


Pasture Grazing Management for Cow/Calf Producers

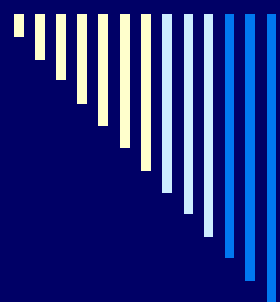
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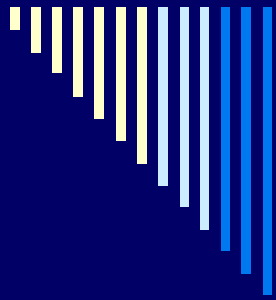
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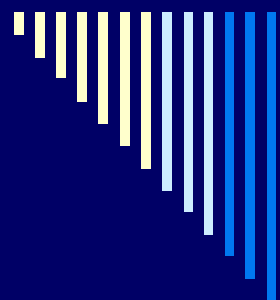


Why improve pasture management?

- ❑ Feed costs represent over 50% of cost of production
- ❑ Pasture is low cost
- ❑ Grazed forage has higher quality than stored forage
- ❑ Potential to improve productivity
 - Performance per head
 - Output per acre
- ❑ Potential to extend grazing season

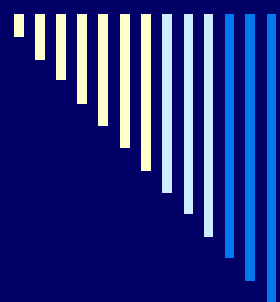


**Every additional day
of grazing
reduces cost by $2/3$!**



Pasture Management

- Soil fertility
 - Grazing management
 - Renovation
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Soil fertility

- Plant parts function as a system; so if one part is limited by nutrient deficiency, the whole system is limited

- Soil tests are essential, at least to start

- Fertilizer Recommendations for Agronomic Crops in Minnesota
 - MN Ext : BU06240



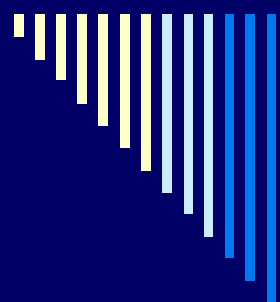
Soil sampling

- Collect a “representative” sample
 - Minimum of 10 cores
 - Sampling depth of 0 to 6 inches
 - Areas to avoid
 - Near permanent water sites
 - Beneath shade trees
 - Request the “Regular Series” test
 - Soil pH, organic matter, phosphorus and potassium
-



Nitrogen (N)

- Primary role is growing plant tops
 - Forage for grazing livestock
 - Energy for root growth
 - Split application most beneficial
 - Fertilizer N is water soluble and subject to de-nitrification
 - 40 to 80 lb/acre per application
 - 40 lb/acre: spring, mid June, mid August
 - Grass/legume mixtures: 60 lb/acre/year
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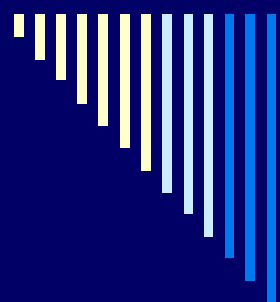
Phosphorous and Potassium (P and K)

- Important for winter hardiness and root growth (especially legumes)
- Plant requirements for P and K are different; soil sampling saves \$\$\$
 - Annual P rates range from 0 to 70 lb/acre/year
 - Annual K rates range from 0 to 230 lb/acre/year
- All P and K can be spring applied



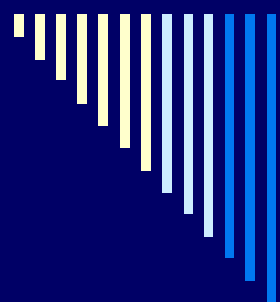
Fertilizer application timing

- Apply fertilizer in early spring
 - Majority of plant growth takes place in May and June
 - At least 40-80 lb/acre of N
 - All of P and K
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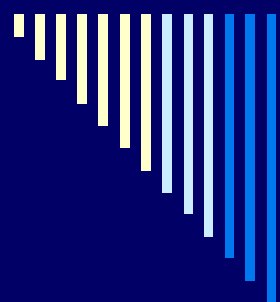
Grazing management

- Cattle graze about 8 hours per day
 - Time spent grazing is about the same regardless of pasture yield or quality
 - It is critical to supply adequate quantity and quality of forage



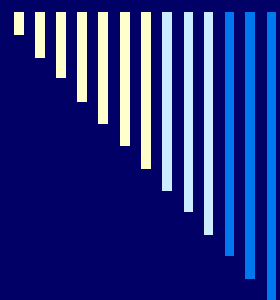
Grazing management

- Half of the pasture is beneath the soil (the roots)
 - When plant tops get shorter, the roots get shorter
 - Shorter roots are less able to extract nutrients and moisture from the soil
- Leaves remaining after grazing provide primary fuel for regrowth



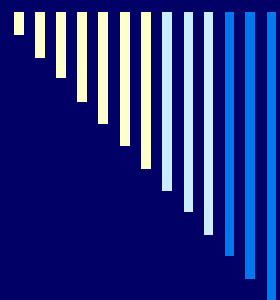
Grazing management

- Two basic styles of grazing management
- Continuous
 - Put cattle on a pasture and leave them there until no forage is left
- Rotational
 - Can be many different things
 - 2 pastures: moving cattle back and forth
 - Several flexible pastures and rotating cattle based on forage production



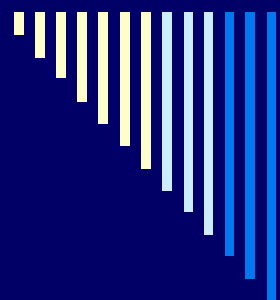
Benefits of Rotational Grazing

- Pasture productivity improved
 - Plants get a rest period to recuperate
- Cattle offered more consistent quantities of higher quality forage
- More uniform defoliation; less waste



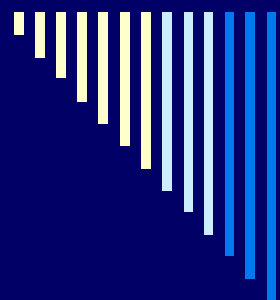
Rotational grazing

- A simple rotational system can be an improvement over continuous grazing
- For beef producers:
 - A 5 paddock system a good place to start
 - Graze a paddock for 1 week; rest it for 4 weeks



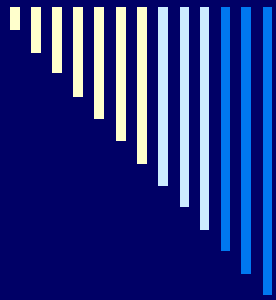
Grazing Management Targets

- Graze each pasture no more than 7 days
- Rest periods
 - 2-3 weeks in spring
 - 4-8 weeks in summer



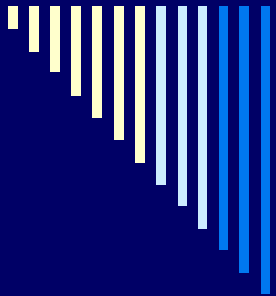
Target Grazing Heights

<u>Forage</u>	<u>Turn-in (in.)</u>	<u>Out (in.)</u>
Tall grass-legume (eg. brome-alfalfa)	8-10	3-4
Bluegrass-white clover	4-6	2
Orchardgrass- legume	6-10	2-3

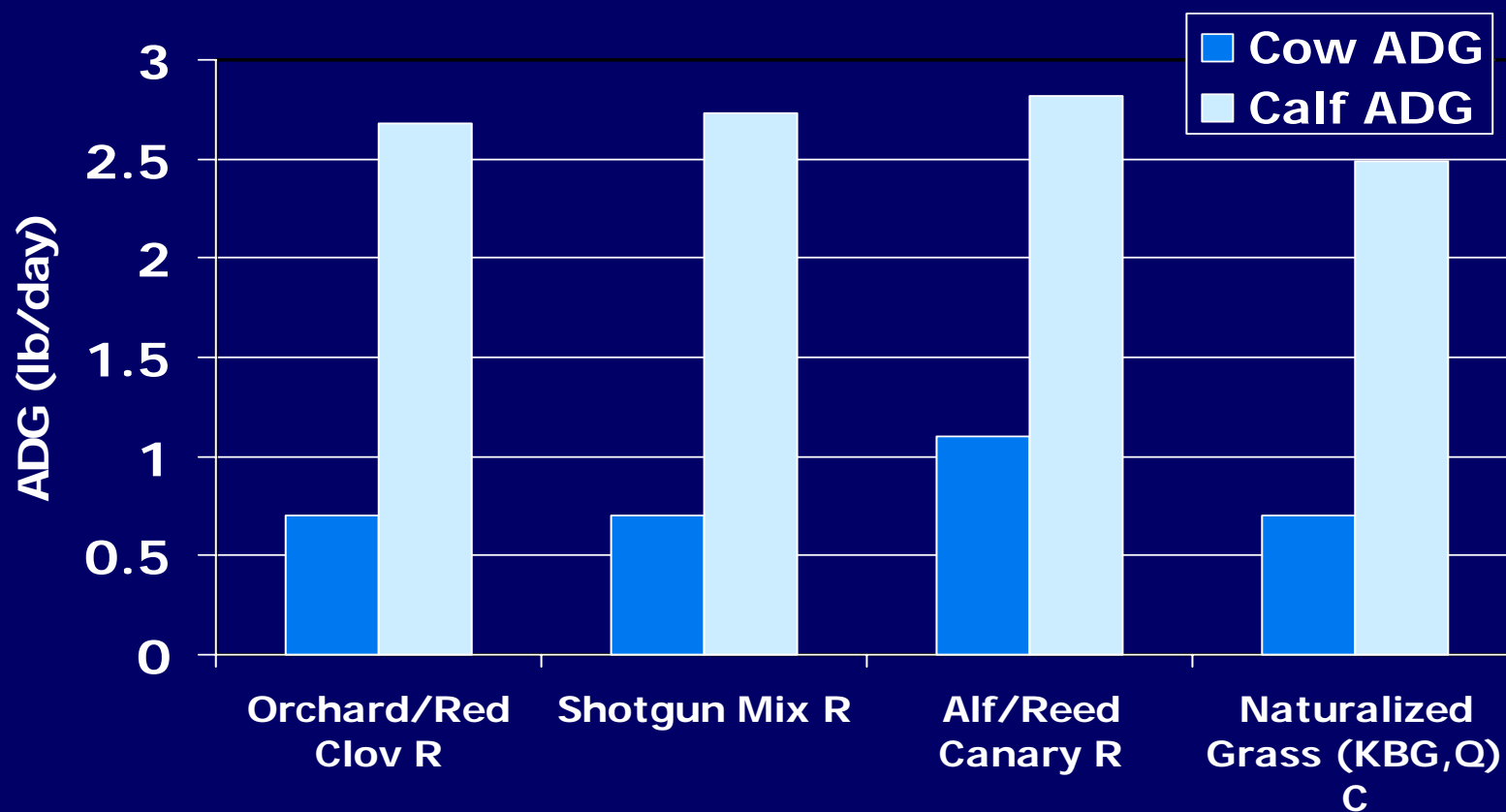


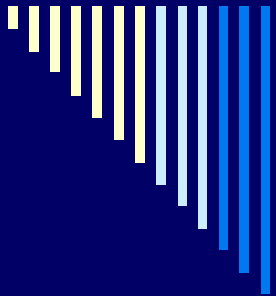
2005 on-farm trial

Description	Continuous Grazing 87 days	Rotational Grazing 87 days	Rotational Grazing 143 days
Number of Cow-Calf Pairs	80	20	20
Number of Acres	400	41.5	41.5
Number of Acres/Cow-Calf Pair	5	2.1	2.1
Days on Pasture	87	87	143
Beginning Average Cow Body Weight	1211.50	1208.6	1208.6
Ending Average Cow Body Weight	1282.00	1311.75	1391.50
Average Body Weight Gain (87 days)	70.5 lbs	103.15 lbs	182.9
Average Daily Gain (lb/hd/day)	0.81	1.19	1.28
Beginning Average body Condition Score	5.08	5.18	5.18
Ending Average Body Condition Score	5.25	5.63	5.85
Average BCS (87 days)	0.18	0.45	0.675

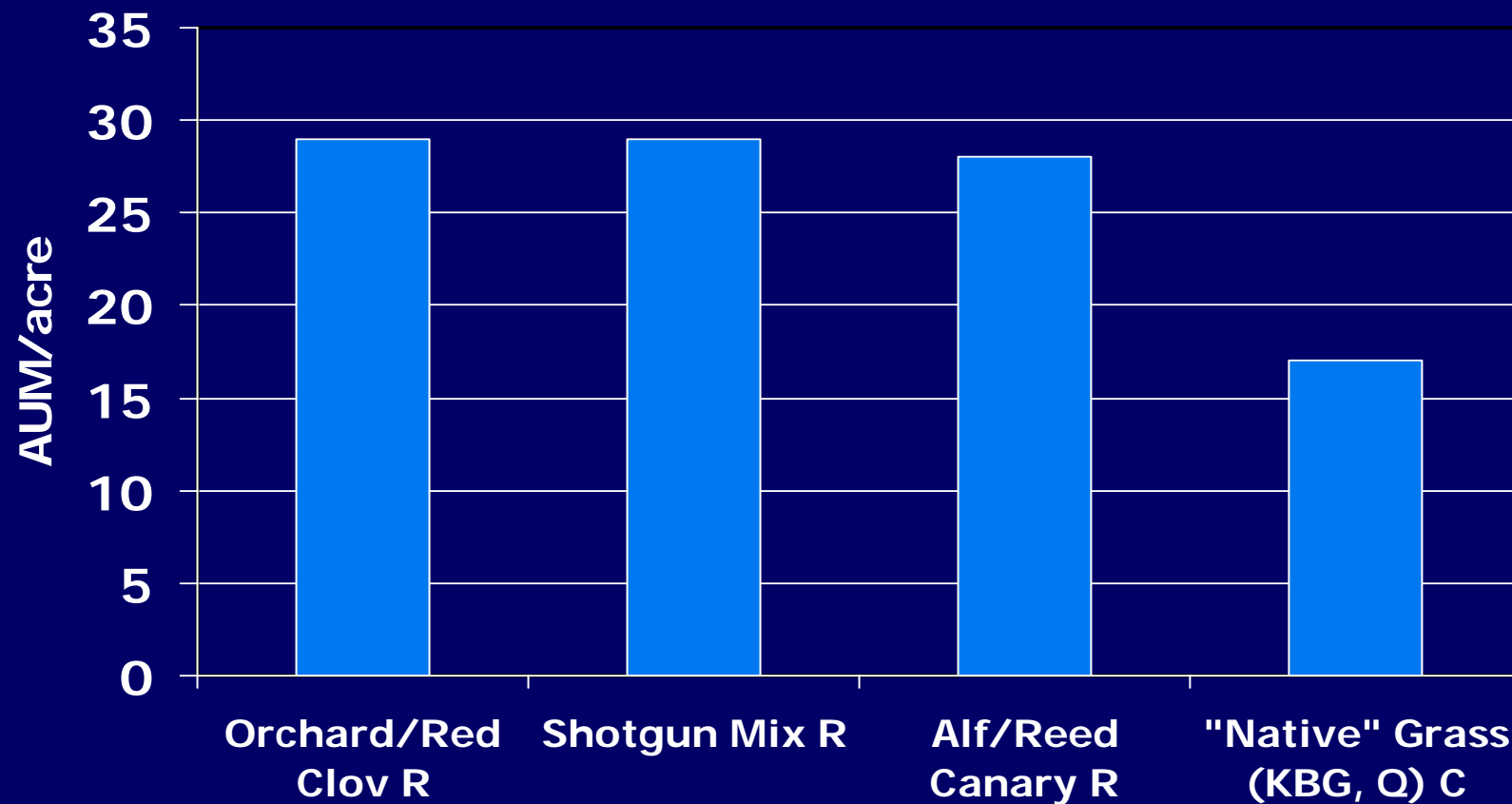


Cow-Calf Performance at Grand Rapids, MN (avg. 3 yrs, Brown et al., 2002)





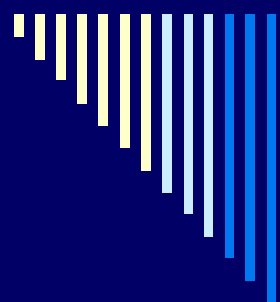
Carrying Capacity (AUM/acre) of Cow-Calf Pasture Systems at Grand Rapids, MN (avg. 3 yrs, Brown et al., 2002)





Managing the Spring Flush

- ❑ Season of greatest opportunity in controlled rotational grazing
 - ❑ Pasture growth outpaces herd demand
 - ❑ Increase stocking rate
 - ❑ Rotate more rapidly
 - ❑ Hay some paddocks
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Pasture renovation

- Forage stands decline in productivity over time
 - Especially legumes
 - ND research shows grasses do also
- Pasture productivity can be increased with improved varieties of adapted species



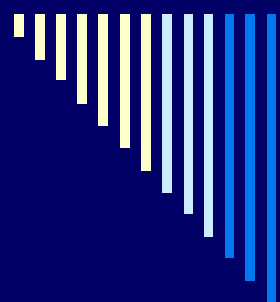
Pasture Species: UFF DA! Too Many Options!





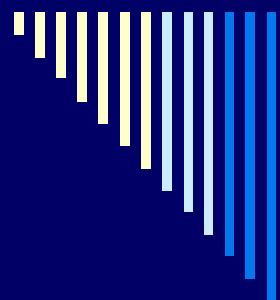
Pasture renovation

- 1 or 2 grasses with a legume
 - More even seasonal yield distribution
 - Reduced chance of bloat
 - Choose improved varieties adapted to the site
 - Minnesota Varietal Trials Results
 - Pastures for profit: A guide to rotational grazing
 - Available through U of M Extension
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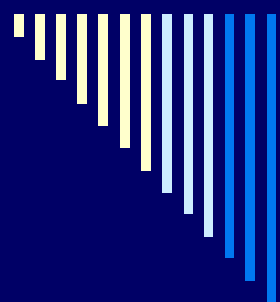
There Is No “Silver Bullet” Pasture Plant

- Sod-forming grass as base, especially on wetter soils
 - *Smooth bromegrass, reed canarygrass, Kentucky bluegrass, tall fescue*
- Use bunch grass(es) in combination with sod-forming grass
 - *Orchardgrass, timothy*
- Legumes fix N, improve quality, and increase summer production



Legume/grass mixtures

- Research at U of M in Grand Rapids
 - Alfalfa/reed canarygrass
 - Compatible maturity and vigor
 - Shorter breeding season
 - Improved nutrition
 - Red clover/orchardgrass
 - Compatible maturity and vigor



Additional species

□ Grasses

■ Tall fescue

- Similar yield to familiar grasses
- Stays productive in fall
- Fine-leaved varieties available
- Endophyte free and “friendly” varieties
- Siene and Barolex



Additional species

□ Grasses

■ Festulolium

- Tall fescue x perennial ryegrass
 - Yield and persistence of tall fescue
 - Forage quality of perennial ryegrass
 - Performed well for 2 years at Grand Rapids
 - Hykor
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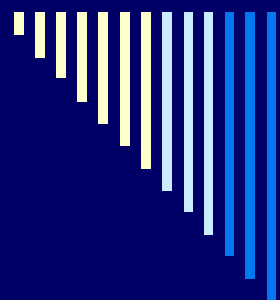
Perennial Ryegrass

PROs

- ❑ Rapid regrowth
- ❑ Leafy (highest quality grass)
- ❑ High palatability when vegetative
- ❑ High seedling vigor/easy to establish

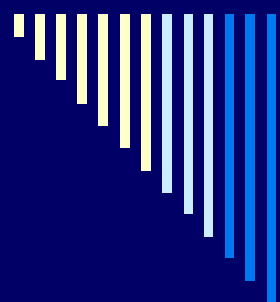
CONs

- ❑ Marginal winter hardiness
- ❑ Limited heat/drought tolerance
- ❑ Rust susceptibility



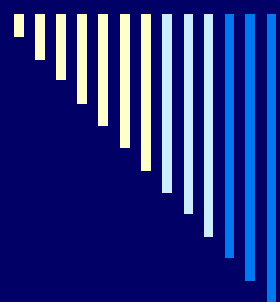
Additional species

- Kura clover
 - Most persistent legume
 - Difficult to establish
 - Improved varieties available
 - Endura
 - Cossack



Pasture establishment

- Conventional tillage is best bet
 - Permits a firm seedbed
 - Permits liming if desired/needed
 - Companion crop allows establishment year grazing
 - Annual/Italian ryegrass @ 4-6 lb/a
 - Used at U of M in Grand Rapids in 2005
 - Pleased with results



Pasture establishment

□ Interseeding

- Can be a “crapshoot”
 - Sod competition for light, water
- Works best with grass suppression and species with vigorous seedlings
 - Red clover
 - Orchardgrass
 - ryegrass