Sustainable Landscape Workshop
Turfgrass Management

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Extension Turfgrass Specialist
Outline:
Things to know about your grounds
Selecting turfgrasses
Establishment & overseeding
Mowing
Fertility
Irrigation
Know why pest exist
Moles
Measuring Square Footage

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>280’ x 85’</td>
<td>23,800 sqft</td>
</tr>
<tr>
<td>140’ x 25’</td>
<td>2,700 sqft</td>
</tr>
<tr>
<td>130’ x 25’</td>
<td>1,125 sqft</td>
</tr>
<tr>
<td>25’ x 45’</td>
<td>3,500 sqft</td>
</tr>
<tr>
<td>60’ x 45’</td>
<td>3,250 sqft</td>
</tr>
<tr>
<td>140’ x 35’</td>
<td>4,500 sqft</td>
</tr>
<tr>
<td>50’ x 90’</td>
<td>1,800 sqft</td>
</tr>
<tr>
<td>65’ x 35’</td>
<td>2,275 sqft</td>
</tr>
<tr>
<td>20’ x 90’</td>
<td>4,900 sqft</td>
</tr>
<tr>
<td>140’ x 35’</td>
<td>1,225 sqft</td>
</tr>
<tr>
<td>35’ x 35’</td>
<td>49,075 sqft</td>
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</tbody>
</table>

or

1.12 acres
Soil Testing

• Know what **nutrients** are needed: Phosphorus, Potassium, etc.

• Know what the **pH** of the soil is: Do you need to add lime?

Acceptable pH = 6 to 7 for lawns
Optimum pH = 6.4 to 6.8
Turfgrass Selections

• K-31 Tall Fescue
  – Seeding rate: 8 to 10 lbs/1,000 sqft

• Blends of turf-type Tall Fescues
  – Seeding rate: 7-9 lbs/1,000 sqft

• Mixture of turf-type tall fescue (90%) with Kentucky bluegrass (10%)
  – Seeding rate: 7-9 lbs/1,000 sqft

Select Resistant Varieties
Establishment

**Fescue/Bluegrass**: Sept 1 to Oct 10 is best time (little weed pressure, cool nights/rain, six months of root growth before summer stress)

**Spring Seeding**: Late Feb/early March seeding (can apply Tupersan for crabgrass control)

Seed/Soil Contact
Overseeding

Use a “Power-rake” or “Power-seeder” for Seed/Soil Contact

September for cool-season grasses to increase turfgrass density
Higher mowing heights encourage greater root growth of grasses and better competition against weeds. 80% reduction in annual weeds.

3.5”

1.5”
Mowing

Mow frequently enough to avoid “clumping”. Never remove more than 1/3 of the leaf blade at a time.
Mowing

Keep mower blades sharp to avoid tearing of leaf blades which results in ugly browning, undue turf stress and a higher potential for turf diseases.
Mowing

Let clippings fall

Other mowing points:

• Mow when the grass is dry

• Mow when the grass is not under stress (i.e. wilting)

• Change your direction of mowing each time you mow

Turfgrass Science
University of Missouri
Nitrogen Application Scheduling

Synthetic Fertilizers

Expressed in pounds of nitrogen per 1,000 sqft

<table>
<thead>
<tr>
<th>Cool-Season</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>March/April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Low Maint.</td>
<td>1</td>
<td>--</td>
<td>1</td>
<td>--</td>
</tr>
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</table>

Cool-Season Turfgrasses:

Tall Fescue, Kentucky Bluegrass, Perennial Ryegrass
# Nitrogen Application Scheduling

## Organic Fertilizers

Expressed in pounds of nitrogen per 1,000 sqft

<table>
<thead>
<tr>
<th></th>
<th>Early April</th>
<th>Late June</th>
<th>Mid Sept.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool-Season No Seeding</td>
<td>Corn gluten 0.8-1.2</td>
<td>Corn gluten or other organic 0.4-0.8</td>
<td>Corn gluten or other organic 0.8</td>
</tr>
<tr>
<td>Cool-Season Fall Seeding</td>
<td>Corn gluten 0.8-1.2</td>
<td>Corn gluten or other organic 0.4-0.8</td>
<td>Do Not Use Corn gluten when seeding 0.3-0.8</td>
</tr>
</tbody>
</table>

**Cool-Season Turfgrasses:**

Tall Fescue, Kentucky Bluegrass, Perennial Ryegrass
Organic Fertilizers

A slow-release source of N, other essential nutrients, and organic matter

- Organica (8-1-1) – Corn gluten
- Bradfield (3-1-5)
- Ringers (6-1-3)
- Sustane (5-2-4)
- Richlawn (6-3-2)
- Milorganite (6-2-0 w/5% Fe)
Irrigation: When to water?

Foot prints & wheel marks visible from wilting
Irrigation: How Much?

Know how much water your sprinkler or irrigation system applies
Irrigation: Frequency?

**Infiltration Rate:**
- Sand: 2-5 in/hr
- Silt/Loam: 0.5-2 in/hr
- Clay: 0.2-0.5 in/hr
Irrigation: What time of day?

Early morning: 4 AM to 8 AM

- Evaporative losses minimized (Cooler temperatures)
- Better distribution of water (Calm winds)
- Knocks dew & guttation fluids off leaf blades and decreases leaf wetness period discouraging fungal growth and infection
Grounds Maintenance

Know Why Pest Exist
Crabgrass
*Digitaria* spp.

Summer annual grass
Prostrate knotweed

*Polygonum aviculare*

Summer annual broadleaf
Prostrate spurge

*Euphorbia supina*

Summer annual broadleaf
Common chickweed

*Stellaria media*

Winter annual broadleaf
Henbit

*Lamium amplexicaule*

Winter annual broadleaf
Dandelion

*Taraxicium officinale*

Perennial broadleaf
Plantains

*Plantago* spp.

Buckhorn plantain

Perennial broadleaves
White clover

*Trifolium repens*

Perennial broadleaf
Violets

*Viola* spp.

Perennial broadleaf
Diseases of Turfgrass

Think about what you can control to reduce disease potential!
Powdery Mildew:

- Common in the spring and fall when the nights are damp, humid and cool; when days are mild and cloudy.
- Superficial, powdery, white patches of mildew develop on grass leaves, especially in shaded and/or poorly drained soils.
- Diseased leaves turn yellow, wither and die.
- Kentucky bluegrass is most susceptible.
Rusts:

• Problem in warm to hot, dry periods, when grass is growing slowly or not at all.
• Turfgrasses are most susceptible under low fertility, moderate soil moisture stress, heavy dew and frequent light rains.
• Infected grass develops reddish-brown to yellow-orange rust pustules that easily rub off on fingers, shoes and clothing.
Brown Patch:

- Appears in hot, moist overcast weather.
- Tall fescue and other high-cut grasses: patches are light brown and range from 2 feet to 50 feet in diameter. Grass is severely thinned.
White Grubs

May/June Beetle
Phyllophaga spp.

Biology:
• Three year life cycle
• Females lay 20-50 eggs in a lifetime
• Prefers moist soil for egg laying
• Eggs hatch in 3-4 weeks
• Larvae feed first two summers
• 3rd instar larvae feed into fall
• Adults are defoliators
White Grubs

Masked Chafer
*Cyclocephala* *spp.*

Biology:
- One year life cycle
- Lay eggs singly or small clusters
- Prefers moist soil for egg laying
- Eggs hatch in 14-18 days
- Molt to 2\textsuperscript{nd} instar in 3 weeks
- Over-winter below frost line
White Grubs

White Grub

Damage:

Late July – early August

5 – 10 per sqft

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University of Missouri
Sod Webworm

*Crambus patella*

**Damage:**
- Look for chewed leaf blades
- Pencil-sized holes
- Silken-lined retreats
- Use soap test
- 10-15 larvae/sq yd
Fall Armyworm

*Spodoptera frugiperda*

**Damage:** 1 larva/sq yd
**Chinch Bug**

*Blissus leucopterus hirtus*

**Damage:** 20-25 nymphs/sq ft
- Use coffee can/float method to monitor

zoysiagrass
Hunting Billbug

*Sphenophorus vernatus vestitus*

**Damage:** Mainly Zoysiagrass
Biggest myth about moles?
Mole Control:

Do NOT use grub control products for mole control in the spring!
Mole Facts:

• Feed and rest on 2 hr cycle, 24 - 7
• Carnivore
• Earthworms and other insects constitute 85% of their diet
• They consume 70 to 80% of their body weight daily
• Single litter of 2 to 5 young each spring
• Hibernate near large trees through winter

Mole Control:

• Repellants (Caster oil)
• Kaput Mole Bait
• Moletox Baited Gel
• Talpirid
• MOTOMCO Mole Killer
• Tom Cat Mole Killer
• Trapping
Trapping is still the most economical means
The key to successful trapping and baiting is locating active runways!

Ridge caused by tunneling of mole under sod

Burrow 1 foot per minute
Questions ...  

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