



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



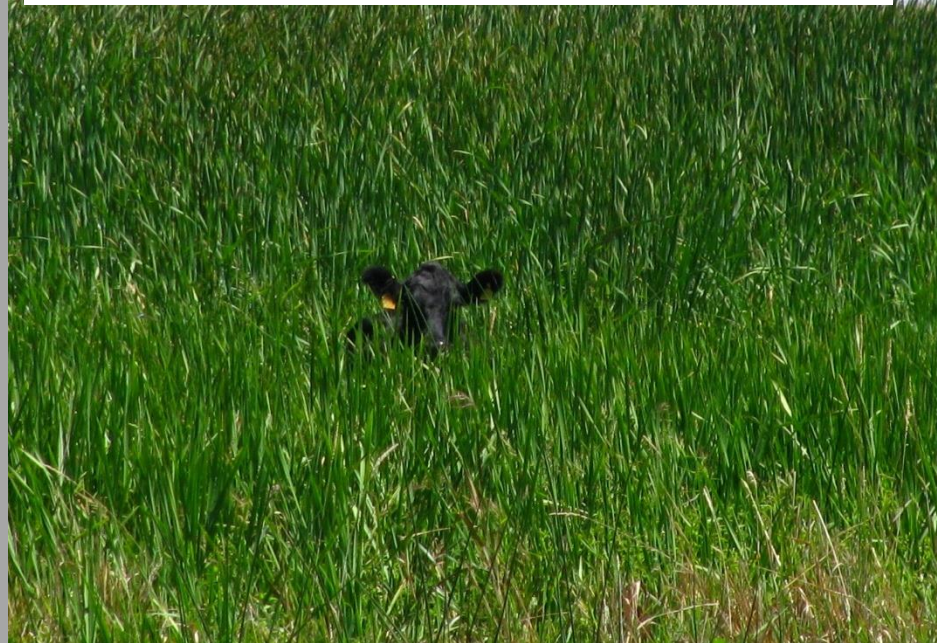
But...

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

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

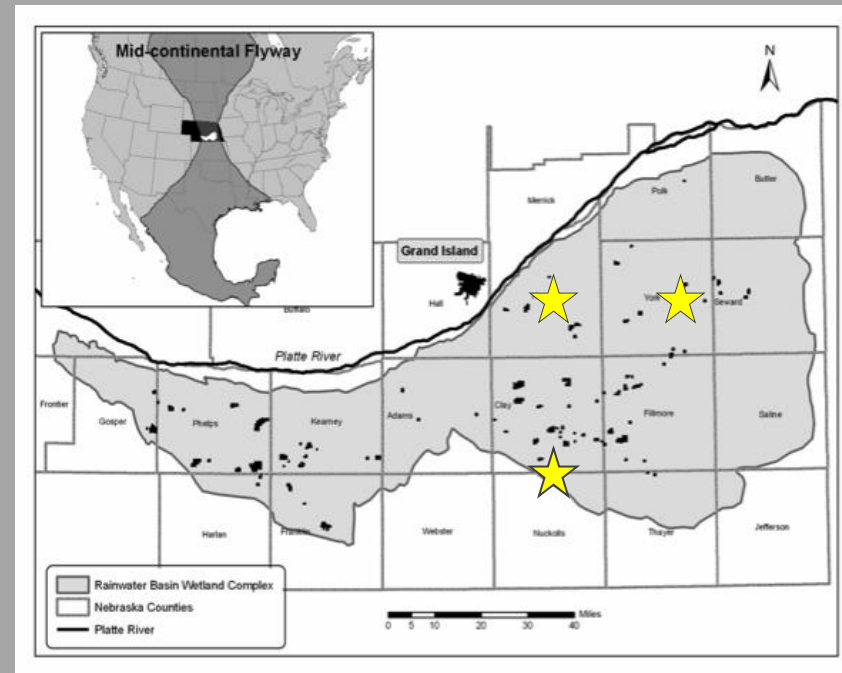


Reed canarygrass, perennials, like wet feet but not too much standing water



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)

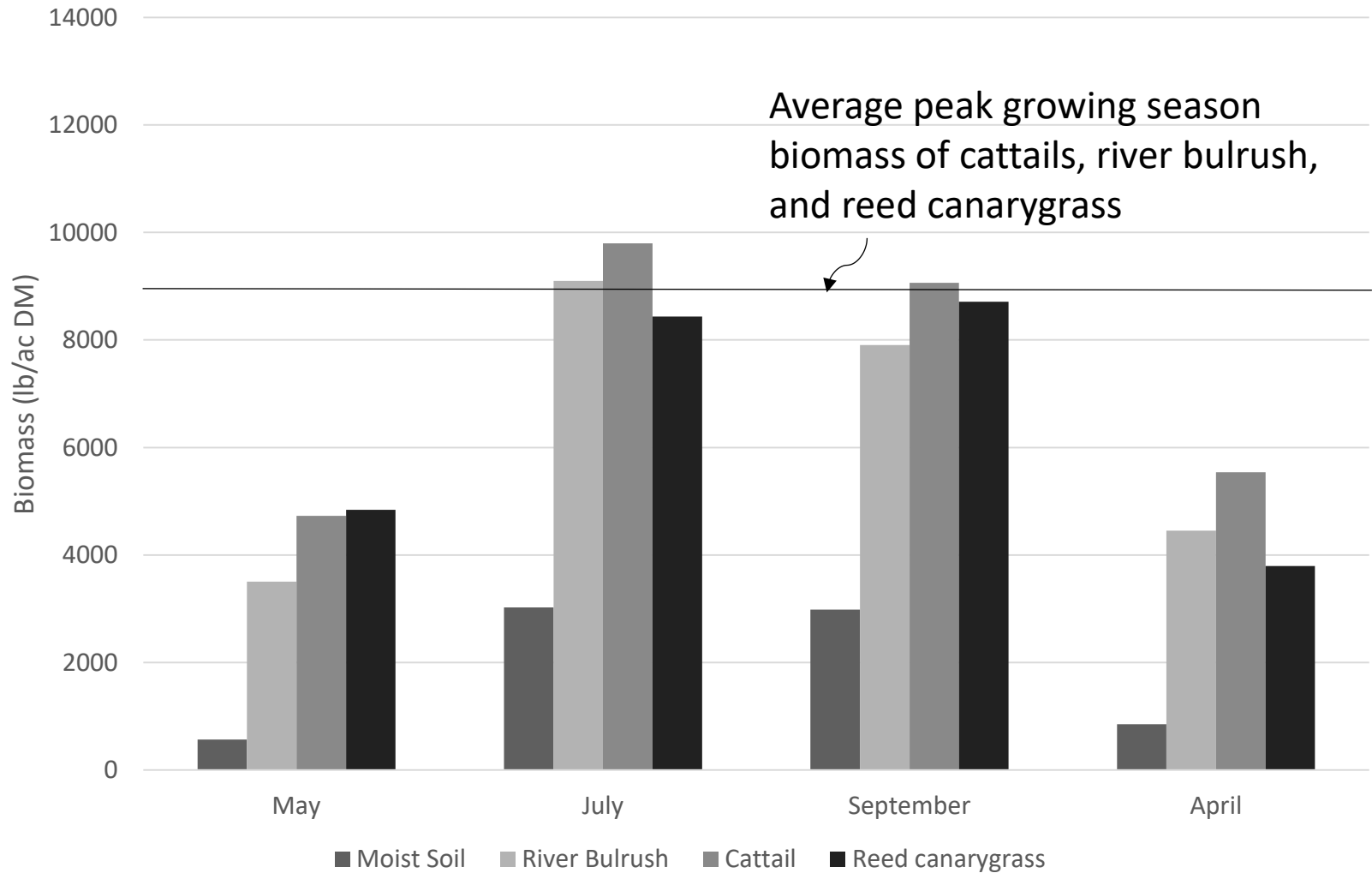
- ▶ Mid May (vigorous early growth)
 - ▶ Typical time cattle currently moved onto public wetlands

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

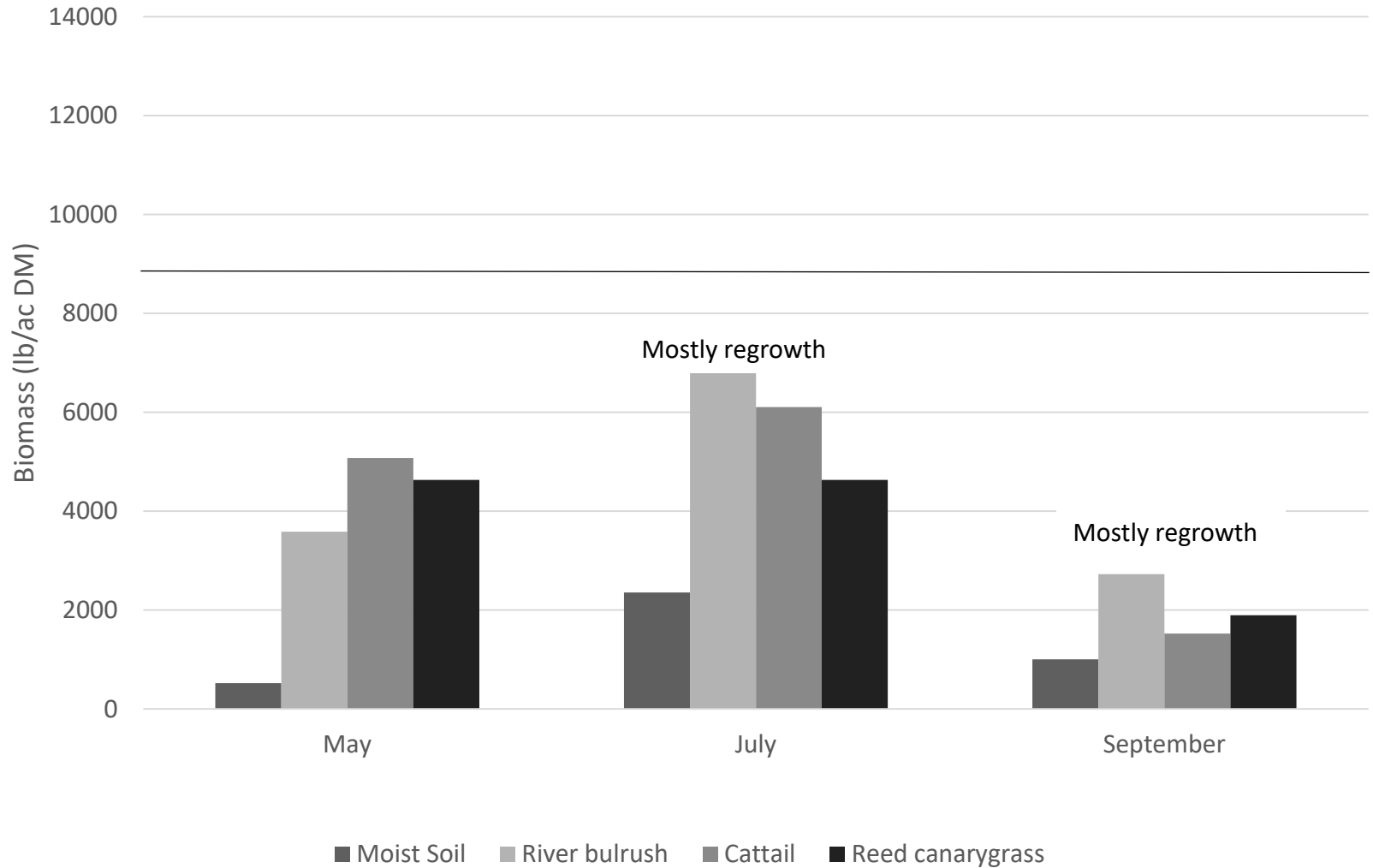
- ▶ Late September (many plants starting to senesce)
 - ▶ Fill gap between summer pasture and grazing stubble, reduce standing biomass

- ▶ Mid April (mostly dormant)
 - ▶ Fill gap between grazing stubble and cool season pasture, reduce standing biomass

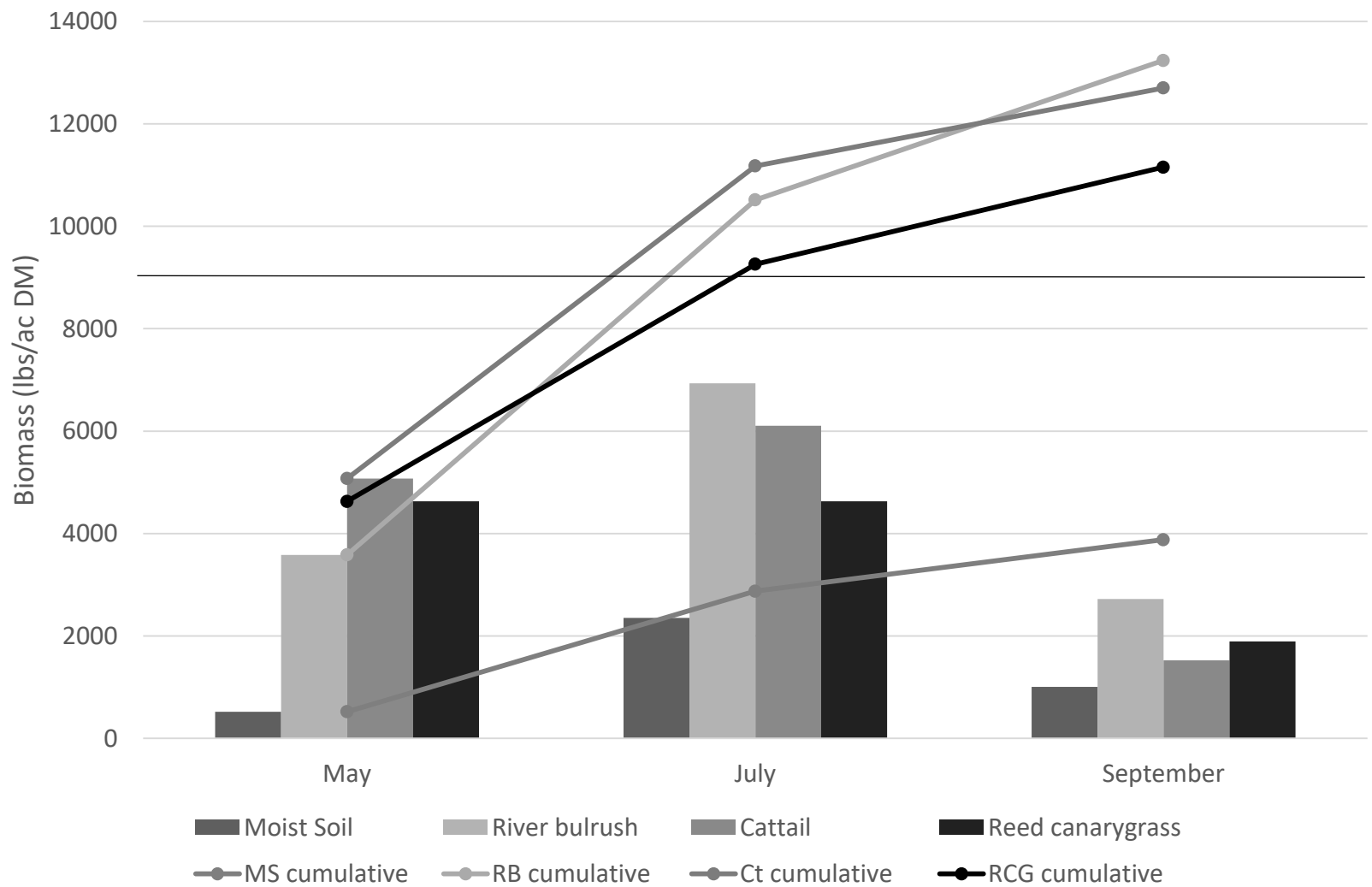
Biomass (live + dead) during one-time harvests



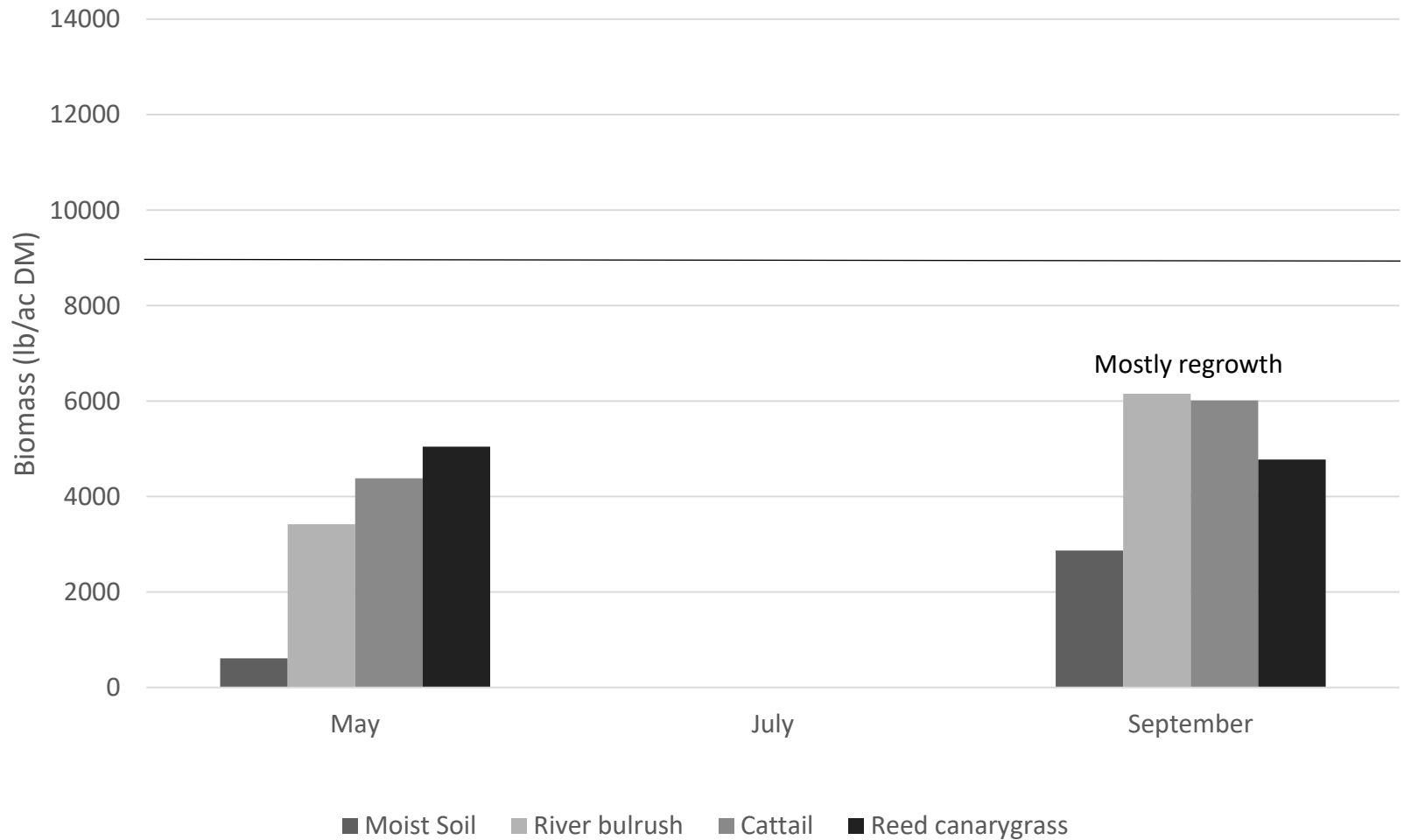
Biomass (live + dead) harvested during May-July-Sept repeat sampling



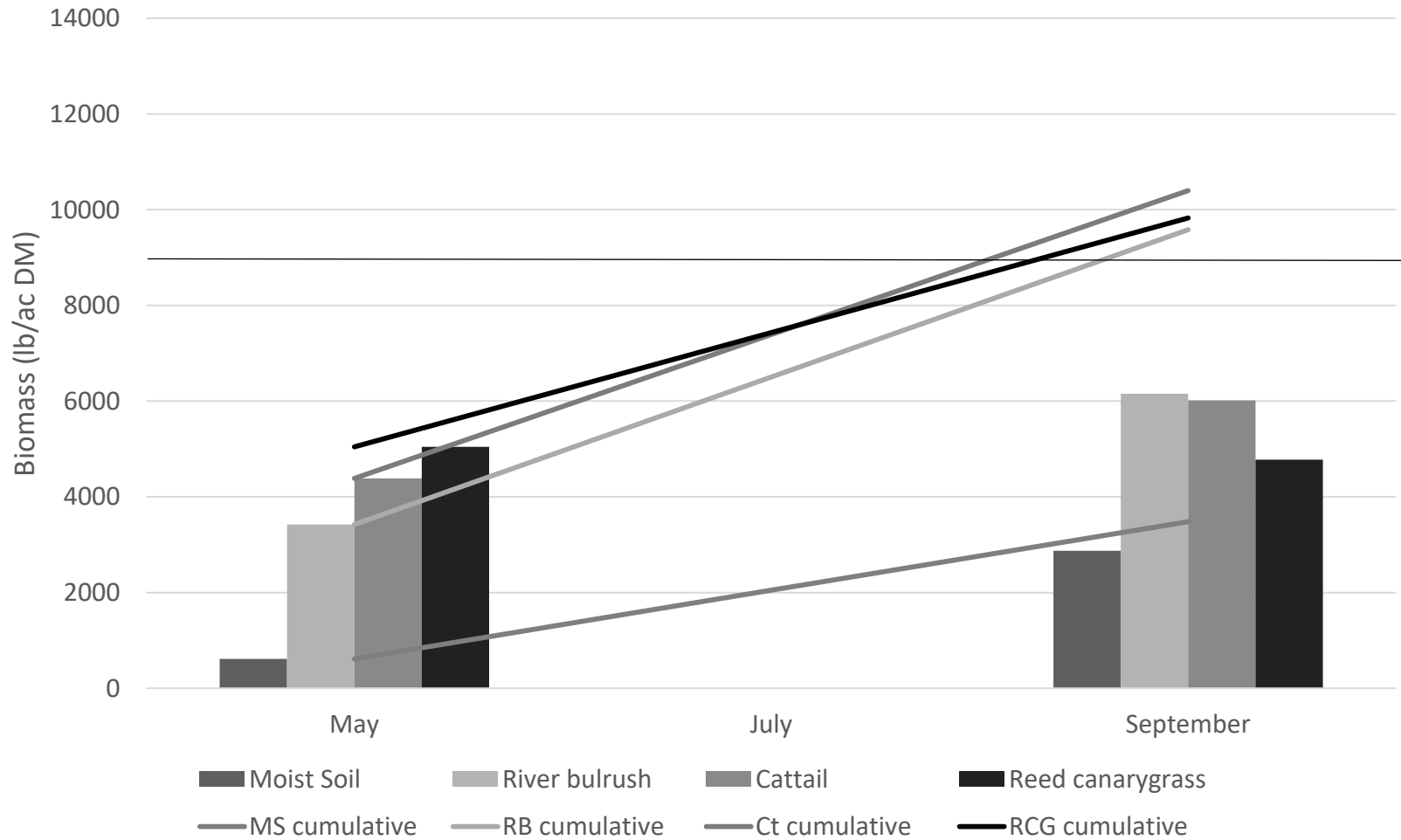
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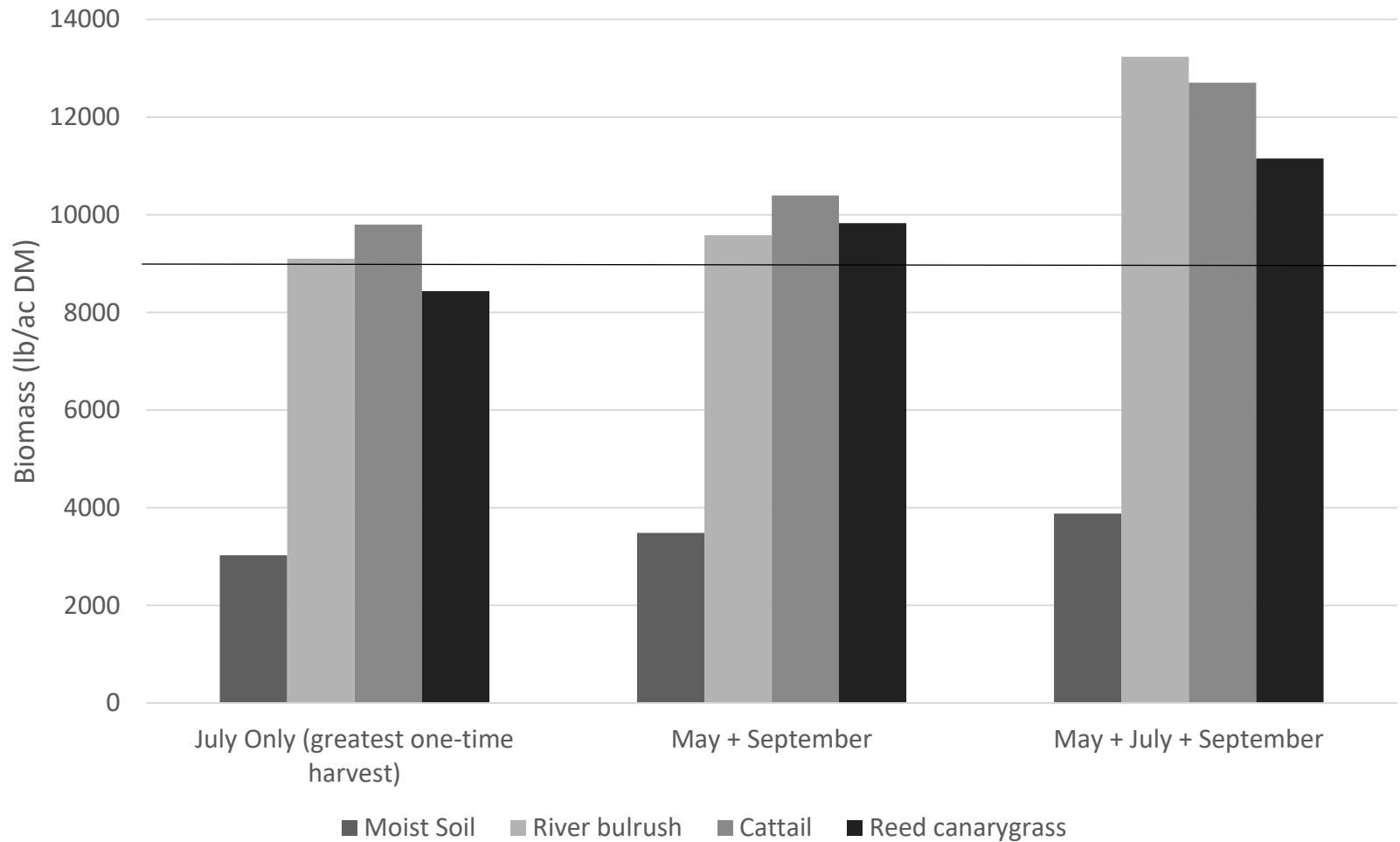
Biomass (live + dead) harvested during May-Sept harvests



Biomass (live + dead) harvested during May-Sept harvests



Comparing total harvested biomass by treatment



Biomass thoughts

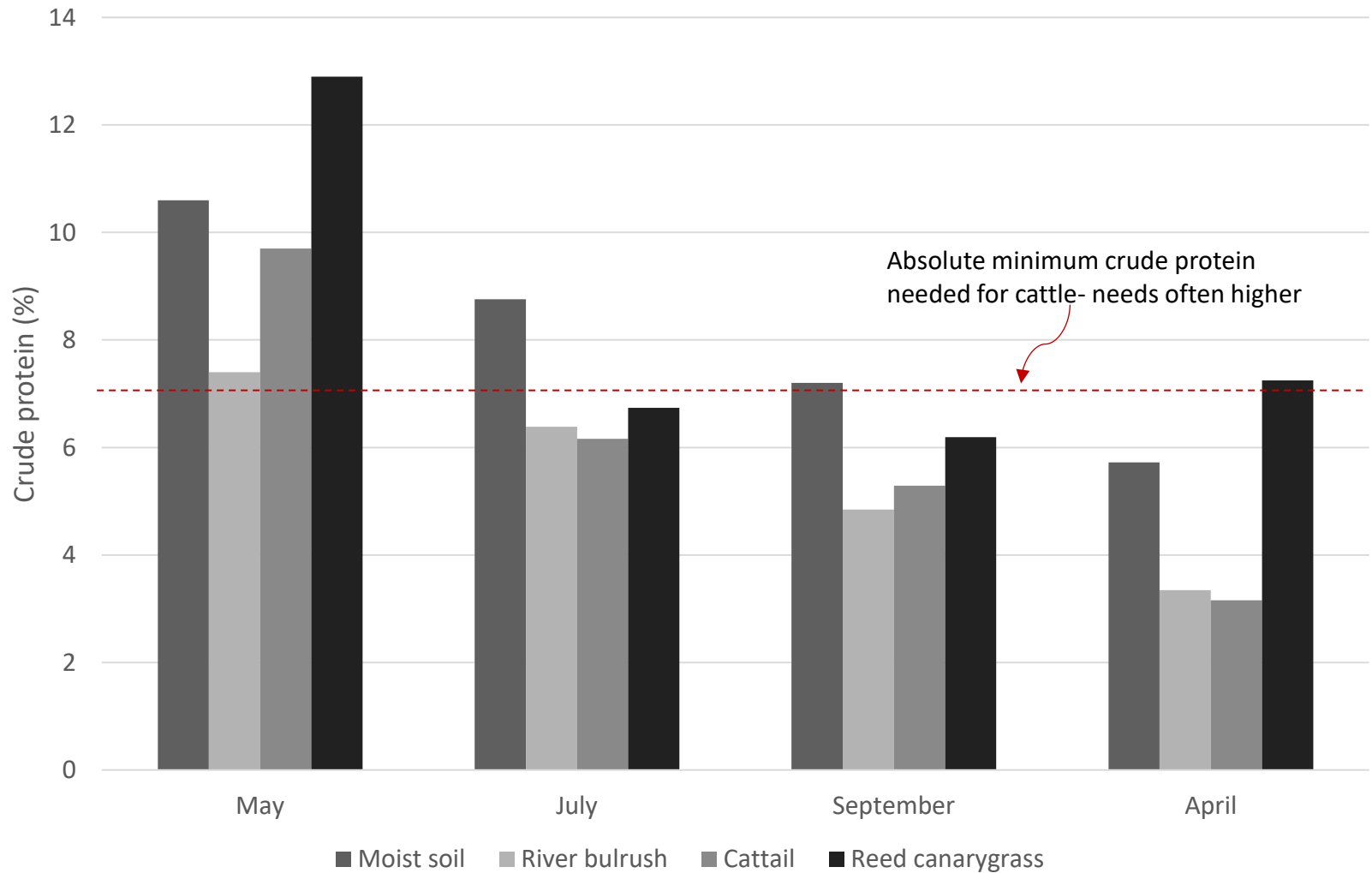


- No recent grazing plus harvesting both live and dead material= high biomass estimates
- Be aware of timing of regrowth to avoid a late season shortage
- For grazing plan, estimate % moist soil and % aggressive perennials
- Moist soil vegetation averaged 3,000-4,000 lb/ac regardless of treatment
- Cattails, river bulrush, and reed canarygrass averaged 9,000-12,000 lb/ac

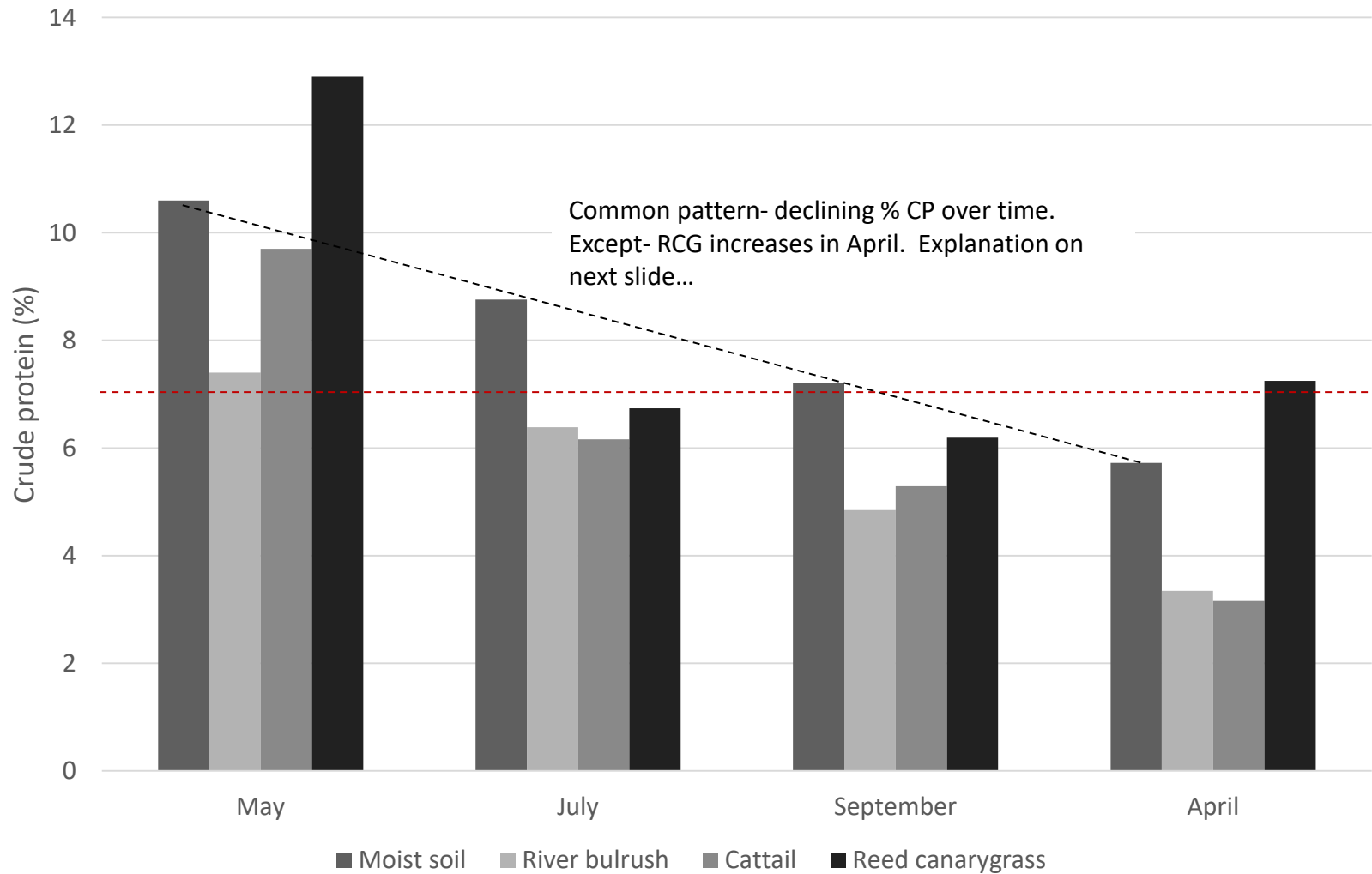
Forage Quality: Crude protein results from 2015 and 2016



Crude protein (live + dead) in one-time harvests



Crude protein (live + dead) in one-time harvests



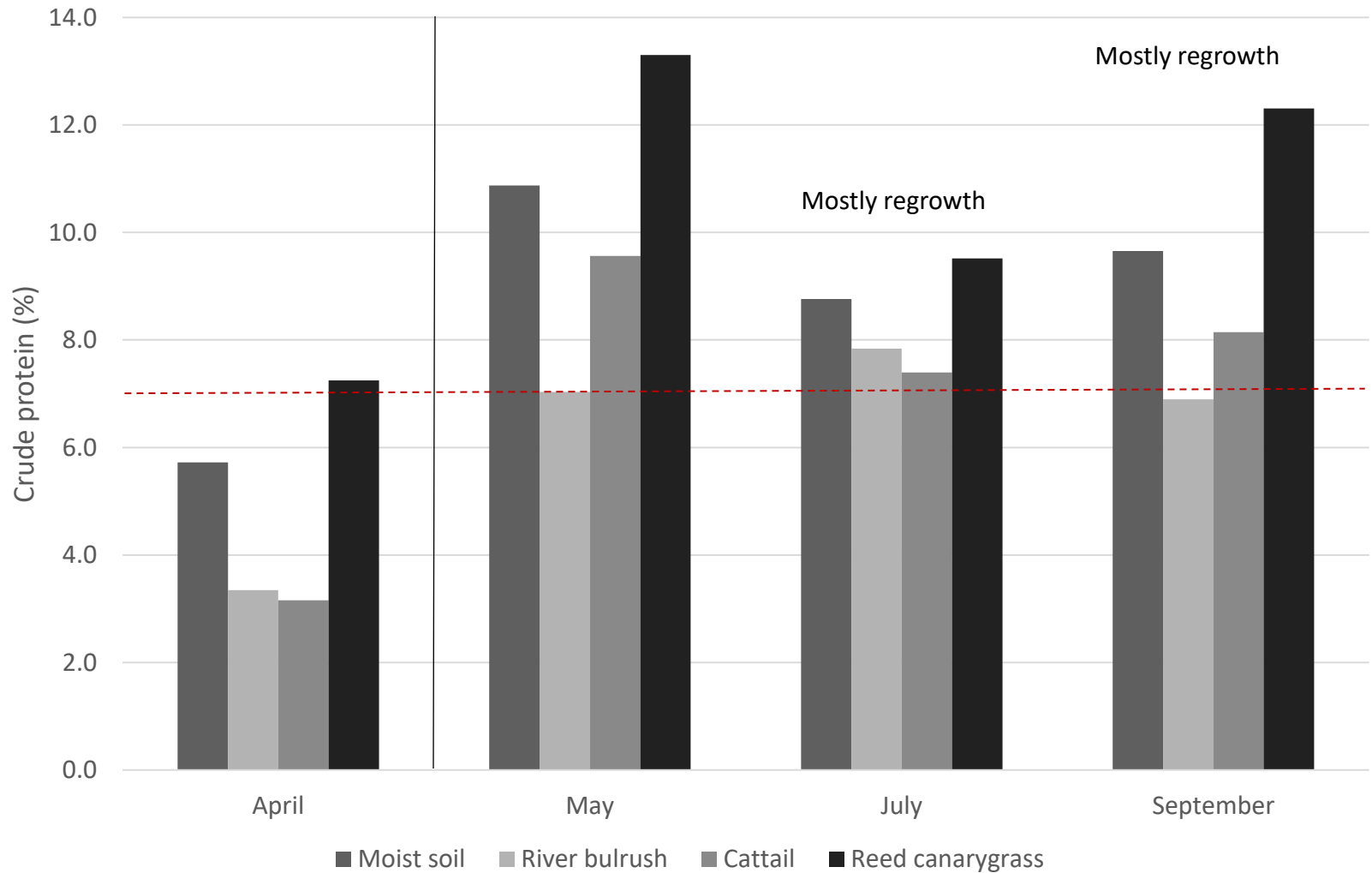
Moist soil, river bulrush, and cattails in April



Reed canarygrass in April



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



Cattail crude protein example



Variation in cattail nutrition

Date	Location	Vegetative state	% CP	Source
April	RWB	Mostly dormant	3%	Hillhouse and Anderson
Mid May	RWB	Vegetative (as eaten)	25%	Drahota
Late May	RWB	Live + dead	10%	Hillhouse and Anderson
Early June	SD	Vegetative	15%	Hubbard
Mid June	RWB	Spike emergence and flowering (as eaten)	20%	Drahota
Late June/early July	SD	Spike emergence and flowering	9%	Hubbard
Mid July	SD	Early senescence	7%	Hubbard
Mid July	RWB	Early senescence (as eaten)	16%	Drahota
Late July	RWB	Live + dead	6%	Hillhouse and Anderson
Mid September	RWB	Live + dead	5%	Hillhouse and Anderson
Late July	RWB	Regrowth after clipping	7%	Hillhouse and Anderson
Mid August	RWB	Regrowth after mowing (as eaten)	19%	Drahota
Mid September	RWB	Regrowth after clipping	8%	Hillhouse and Anderson
Mid October	RWB	Regrowth after grazing (as eaten)	12%	Drahota

Drahota, Jeff. 2005. Presentation at the Nebraska Grazing Conference

Hubbard, Daniel. E. 1988. Using your wetland for forage, S. D. C. F. a. W. R. U. U.S. Fish and Wildlife Service, South Dakota Cooperative Extension Service, South Dakota State University, and U.S Department of Agriculture. FS 853.

Variation in cattail nutrition

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





- ▶ Research funding provided by the Nebraska Environmental Trust, US Fish and Wildlife Service, and the Rainwater Basin Joint Venture, coordinated by the Rainwater Basin Joint Venture
- ▶ Ward Labs contributed to the cost of the crude protein analysis
- ▶ We appreciate the generosity of NGPC and NRCS in helping locate sites and altering management plans to facilitate this research

