

MN Bale Grazing Study

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Thanks for joining!!

Webinar starts at 2:00, you are muted for now, until the presentation is over, then I'll open up for questions.

Bale Grazing

Bale Grazing = Winter feeding of hay on pasture, for the express purpose of improving pasture soils and pasture productivity.

- Not a new practice
- Minimal regard for efficiency or “waste.”
- Bale placement designed to evenly distribute spent hay litter.

Bale Grazing with Purchased Hay

- Proponents claim, any price for purchased hay is valid, due to improvement in soils.
- Purchased hay could leave more owned pasture available for grazing.
- Expand the size of the herd.
- Simplify pasture management
- Who wants to make hay?
- Purchased hay = Importing nutrients rather and exporting or moving nutrients.

MN Bale Grazing Study

- 14 acre pasture at Lighthouse Farm, east central MN.
- Treated and untreated sites
- Soil and forage testing
- Gain rates on cattle
- Determine the full value of purchased hay: nutritional, and spent litter value.

Procedures - Study Set up.

- Tested forage quality of 2015 hay.
- Starting with grazed off pasture in fall 2015.
- Bale grazed the site winter 2015-16.
- Baled regrowth in 2016, collected forage and soil samples, test and check.
- Grazed post harvest regrowth in the fall of 2016, calculated rate of gain.
- Bale grazed the site in winter 2016-17.
- Baled regrowth in 2017, collected forage and soil samples, test and check.
- 2017 weather-related delays, did not fall graze the site.









April 1, 2016



April 15, 2016





April 29, 2016

April 29, 2016



May 26, 2016



June 6, 2016



June 16, 2016



June 28, 2016



July 4, 2016



July 4, 2016





Soil Tests

Measure	2016		2017		Avg. Change
	Check	Test	Check	Test	
Soil pH	6.3	5.7	6.4	7.0	N/A*
Organic Matter	2.6	2.7	2.6	2.8	+0.15
Soil Health (Haney)	8.88	9.23	12.29	14.35	+1.21
Nitrogen #N/A	26.2	29.2	23.9	29.5	+7.1
#P2O5/ac.	28.3	30.8	6.7	25.8	+10.8
#K20/ac.	27.9	26.1	26.5	46.4	+18.1
Nutrient Value \$/ac	\$41.74	\$43.75	\$31.17	\$52.13	\$11.49

Forage Tests

Measure	2015 Hay	2016 Hay	2017 Hay	Avg. Change
Yield (T/ac.)	2.6	2.8	3.6	0.5
Crude Protein (Dry Matter)	7.7%	10.7%	8.8%	+2.1%
Relative Feed Value	80	104	92	+18
TDN (est, %)	55.2%	64.0%	59.6%	+6.6%
Sampling Date	April 20, 2016	July 5, 2016	Aug 5, 2017	

Dollar Value of Spent Hay Litter

- Purchased basic grass hay 1000# bales at \$40 each, or \$80/T
- Nutritional Value, based on forage analysis = \$50.05.
- Soil Value, based on improved soil nutrients from soil tests = \$26.80
- Value of purchased hay = \$50.05 + \$26.80 = \$76.85/T

How Much for Bale Grazing Hay?

- High quality hay for feeding is high quality hay for spent hay litter.
- High quality hay is more efficiently consumed both by animals and the soil.
- Many factors should be included in determining the nutritional value of hay, including distance and handling.
- Our study resulted in a cost of 1.5 * nutritional value of hay.

More work needed

- 7-10 year study would reduce weather effect.
- Measure spent hay litter percentage, rather than estimate. Connect spent hay litter quantity to fed forage quality.
- Larger volume tested.
- Eliminate animal gain determination, focus on forage quality, and improvements to soil organic matter and subsequent productivity.

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Thanks for watching. johnpmesko@gmail.com

