts and scalping

Turfgrass Water and Irrigation

Americans use a lot of water to support turf

- An estimated 30% of urban water in the East Coast is used for lawns
- In the arid west, 60% of urban water is used for turf
- Over a period of a year in Vermont, a 5000 square foot lawn receiving the recommended one inch per week of water over the summer would use 37,400 gallons of water!

Conserving Turfgrass Water

Choose Drought Hardy Species

Most Drought Tolerant
- Fine fescues
- Tall fescue
- Kentucky bluegrass
- Perennial ryegrass
- Colonial bentgrass
- Creeping bentgrass
- Rough bluegrass

Most tolerant
- Fine fescues
- Tall fescue

Least Drought Tolerant

Choose Drought Hardy Species

Endophyte Enhanced Grass

TURFGRASS SPECIES
- Tall Fescue
- Fine Fescues
- Perennial Ryegrass

Conserving Turfgrass Water

Adjust Your Irrigation Schedule

- Flexible to weather
- Cutoff switch
- Water less often, more deeply
- Match irrigation to infiltration rate
  - Sandy soils - two inches per hour
  - Loamy soils - One half inch per hour
  - Clay soils - One fifth inch per hour
- Avoid mid to late day irrigation
- Avoid evening watering

Conserving Turfgrass Water

Cultural Practices

- Raise mowing height (within recommended range)
- Reduce mowing frequency
- Reduce N fertilization during dry periods
- Apply adequate levels of K fertilizer
- Remove thatch
- Core-cultivate compacted soils
- Minimize herbicide use
Fertilization and Turf Quality

- Too Much Fertilizer
  - Waste of money
  - Extra mowing and irrigation
  - Increase thatch potential
  - Increase disease problems
  - Decrease tolerance to heat stress
  - Increase risk of nutrient leaching and runoff
  - Potential fertilizer burn

Fertilizer Damage

- Fertilizer Burn

Fertilization and Liming

- What nutrients?
- How often?
- How much?

Nitrogen Fertility

- To maintain quality and growth, turfgrasses need a steady supply of nitrogen.

Sources of Nitrogen

- Synthetic
  - Inorganic
  - Organic
- Natural Organic
Grass Response to N Fertilizer

Time after N application

Growth Rate

- Slow Release
- Fast Release

Nitrogen Fertilization

- In most cases, at least 50% of the N in should be slow release
- Water insoluble - WIN
- Refer to the fertilizer tag

Examples

18 - 6 - 12
Total N: 18%
WIN: 9%

28 - 3 - 18
Total N: 28%
WIN: 7%

9 / 18 = 50%

Nitrogen Fertilization

- Generally, add a total of 2 - 4 lbs/1000 sq. feet per year
- One to three times per year depending on N type and desired quality

How Often and How Much

Two times per year

Nitrogen Fertilization

One time per year

Nitrogen Fertilization

How Often and How Much
Nitrogen Fertilization

How Often and How Much

Three times per year

Fertilization and Liming

What about soil testing?

• P and K
• Lime needs

P and K Fertilization

• Best to base P and K fertilization on soil test if possible
• If P and K are more than adequate, use only N sources of fertilizer
• If P and K are less than adequate, use a ratio recommended by soil test

P and K Fertilization

• Without soil test, typical ratios are from 3-1-2 to 5-1-2
• Fall applications should be a balance of N and K at a low rate

No or Low P Fertilization

P Sources for Potential Runoff

1. Fertilizer P
2. Soil P (top 2”)
3. Clippings
4. Thatch P
Reducing the Risks of Phosphorus Runoff from Lawns

- Soil test and apply a “no P” if P is not needed or a “low P” if some is needed.
- Avoid spreading on impervious areas like driveways or over street curbs. Sweep up any fertilizer spill on the driveway.

Proper Fertilization

Compost Amendments

- Compost is the aerobically decomposed remnants of organic materials (those with plant and animal origins).

- Provides organic matter
- Provides nutrients
  - N: 0.5 to 3.0 %
  - P: > 0.2 %
  - K: Varies
- Increases microbial activity

Compost Amendments

- Clay Soils
  - Improves structure
  - Reduces crusting and compaction
  - Improves drainage

- Sandy Soils
  - Improves structure
  - Increases water and nutrient retention

Compost Amendments

- Compost Quality
  - Appearance (dark topsoil, light and crumbly)
  - Free of large stones, wood, trash, etc.
  - Particle size depends on use (for topdress, should pass a 3/8 inch screen)
  - Odor
  - Free of Weed Seed

Compost Amendments

- Some thatch (<1/2”) is desirable
  - Acts as a cushion
  - Reduces sports injuries
  - Serves as a mulch
  - Insulates the crown from sudden T° changes
  - Becomes dry (prevents weed germination)
When thatch is too thick:
- Increase drought stress
- Harbors insects and disease
- Increases winter kill
- Poor water infiltration
- Poor nutrient retention
- Makes turf soft and spongy

Thatch Control

Thatch Control
- Vertical Mower

Thatch Control
- Core Cultivators
  Sometimes followed up with a topdressing of compost.

Thatch
- Species and variety selection
- Proper fertilization, especially N
- Adequate soil pH
- Good soil aeration
- Good soil texture

Prevention Control

Best to dethatch in early to mid autumn.