Great Lakes Grazing Newsletter

MICHIGAN STATE UNIVERSITY Extension

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Dear Great Lakes Grazier,

It comes with a great deal of excitement and a touch of sadness that I announce that this will be my last Great Lakes Grazing Newsletter, and really the last MSU Extension newsletter that I will be sending out. I have officially retired as of November 1 from MSU Extension. Thirty-six years of service is long enough. It is time for the younger generation that is more tech savvy than I to take over.

I have totally enjoyed all of my time working with the agricultural industry of Michigan and especially all of you! You have all been so kind and cooperative. I am totally grateful to all of you. It is now time for me to enjoy more time with my family and actually expand my grazing operation a little.

The exciting news is that this Great Lakes Grazing Newsletter will continue. Kable Thurlow, one of the MSU Extension Beef Educators and a good friend will be taking over the responsibilities for this newsletter. I am quite confident that Kable will not do the newsletter like I did it, but I am also sure he will figure out ways to make it even better!

So it is time for me to say farewell. I wish you all well in your lives and farming operations. I hope to see you all at a pasture walk or winter Extension meeting in the future!

Sincerely,

Jerry Lindquist

Retired MSU Extension Grazing Educator

Inside this issue:

Michigan Hay Markets in 2018 - 2019

The summer of 2018 had highly variable growing conditions across the State and in some cases great variation on individual farms from summer to fall. As an example of the extreme variation in Newaygo County from July 1 to Sept. 1 the total rainfall amount was 0.3 ". Then 7" of rain was received in about 4 days and over the next 30 days in Sept. a total of 17" of rain was received.

Some places that were dry last year had abundant rainfall and actually had difficulty making dry baled hay in mid to late summer this year. Overall, we fed up most of the winter carry-over of hay in April and early May this spring with the cold start to spring. The dry mid-summer with above average heat reduced the yield on 2nd cuttings in many locations across the State and caused some grazing farms to start feeding forage early as pastures dried out.

As a result hay prices climbed in mid-summer and have held at these levels going into winter. With the rains in Sept. across much of the State many good 3rd cuttings were taken and, in some locations, some 4th and even 5th cuttings were harvested. The other important factor that has keep prices from climbing even higher is the dismal milk prices for dairy farms. There is no extra cash in a dairy farmers pocket, so these farms are not buying any hay stocks in advance of winter. And some looking for more cash were baling those fall cuttings in order to sell some on the dry hay market. And sadly, some have stopped milking and as the cows leave the farm, these farms are offering more forage for sale and some of it is baled hay.

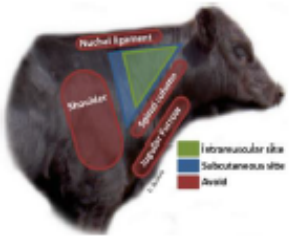
Currently in early November round baled 1st cutting alfalfa/grass hays are selling for $95 - $120/ton. Higher quality alfalfa hays are in the $120 - $140/ton range with square bales being at the higher end of that range. The highest quality alfalfas that are dairy quality hays are selling in the $135 - $185/ton range. Some horse quality grass small square bales are selling in the $200 - $300/ton price range.

It appears that hay demand will moderate this winter and prices may be difficult to hold if more dairy farms put hay on the market. And of course it will depend on how cold the winter is and how long it hangs on in the spring.

Jerry Lindquist

BEEF QUALITY ASSURANCE

FEEDYARD TRAINING & CERTIFICATION



Marketing fed beef direct to packer/processors or through many Michigan auction markets for full value will soon require Beef Quality Assurance (BQA) feedyard certification. A minimum of one person per farm needs to be certified. Feedyard certification is also recommended for cow/calf producers to prepare for future marketing of cull cows and bulls. MSU Beef Team members will conduct these in-person trainings, and on-site certification testing will be included. If your certification was obtained more than 3 years ago, it has expired.

No cost to attend, but pre-registration is requested at: events.anr.msu.edu/BQA/ (Meetings require minimum # RSVPs)

Date	Start time	Location	Address	City
Sept 5	6:00 p.m.	Clare Co. Livestock Auction	11228 S Grant Ave	Clare
Sept. 20	3:00 p.m.	United Producers Inc. – St. Louis	7810 Croswell Rd	St. Louis
Sept. 26	4:00 p.m.	United Producers Inc. – Cass City	6425 East Cass City Rd	Cass City
Oct. 11	5:00 p.m.	Napoleon Livestock Commission Co.	6810 Brooklyn Road (M-50)	Napoleon
Oct. 24	6:30 p.m.	United Producers Inc. – Manchester	9534 Chelsea-Manchester Rd	Manchester
Nov. 1	4:00 p.m.	Croswell Stock Yards	5678 Black River Rd	Croswell
Nov. 7	6:30 p.m.	United Producers Inc. – St. Louis	7810 Croswell Rd	St. Louis
Nov. 10	9:00 a.m.	Ravenna Auction	3265 S Slocum Rd	Ravenna
Dec. 5	6:00 p.m.	Franklin Inn & Lounge	1070 E Huron Ave	Bad Axe
Dec. 6	9:00 a.m.	Clare Co. Livestock Auction	11228 S Grant Ave	Clare

Program contact: Dan Buskirk, MSU Beef Extension Specialist, 517-432-0400, buskirk@msu.edu

Accommodations for persons with disabilities may be requested by contacting the program contact within one week of the program date to make arrangements. Requests received after this date will be fulfilled when possible.

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NITROGEN FERTILIZATION OF PASTURES

There are many different management strategies when it comes to fertilizing pastures. Some market protocols for meat or milk sales do not allow common commercial fertilizers to be applied to grazed pastures. Some strategies believe that fertilization weakens the soil's natural ability to cycle sufficient soil nutrients and make the soil more dependent upon commercial fertilizer. Some farms do not believe that pasture fertilization pays for itself. A seven year trial was conducted at the MSU Lake City Research Center to determine the yield and economic analysis of applying nitrogen fertilizers to grass pastures and to compare it to no fertilizer addition.

Replicated pasture blocks composed of a mixture of orchard grass, brome grass, blue grass with less than 20% legumes which included red clover, white clover and Birdsfoot trefoil were utilized. The soil type was a Montcalm Graycalm loamy sand and a Nester sandy loam. Typically three harvests were taken each year either with grazing cattle or mechanical harvest. Yield estimates were measured before each harvest with a calibrated rising plate meter. A soil test was taken each year of the entire trial block, excluding the "no fertilizer" control blocks, and the composite results were used to apply phosphorus and potassium fertilizer when called for, by the soil test, at an equal rate across all blocks for P & K nutrients except no fertilizer was applied on the control. Then five different nitrogen treatments were applied and replicated including typical spring and summer applications. Also a frost seeded treatment with red and white clover was established that contained 30 – 40% legumes.

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NITROGEN FERTILIZATION OF PASTURES

The trial results are below:

Pasture Nitrogen Trial Annual Averages 2012-2018

MSU Lake City BioAg Research Station

Jerry Lindquist, MSU Extension Grazing Educator

Trials	Yield	Value	Costs of Treatment	Net Value [1]	Comparison to Control
110# N/a Spring applied Urea	3.84 tons/a of dry matter	$731/a	$98/a	$633/a	+$113/a
60# N/a Spring applied 66% Urea & 34% Protected Urea	3.43 tons/a of dry matter	$647/a	$73/a	$574/a	+$54/a
60# N/a Spring applied Urea	3.31 tons/a of dry matter	$639/a	$67/a	$572/a	+$52/a
Frost Seeding Clover (2012 - 2015 Seedings Failed)	3.21 tons/a of dry matter	$608/a	$50/a [2]	$558/a	+$38/a
110# N/a Spring applied 66% Urea & 34% Protected Urea	3.23 tons/a of dry matter	$615/a	$103/a	$512/a	-$8/a
60# N/a Spring applied Urea & 50# N/a Protected Urea in Summer	3.25 tons/a of dry matter	$614/a	$110/a	$504/a	-$16/a
Control No fertilizer or seed applied	2.74 tons/a of dry matter	$520/a	0	$520/a	0

[1] Net value is the value of the forage less the cost of fertilizer and seed that was applied plus the spreading cost. On all plots except the Control additional phosphorus and postassium fertilizer was applied according to an annual MSU Soil Test and their costs were added to the treatment cost.

[2] Frost seeding cost is the cost of 8 lbs/acre of red clover seed and the cost of spreading usually prorated over three years. Soil test samples were taken each year on all plots except the control and phosphate or potassium fertilizer was applied according to MSU Soil Test Recommendations when needed on all plots at the same rate, except on the control.

When the trials results were compiled and the economic value of the increased yield and the cost of obtaining that extra yield is calculated some interesting observations can be made. First the control trial of adding no fertilizer was the lowest yielding practice yielding an average 2.74 tons of 100% dry matter pasture forage per acre. But when the economics of each practice were compared the no fertilizer plot actually was better than two of the practices that had nitrogen fertilizer applied.

Both of those practices used a protected urea fertilizer that was developed to not volatize as a gas into the air and be lost, instead waiting for rainfall to arrive and move the nitrogen into the soil. Both of these trials had Cost of Treatment (cost of fertilizer & spreading costs) over $100 per acre per year. These were the only two trials trending over $100/

NITROGEN FERTILIZATION OF PASTURES

acre in cost and even though they provided more yield than the control, they did not provide enough yield to pay for their extra cost when compared to the control.

The best yielding trial and the best value compared to the control trial was the trial applying 110 lbs of nitrogen per acre in the spring (240 lbs/acre of 46-0-0 fertilizer). This trial yielded an extra 1.1 ton of dry matter forage per acre compared to the control with no fertilizer. It was observed that this practice of putting the large rate of nitrogen on in the spring did appear to improve the yields of the 2nd and even 3rd harvests across the summer when compared to the other practices. However even though it provided the best economic return this practice is not recommended for livestock pastures where 100% of the grazing animal's diet will come from the pasture. This large amount of nitrogen will lead to increased forage protein levels (Leep, Dietz, MSU, 2005) which can be excessive for the grazing animal unless other feeds lower in protein are fed. Crude protein levels of over 20% in pasture forage can be the result when large amounts of nitrogen are applied. Forage diets above this level can cause metabolic disorders in grazing animals including acidosis leading to lower metabolized energy and weight loss which can lower milk production and potentially lower cow fertility. Protein amounts may even approach the level where nitrate toxicity can become a problem if the pasture forage is the only feed being consumed. This high nitrogen application rate can however be used for grass hay production if the grass is allowed to mature before harvest lowering its digestibility and its feed quality. Or if this hay can fed with another forage or grain that lowers the overall ration crude protein level it can work quite well.

The second best yielding trial and second best value was the 60 lbs of nitrogen per acre applied in the spring. This trial and the 3rd best trial which was the same nitrogen rate but just a different blend, were very close in yield and especially in Net Value, only $2/acre apart. The only difference between these two trials is one was a mix of urea and protected urea while the other was straight urea that was un-protected. Both appear to be good practices for pasture fertilization on livestock farms in Michigan.

The practice of frost seeding clovers into the grass sod in March to provide some plant based nitrogen in the growing season and more total plant growth, came in toward

NITROGEN FERTILIZATION OF PASTURES

the middle of the pack in value. It is an economical practice when the applied clover lasts for three years but for the first three years of this trial, dry summers limited the establishment of the clovers. Once clover became better established in 2015 it started gaining on the other trials in value as its yields improved. Frost seeding is an economical way to naturally improve grass pastures but it's success rate of establishment is better on clay and loam soils, and not very good on sands, of which half the plot was in this trial.

The decision of whether to apply fertilizer on grass pastures or not is not a simple one. Many factors need to be considered. These results do show that if more pasture forage is needed to increase animal stocking rates, or to extend the fall grazing season, nitrogen fertilizer can be used to help accomplish this. They also show that year in and year out with all different weather events that we experience in Michigan, nitrogen fertilization and/or frost seeding can pay if proper rates are applied at the proper time of the growing season.

Quick Facts

- This seven year trial in Lake City revealed that for every 1 lb of nitrogen applied 23 lbs of extra forage was grown at the recommended 60 lb/acre rate of N. Financially this means that for every $0.45 of nitrogen fertilizer applied, an extra $1.78 of forage is grown (when 46-0-0 fertilizer is $400/ton and value of 100% dry matter forage is $155/ton).
- A three year pasture trial by Leep & Dietz in 2003 – 2005 in East Lansing revealed that for every 1 lb. of nitrogen applied 45 lbs of extra forage was grown at the split rate of 100 lbs of N/acre. This means that for every $0.45 of nitrogen fertilizer applied an extra $3.49 of forage was grown.

References:

Leep,R., Dietz,T; Grass Response to Nitrogen Fertilization, 2005; Michigan State University

Johnson, D; Nitrogen Impact on Pasturing Dairy Cows Dry Matter Intake of Pasture Forage; University of Minnesota; 2009