Forage Production in RWB Wetlands

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Why cattle grazing?

Economic and ecological benefits
• Dual use landscapes
• Reduce incentives to drain wetlands
• Reduce abundance or impacts of invasive species
• Create favorable conditions for annual plants
• Create open space for waterfowl use

But...

There are potential negative consequences of cattle grazing. Decisions about grazing should take into concern management goals and possible tradeoffs.
Vegetation types

Moist-soil, generally on mudflats, annuals and small perennials

Cattails, perennials, generally in areas with standing water

River Bulrush, perennials, generally in areas with standing water

Reed canarygrass, perennials, like wet feet but not too much standing water

https://en.wikipedia.org/wiki/Scirpus
Methods

► 3 ungrazed sites in eastern RWB
  ► WRP near Utica
  ► Gadwall WMA
  ► Smartweed Marsh West WMA

► 2015, 2016, 2017 growing seasons (May to the following April)

► Moist-soil, cattail, river bulrush, and reed canarygrass communities

► Plant material (live and dead) cut at either 4” above ground level or at water level, whichever was higher

► Forage samples analyzed for %N (protein) and IVDMD (digestibility, results not available)
Methods

► Treatments representative of regional grazing scenarios
  ► One-time harvests in May, July, September, and April
  ► Two repeat harvest treatments (May+Sept, May+July+Sept)

► Mid May (vigorous early growth)
  ► Typical time cattle currently moved onto public wetlands

► Late July (vigorous mid-season growth, reproduction in progress)
  ► Transition between cool and warm season pasture, or continuous grazing

► Late September (many plants starting to senesce)
  ► Fill gap between summer pasture and grazing stubble, reduce standing biomass

► Mid April (mostly dormant)
  ► Fill gap between grazing stubble and cool season pasture, reduce standing biomass
Average peak growing season biomass of cattails, river bulrush, and reed canarygrass
Biomass (live + dead) harvested during May-July-Sept repeat sampling

Moist Soil
River bulrush
Cattail
Reed canarygrass

Mostly regrowth

Biomass (lb/ac DM)
Biomass (live + dead) harvested during May-July-Sept repeat sampling

- Moist Soil
- River bulrush
- Cattail
- Reed canarygrass

Graph showing biomass data over time for different species.
Biomass (live + dead) harvested during May-Sept harvests

- May: Moist Soil, River bulrush, Cattail, Reed canarygrass
- July: Mostly regrowth
- September: Moist Soil, River bulrush, Cattail, Reed canarygrass
Biomass (live + dead) harvested during May-Sept harvests

Moist Soil  River bulrush  Cattail  Reed canarygrass

MS cumulative  RB cumulative  Ct cumulative  RCG cumulative
Comparing total harvested biomass by treatment

- **July Only (greatest one-time harvest)**
- **May + September**
- **May + July + September**

**Biomass (lb/ac DM)**

- **Moist Soil**
- **River bulrush**
- **Cattail**
- **Reed canarygrass**
Biomass thoughts

• No recent grazing plus harvesting both live and dead material = high biomass estimates

• Be aware of timing of regrowth to avoid a late season shortage

• For grazing plan, estimate % moist soil and % aggressive perennials

• Moist soil vegetation averaged 3,000-4,000 lb/ac regardless of treatment

• Cattails, river bulrush, and reed canarygrass averaged 9,000-12,000 lb/ac
Forage Quality:
Crude protein results from 2015 and 2016
Crude protein (live + dead) in one-time harvests

- Absolute minimum crude protein needed for cattle needs often higher

- Moist soil
- River bulrush
- Cattail
- Reed canarygrass
Crude protein (live + dead) in one-time harvests

- Common pattern: declining % CP over time. 
- Except: RCG increases in April. Explanation on next slide...
Moist soil, river bulrush, and cattails in April

Reed canarygrass in April
Crude protein (live + dead) in May-July-Sept repeat harvests

- **April**: Moist soil - River bulrush - Cattail - Reed canarygrass
- **May**: Moist soil - River bulrush - Cattail - Reed canarygrass
- **July**: Moist soil - River bulrush - Cattail - Reed canarygrass
- **September**: Moist soil - River bulrush - Cattail - Reed canarygrass

Legend:
- Moist soil
- River bulrush
- Cattail
- Reed canarygrass

Note: The data indicates mostly regrowth in May, July, and September.
Cattail crude protein example
## Variation in cattail nutrition

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Vegetative state</th>
<th>% CP</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>RWB</td>
<td>Mostly dormant</td>
<td>3%</td>
<td>Hillhouse and Anderson</td>
</tr>
<tr>
<td>Mid May</td>
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<td>Vegetative (as eaten)</td>
<td>25%</td>
<td>Drahota</td>
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<td>SD</td>
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Drahota, Jeff. 2005. Presentation at the Nebraska Grazing Conference

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Lower numbers generally include whole plant, including dead leaves etc. Higher numbers generally indicate the quality of forage that cattle are likely to select for.

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Final thoughts

• Biomass estimation: Best case scenario, but depends on vegetation type
• Crude protein evaluation: worst case scenario, and it’s usually enough
• Both quality and quantity of forage varies with season and previous within-season grazing

• “Knowledgeable” cattle can help you get the most out of wetland grazing
• Grazing DOES have impacts on wetlands beyond growing cattle- consider goals carefully before implementing grazing in wetlands
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