Grazing Management Effects on Pasture Growth: Risks and Rewards

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Introduction

• Clipping vs. Grazing – why they’re different.
• How we conducted this research.
• Results – just the facts.
• Implications – what does it mean to you?
Clipping vs. Grazing

- Clipping is cheaper, faster, easier, and less variable than grazing.
Clipping vs. Grazing

• In theory, defoliating grass with a blade or an animal’s mouth should be the same.
Clipping vs. Grazing
Nutrient equivalent of manure and urine

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Equivalent rate (lb/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>900 800</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>250 10</td>
</tr>
<tr>
<td>Potassium</td>
<td>350 650</td>
</tr>
<tr>
<td>Sulfur</td>
<td>100 50</td>
</tr>
<tr>
<td>Calcium</td>
<td>650 10</td>
</tr>
<tr>
<td>Magnesium</td>
<td>200 10</td>
</tr>
</tbody>
</table>
• How we conducted this research.

meadow fescue    MDF
orchardgrass    OGR
quackgrass    QGR
reed canarygrass    RCG
Research site at Prairie du Sac
Heifers grazing vegetative grass
Heifers grazing mature grass
Before and after each grazing event
At the end of the grazing season
Precipitation (in.)
Average annual grazed yield (lb DM/acre)
Results for vegetative grass
Annual grazed yield (lb DM/acre) @ vegetative stage

MDF  OGR  QGR  RCG

Residue

- 1
- 3
- 6

Bar chart showing the annual grazed yield for different residues at the vegetative stage.
Yield distribution of orchardgrass @ vegetative stage

Grass grazed (lb/acre)

May
Jun
Jul
Aug
Sep
Oct

Residue (in.)

1
3
6
Digestibility of orchardgrass @ vegetative stage

![Graph showing digestibility of orchardgrass at different stages and months.](image)
Persistence (tillers/ft$^2$) @ vegetative stage in 2009

- MDF
- OGR
- QGR
- RCG

Residue
- 1
- 3
- 6

Legend:
- a
- b

Graph showing the persistence of tillers at different stages with MDF, OGR, QGR, and RCG.
Persistence (tillers/ft$^2$) @ vegetative stage in 2010
Orchardgrass in November, 2009

6 in. residue

3 in. residue

1 in. residue

Date when grazing began in 2010

April 28

May 4

May 11
Grazing vegetative grass:

1) There is no annual yield reward for grazing lower than 3 inches, but there is risk of killing grass and delaying growth the following spring.
   • Reducing residue height for even one grazing event can reduce future productivity.

2) *Take half – leave half* management reduces annual yield; the rewards are shorter rotation intervals and earlier grazing in the spring.

3) Forage quality is relatively unaffected by residue height.
Results for mature grass
Annual grazed yield (lb DM/acre) @ mature stage
Yield distribution of orchardgrass @ mature stage

![Graph showing yield distribution of orchardgrass with residue levels in inches.]

- **May**: Residue 2 in., 2000 lb/acre grazed.
- **June**: Residue 5 in., 55 lb/acre grazed.
- **July**: Residue 10 in., 80 lb/acre grazed.
- **August**: Residue 2 in., 60 lb/acre grazed.
- **September**: Residue 5 in., 55 lb/acre grazed.
- **October**: Residue 2 in., 1000 lb/acre grazed.
Digestibility of orchardgrass @ mature stage

![Graph showing the digestibility of orchardgrass at different stages, with residue levels of 2, 5, and 10 inches. The graph plots the digestibility percentage against months from May to October.]
Persistence (tillers/ft²) @ mature stage in 2009

MDF: a a a
OGR: a a a
QGR: c b a
RCG: b a a

Residue:
- 2
- 5
- 10
Persistence (tillers/ft$^2$) @ mature stage in 2010
Grazing mature grass:

1) Annual yield is increased by grazing lower than 5 inches, but there is risk of delaying growth the following spring.
   - Rhizomatous grasses may be more sensitive to residue height than bunch grasses.

2) Because grass is mature and livestock are generally not forced to graze closely, there is:
   - no reward for leaving a tall residue.
   - little risk of damaging pasture when mob stocking.
Surface litter at end of season (lb/acre)
The Bottom Line:

✓ Grass at **vegetative stage** of maturity is at greater risk of damage from poor grazing management than mature grass.

✓ Grass under **stress** (moisture, fertility) is at greater risk of damage from poor grazing management than healthy grass.