



Integrated Turfgrass Management

Nebraska Extension



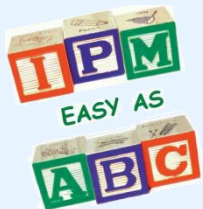
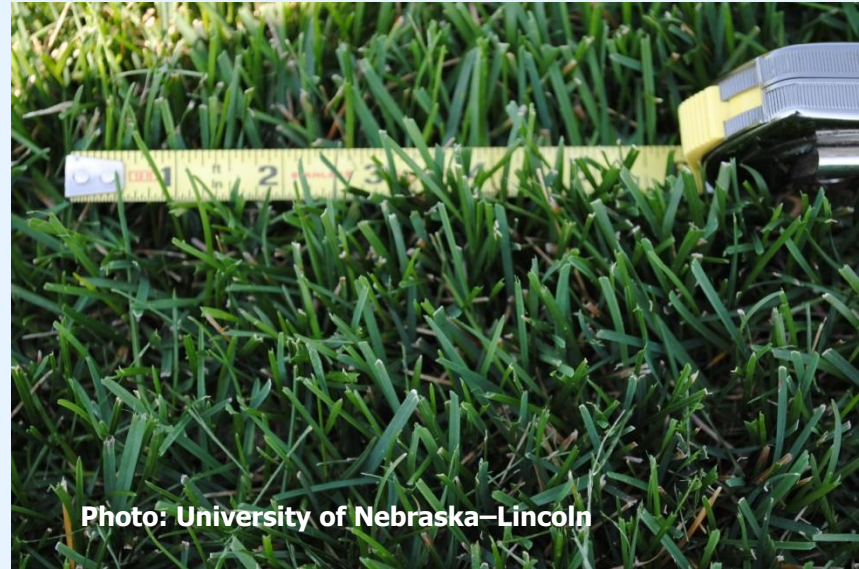
Select Adapted Species and Good Performing Cultivars

- ❖ 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



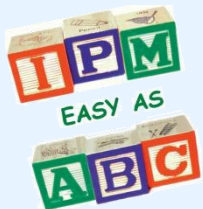
Kentucky Bluegrass Adaptation

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



Kentucky Bluegrass Adaptation

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



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

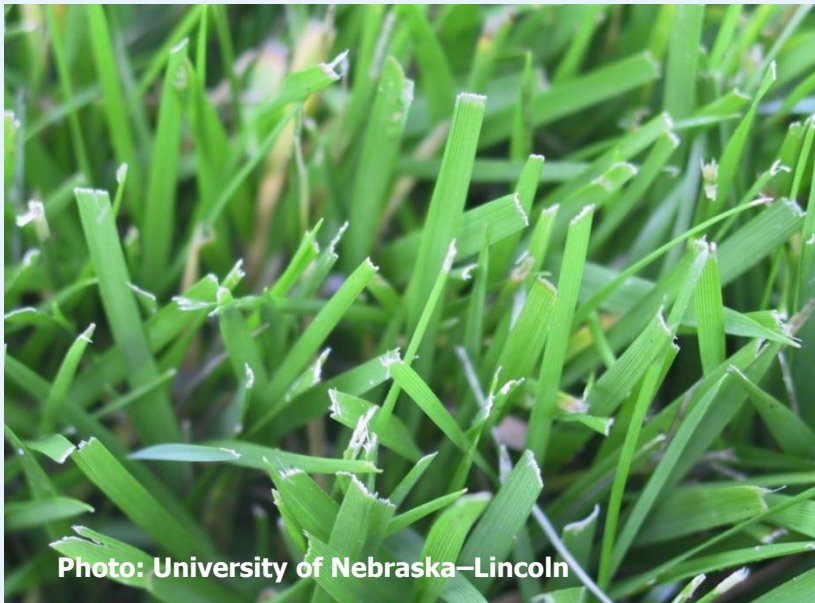
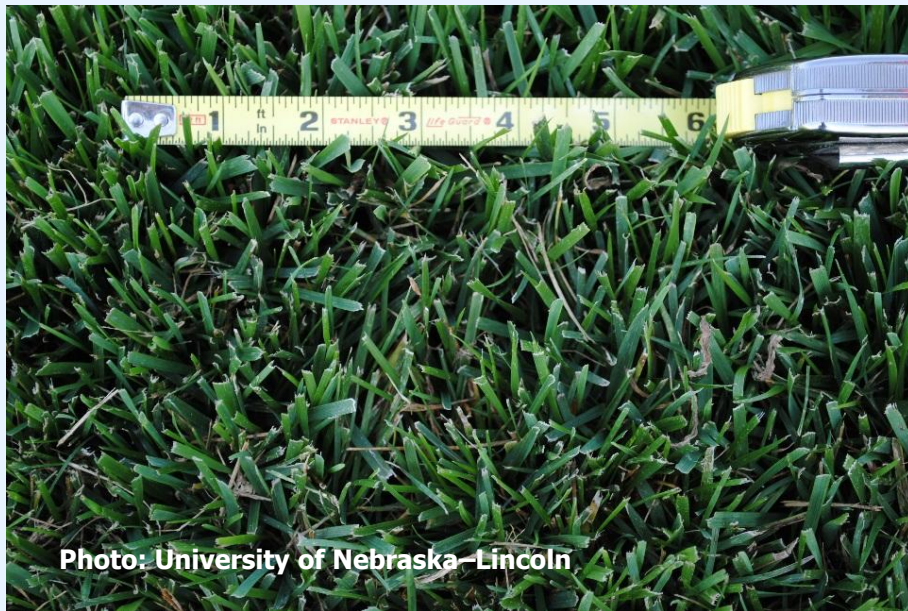


Photo: University of Nebraska–Lincoln



Tall Fescue Adaptation

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



Buffalograss Adaptation

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

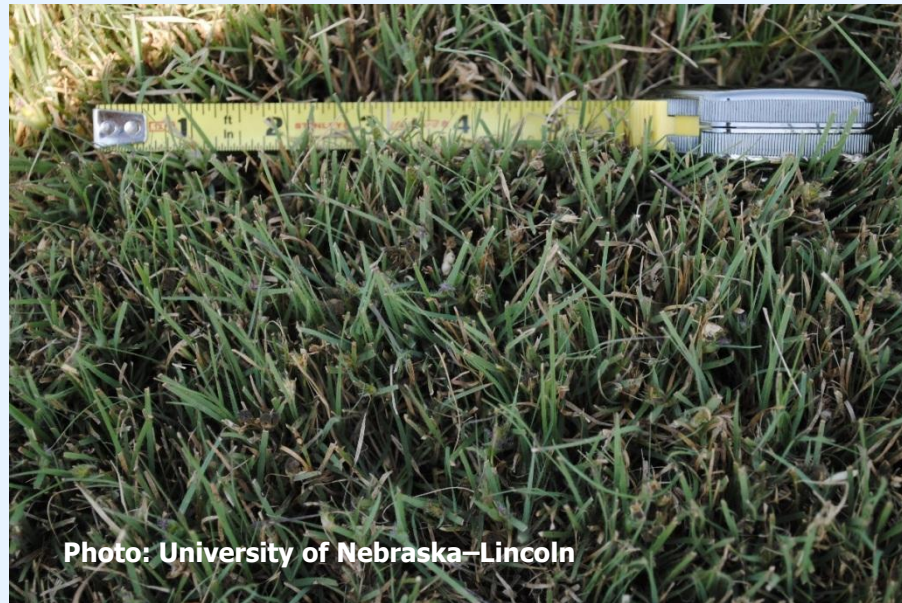


Photo: University of Nebraska–Lincoln



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

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Use Diseases as "Indicators"

Photos: University of Nebraska–Lincoln



❖ Disease presence may be enhanced by:

- Improper watering practices
- Low or high nitrogen fertility levels
- High thatch layers
- Low mowing
- Compacted soils/poor drainage



Use Insects as "Indicators"

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



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

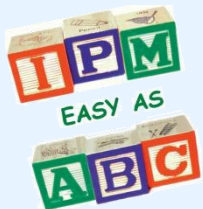
Irrigation

- ❖ 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



Irrigation

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



"Typical" Fertilizer Application Timing and Rate for Lawns

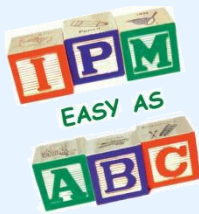
Application	Timing	N / 1000 ft ²
1	April 20-May 10	0.5 - 1.0 lb
2	June 5 - June 15	0.75 - 1.0 lb
3	September 1 - September 15	0.75 - 1.0 lb
4	October 1 - October 15	0.75 - 1.0 lbs

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



Photo: University of Nebraska–Lincoln



Credits

❖ Content Specialist

- Zac Reicher, Nebraska Extension
- Anne Streich, Nebraska Extension
- Robert Shearman, Nebraska Extension
Professor Emeritus
- Roch Gaussoin, Nebraska Extension

❖ Content Editor

- Erin Bauer, Nebraska Extension

❖ Photos

- Zac Reicher, Nebraska Extension



Credits

❖ Photos cont.

- Anne Streich, Nebraska Extension
- Robert Shearman, John Watkins, Don Steinegger, Nebraska Extension Professors Emeriti
- Roch Gaussoin, Nebraska Extension
- Department of Entomology, University of Nebraska-Lincoln



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