Pasture Production & Diversity
Production Options

- Multiple plant species
- Legumes
- Weed control
LIMITATIONS: COOL-SEASON GRASSES

- low summer production
- low summer forage quality
- excessive (?) spring growth
- less reliable fall production
WARM-SEASON GRASSES

Forage Supply

Warm-Season Grasses

April  May  June  July  Aug  Sept  Oct  Nov
LIMITATIONS: WARM-SEASON GRASSES

- short growing season
- grazing management more challenging
- vigor requirements

Growth periods of cool- and warm-season plants
Daily gain 24% ↑
Carrying capacity 38% ↑

Make a Good Thing Better
Add Legumes!
Legumes

- No N needed
- Improve animal performance
- Challenge to establish

Mead Grazing Study

Brome pastures
Sod-seeded in 1995
Brome + 50 lbs N
Brome + legume
Grazed 1997 – 2001
### Mead Grazing Study

<table>
<thead>
<tr>
<th>ADG</th>
<th>Brome + N</th>
<th>Brome + legume</th>
</tr>
</thead>
<tbody>
<tr>
<td>First half</td>
<td>1.64</td>
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</tr>
<tr>
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# Mead Grazing Study

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<td>1.20</td>
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</tr>
<tr>
<td><strong>Full season</strong></td>
<td>1.42</td>
<td>1.81</td>
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## Profits?
- 0.39 lbs/day for 144 days
- 56 lbs/head
- 1.1 acres/head
- 51 lbs/acre
- $25 more/acre @ 50 cents/lb
- 50 lbs N/acre @ 60 cents/lb
- $30/acre saved

TOTAL = $55 per acre
Establishment into Existing Grass Sod

HOW?
Sod – seeding “Basics”

- Fertilize for the legume

- Seed into soil
Drilled

Broadcast

Sod – seeding “Basics”

- Fertilize for the legume
- Seed into soil
- Control sod competition
Overgraze !!!

Suppress sod
What is a ‘weed’?
--- not eaten by animal
--- contains anti-quality components

Limited problem
• Annual grasses
  foxtails, crabgrass, barnyardgrass
Limited problem

- Annual grasses
  foxtails, crabgrass, barnyardgrass

- Annual broadleaves
  velvetleaf, sunflower, pigweed, kochia

Management Strategy

- Young plants often grazed
- Minimize grazing stress to desired plants
- Spray or clip to limit seed production **only** if needed
Major problem

- Noxious
  - Leafy spurge, thistles
- Poorly grazed perennials
  - Western ragweed, ironweed, vervain
- Brush and trees
  - Cedar, locust, osage orange, buck brush

Tools for control

- Burning
Tools for control

- Burning
- Grazing

Tools for control

- Burning
- Grazing
- Herbicides
The best method of long-term grassland weed control is good grassland management, which includes maintaining healthy, vigorous, competitive grasses.
Grass or Weeds
It’s Your Choice

Production Options
- Multiple plant species
- Legumes
- Weed control
Without good **grazing management**, all production improvements will be wasted.
Grazing Management

Control of:

-- harvest efficiency
-- plant vigor
-- forage quality
Leaves must first feed the plant before the plant feeds the animal

<table>
<thead>
<tr>
<th>Abundant leaves</th>
<th>rapid growth</th>
<th>strengthen roots</th>
<th>increase forage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Few leaves</td>
<td>slow growth</td>
<td>weaken roots</td>
<td>less forage</td>
</tr>
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</table>
TIME CONTROL IS THE KEY TO EFFECTIVE PASTURE MANAGEMENT
“Controlled” Grazing

- Two or more pastures
- Periods of grazing or recovery
- Maintain grass stands
- Increase production
Intensive grazing does not mean short grazing.

Using average stubble height as a guide for paddock moves.
Effect of stubble height on cumulative herbage yield of 3 irrigated, cool-season grasses.

Effect of clipping stubble height on cumulative herbage yield of irrigated meadow brome, creeping foxtail, and smooth brome, North Platte, 2002

<table>
<thead>
<tr>
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<th>Meadow Brome</th>
<th>Creeping Foxtail</th>
<th>Smooth Brome</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5000</td>
<td>6000</td>
<td>7000</td>
</tr>
<tr>
<td>6</td>
<td>7000</td>
<td>8000</td>
<td>9000</td>
</tr>
<tr>
<td>9</td>
<td>9000</td>
<td>10000</td>
<td>11000</td>
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Effect of stubble height on fall tiller density of 3 irrigated, cool-season grasses.

Effect of clipping stubble height on fall tiller density of irrigated meadow brome, creeping foxtail, and smooth brome, North Platte, 2002

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<td>50</td>
<td>100</td>
<td>150</td>
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<tr>
<td>6</td>
<td>150</td>
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<td>250</td>
</tr>
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<td>9</td>
<td>200</td>
<td>250</td>
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Meadow Brome
Creeping Foxtail
Smooth Brome
Meadow Brome:
Tiller density under 3” stubble height treatment.

Meadow Brome:
Tiller density under 6” stubble height treatment.
Intensive grazing means intensive management

Grazing Strategies
Rotational Grazing

- planned sequence
- root nutrient reserves and plant vigor renewed during recovery period
- increased forage production
- improved grazing distribution
- greater animal performance
Strip Grazing

- short-term grazing of small area
- frequent, fresh forage
- increase utilization & reduce selection
- back fence optional; depends on need for recovery after grazing
- most common when grazing stockpiled or annual forages
Mob Grazing

- large number of animals
- ultra-high stock density
- very short grazing period
- remaining vegetation trampled
- extra long recovery periods
Creep Grazing

- small area of higher quality forage; often annual or legume based
- younger animal access via creep gate or fence placement
- increased calf gain
- reduced cow energy requirement
Forward Grazing

- two separate groups of livestock
- one grazes a paddock directly after the other
- first group selectively grazes the more nutritious forage
- second group grazes lower quality forage
Grazing Methods

Which method should you use?

All of them!
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