Integrated Turfgrass Management

Nebraska Extension
Select Adapted Species and Good Performing Cultivars

- Geographic location
- Environmental conditions
- Expectations
- Use
- Intensity of management
- Pest thresholds

Putting the right grass in the right place will reduce future problems and management costs.

Photo: University of Nebraska–Lincoln
Kentucky Bluegrass Adaptation

- Adapted throughout Nebraska, especially western half
- Cool conditions
- Excellent winter tolerance
- Good drought tolerance
- Poor shade tolerance

Photo: University of Nebraska–Lincoln
Kentucky Bluegrass Adaptation

- Good recuperative potential
- Slow to germinate
- Susceptible to summer patch, necrotic ring spot, and white grubs
- High thatch potential

Photo: University of Nebraska–Lincoln
Tall Fescue Adaptation

- Eastern half of Nebraska
- Good high temperature tolerance
- Uses more water than KBG, but has deeper roots and can find water better than KBG
- Adequate shade tolerance

Photo: University of Nebraska–Lincoln
Tall Fescue Adaptation

- Germinates quickly
- Susceptible to brown patch
- Not susceptible to summer patch, necrotic ring spot, and white grubs
- Questionable winter tolerance

Photo: University of Nebraska–Lincoln
Buffalograss Adaptation

- Warm-season grasses (dormant from Oct-May)
- Excellent heat tolerance
- Excellent drought tolerant
- Slow growing
- Reduced management inputs
- Poor shade tolerance

Photo: University of Nebraska–Lincoln
Use Weeds as “Indicators”

- Legumes (white clover, black medic, birdsfoot trefoil), sandbur, and ground ivy may indicate low nitrogen levels.

Photo: University of Nebraska–Lincoln
Use Weeds as “Indicators”

- Algae and moss may indicate excess moisture
- Crabgrass and many other weeds may indicate low mowing heights

Photo: University of Nebraska
Use Weeds as “Indicators”

- Knotweed, goosegrass, and crabgrass may indicate compacted soil
- Ground ivy and violet may indicate excessive shade

Photo: University of Nebraska–Lincoln
Use Diseases as “Indicators”

- Disease presence may be enhanced by:
  - Improper watering practices
  - Low or high nitrogen fertility levels
  - High thatch layers
  - Low mowing
  - Compacted soils/poor drainage

Photos: University of Nebraska—Lincoln
Use Insects as “Indicators”

- Healthy turf can withstand many insect infestations, especially with proper irrigation and thatch management programs.

Photos: University of Nebraska–Lincoln
Management of many pests can be accomplished through proper management practices

- Mowing
- Fertilizing
- Irrigation
- Cultivation
Mowing is the Ultimate Integrated Pest Management (IPM) Tool

Photo: University of Nebraska–Lincoln
Mowing Height Recommendations

- Kentucky bluegrass:
  - Lawns: 3 to 3½ inches
- Buffalograss:
  - Lawns: 3 to 3½ inches
- Tall fescue:
  - Lawns: 3½ to 4 inches
- Lower mowing heights can be used for all species in special situations (sports fields, golf courses), but will require significantly more inputs
Mowing Height and Rooting Depth

Shorter mowing heights result in:

- Decreased rooting
- Increase mowing frequency
- Increased water use
- Increased pest problems
Irrigation Frequency

- Water thoroughly and then don’t water again until signs of drought stress (blueish color, footprinting)
- Water to the depth of the root system
Irrigation Frequency

- Cool-season turfgrasses often exhibit root dieback in the summer
  - So increase frequency and decrease volume
- For low traffic areas allow Kentucky bluegrass to go into summer dormancy
  - Avoid traffic on water-stressed areas
- Seedlings, root damaged areas need frequent shallow irrigation

Photo: University of Nebraska–Lincoln
Irrigation

- Early morning (4-10 a.m.) to reduce leaf wetness and disease incidence
- Water in fertilizer, preemergence herbicides for crabgrass and insecticides for white grubs

Photo: University of Nebraska–Lincoln
Irrigation

- Check automatic systems frequently for accuracy
- Turfgrasses perform better when slightly dry than when too wet (error in the dry side!)

Photo: University of Nebraska–Lincoln
### “Typical” Fertilizer Application Timing and Rate for Lawns

<table>
<thead>
<tr>
<th>Application</th>
<th>Timing</th>
<th>N / 1000 ft²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>April 20-May 10</td>
<td>0.5 - 1.0 lb</td>
</tr>
<tr>
<td>2</td>
<td>June 5 - June 15</td>
<td>0.75 - 1.0 lb</td>
</tr>
<tr>
<td>3</td>
<td>September 1 - September 15</td>
<td>0.75 - 1.0 lb</td>
</tr>
<tr>
<td>4</td>
<td>October 1 - October 15</td>
<td>0.75 - 1.0 lbs</td>
</tr>
</tbody>
</table>

Calendar for cool-season turfs
Rates should be lowered or applications omitted for lower-maintenance turf
Rates may need to be raised for high traffic areas
Application rates can be reduced and application frequency increased depending on the situation
Fertilizer Application Timing

- Avoid high rates (>1.0 lb N/1000) of nitrogen fertilization in Mar-April and June-July
- Slow release N sources should be used from Spring until September
- Fall applications important for recovery from summer stresses, winter survival and to prepare for the next season’s growth
Desired Aerification Timing

- Aerification reduces compaction and thatch, thus improving root growth
- Avoid aerification during high stress periods
- Spring and fall provide optimal growing conditions for aerification on cool-season turfgrasses
Desired Aerification Timing

- 20 to 40 holes/ft² is optimum
- Most important on high traffic areas
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