Master Gardener Lecture:
Lawn and Turf
 Establishment and Management

Why do we have lawns?

Your Effort in Lawn Care?

Set your turf quality goals?

Turf Quality

Turf Cultural Intensity

Turf Cultural Practices

Turf Establishment

Mowing

Irrigation

Fertilization and Liming

Clippings

Compost

Compaction

Thatch

Shade

Pest Management

Weed Control

Renovation and Overseeding

Turfgrass Species

Select the best mixture of grass species and varieties

Turfgrass Species Adaptation

VT Master Gardener Program

Turf Species For Vermont
**Morphological Types**

- Rhizomatous
- Bunch type
- Stoloniferous

**Kentucky bluegrass**

*Poa pratensis L.*

- Most popular turf species
- Wide range of uses
- Very winter hardy
- Adapted to fairly wide geographic range
- Good in open sunny areas

**Kentucky bluegrass**

Forms a good dense sod

- Short extensive rhizomes

**Kentucky bluegrass**

Disadvantages:
- Slow germination and seedling growth
- Poor summer growth
- Medium to high cultural intensity
- Poor shade tolerance (except some new varieties)
- Poor salt tolerance

**Perennial Ryegrass**

*Lolium perenne*

- A bunch grass that is usually mixed with Ky. bluegrass
- Similar leaf width to Ky. Bluegrass
- Adds genetic diversity
- Good quality
- Quick to germinate
Perennial ryegrass can germinate and emerge within 4 to 5 days of seeding.

Bluegrass spp.

Per. Ryegrass

Fine Fescues

(Festuca spp.)

- Creeping red has short rhizomes
- Other fine fescues are bunch types

Creeping red fescue
Hard fescue
Chewings fescue
Sheep fescue

Creeping red has short rhizomes
Other fine fescues are bunch types

Fine Fescues

- Creeping red has short rhizomes
- Other fine fescues are bunch types

Fine, rolled leaves
Excellent “low input” species

What are the best grass mixtures for lawns?

Kentucky bluegrass
Perennial ryegrass
Fine fescue

What is the difference between mixtures and blends?

Mixture - two or more grass species
Blend - two or more cultivars of a single species

Advantage of using both
Increases genetic diversity across a diverse landscape which reduces risk of total and partial failure

Blends are particularly important for Kentucky bluegrass because they are apomictic.
Grass Seed Quality

- Species and cultivars (variety)
- Seed purity
- Germination
- Weeds and other ingredients

Suggested Seed Mixtures

**Full sun, good fertility and management**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky bluegrass</td>
<td>50</td>
</tr>
<tr>
<td>Fine Fescue</td>
<td>25</td>
</tr>
<tr>
<td>Perennial ryegrass</td>
<td>25</td>
</tr>
</tbody>
</table>

**Some shade, good fertility and management**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky bluegrass</td>
<td>30</td>
</tr>
<tr>
<td>Shade tolerant Ky. Bl.</td>
<td>30</td>
</tr>
<tr>
<td>Perennial ryegrass</td>
<td>20</td>
</tr>
<tr>
<td>Fine fescue</td>
<td>20</td>
</tr>
</tbody>
</table>

**General use, mixed sun and shade**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percent by Weight</th>
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<tbody>
<tr>
<td>Kentucky bluegrass</td>
<td>30</td>
</tr>
<tr>
<td>Fine Fescue</td>
<td>50</td>
</tr>
<tr>
<td>Perennial ryegrass</td>
<td>20</td>
</tr>
</tbody>
</table>

**Low Maintenance Lawn**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky bluegrass*</td>
<td>20</td>
</tr>
<tr>
<td>Fine Fescue</td>
<td>60 or 50*</td>
</tr>
<tr>
<td>Perennial ryegrass</td>
<td>20</td>
</tr>
<tr>
<td>* Dutch white clover</td>
<td>10</td>
</tr>
</tbody>
</table>

**Dry sandy soils, or open shade**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky bluegrass</td>
<td>20</td>
</tr>
<tr>
<td>Fine Fescue</td>
<td>80</td>
</tr>
<tr>
<td>Perennial ryegrass</td>
<td>-</td>
</tr>
</tbody>
</table>
**Suggested Seed Mixtures**

**Need quick cover (Overseeding mix)**

<table>
<thead>
<tr>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky bluegrass 20</td>
</tr>
<tr>
<td>Fine Fescue 20</td>
</tr>
<tr>
<td>Perennial ryegrass 60</td>
</tr>
</tbody>
</table>

**Suggested Seed Mixtures**

**Moist to wet much of day, also shade**

<table>
<thead>
<tr>
<th>Percent by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky bluegrass (S.T.) 30</td>
</tr>
<tr>
<td>Roughstalk bluegrass 20 - 40</td>
</tr>
<tr>
<td>Fine Fescue 20 - 40</td>
</tr>
<tr>
<td>Perennial ryegrass 20</td>
</tr>
</tbody>
</table>

**Roughstalk Bluegrass**

*Poa trivialis*

- Stoloniferous
- Not used extensively
- Only special use - shade, wet conditions

**Tall Fescue**

*Festuca arundinacea*

- Popular lawn and sports turf in upper South
- Normally a bunchgrass but can express short rhizomes
- Often grown alone because of wider leaf
- Often found in conservation or roadside mixtures
- An excellent “low input” grass

**Tall Fescue**

Watch out for forage type of tall fescue

**Creeping Bentgrass**
**Bentgrasses**  
*(Agrostis spp.)*  
- Creeping  
- Colonial  
- High maintenance  
- Tolerant to wet conditions  
- Spreading growth pattern (stolons)  
- Requires short mowing  
- Stolons will turn upward if mowed too high

**Creeping Bentgrass**

**Other Lawn Species**

**White clover**  
- Fixes it's on nitrogen  
- Adds variety  
- Attracts bees

**Annual Ryegrass**  
*(Lolium multiflorum)*  
- An annual bunch grass  
- Bigger plant with wider leaves than perennial ryegrass

**Annual Bluegrass**  
*Poa annua*  
- Bunchgrass, erect growth  
- Shallow roots  
- Produces seed in late May and June which germinate in late summer

**Endophyte Enhanced Grass :**  
- Tall fescue  
- Creeping red fescue  
- Chewings fescue  
- Hard fescue  
- Perennial ryegrass
Fungal hyphae grow between plant cells.

**Endophyte Enhanced Grass:**
- Improves persistence and fall recovery
- Reduction in drought stress
- Reduction in disease and nematodes
- Reduction in leaf feeding insects
- Fewer weeds

**Fungal Endophytes**

**Mutualistic Symbiosis**

**Fungal Endophytes and Turfgrass**

**Major Concern**
Avoid endophyte infected grasses in horse pastures, particularly where there are pregnant mares.

**How do I select the best varieties (cultivars) for my lawn?**
- Criteria:
  - Sun, shade, dry, wet, disease, traffic resistant, low growing, color, endophyte enhanced
  - Talk to your seed dealer
  - Check the web

**Kentucky Bluegrass**

**Plant breeding and evaluation efforts:**

NTEP: [http://www.ntep.org/](http://www.ntep.org/)