

MSU Extension Crops Newsletter for Northwest Michigan

Dear Northwest Michigan Crop Farmer,

January 2015

The Year 2015 brings reality and some surprises back to the agricultural fields of the United States. The most striking reality is that when making crop planting decisions you must do so with a very sharp pencil. My budgets that I have enclosed in the following pages show that the major cash crops in Northern Michigan do not look profitable in the upcoming year. When corn was \$7 and beans were \$15 it was easy to still break even on a sub-par growing year, but next fall and more importantly this spring it is “let the planter beware” as these budgets show that even with average yields, crop farming could be break-even at best (if these projected prices hold true).

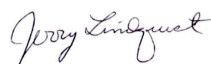
The early surprise for this new year is the price of crude oil. Crude at \$50/barrel and unleaded gasoline at \$1.70/gallon! Simply amazing! If these fuel prices stick around for a while they will have some impact on all the transported items in the budgets from seed, to fertilizer, to grain hauling, to twine, but with the fear of fuel going right back up, don't expect any serious price discounts on many of those items. You may pay less for farm fuel this spring but in my corn budget even if we add in drying fuel, total fuel costs are only 13% of the total cost of producing corn. But every little bit helps and fuel may be a cost savings. Land expense/rent is another that may soften slightly but only if you are renting and you can negotiate rents lower. If you have that flexibility in your rental contract show the landowner my budget and show them for corn and beans at average yields and \$70/acre rent there is no projected profit.

With corn and some soybeans still standing in Northern Michigan fields for the second year in a row, the stark reality is grain farming in this part of the country is back to being a risky proposition. Proceed with extreme caution if your market is the cash market.

For those who want the glass to be half full here you go. We are due for a good weather year for grains. If you can harvest a bumper crop that is 10% or more above these projected yields you may profit (if the Mid-West yield doesn't cause prices to fall lower). Or if you are an above average producer that can harvest yields above those in the budgets and still control costs you may be profitable. Cattle and other livestock are currently a profitable way to market these crops or at least maybe utilize the residue of these crops. And if you are fortunate to have wheat and/or alfalfa already planted, they look profitable, and though not in the budget, oats if you sell the straw as well, shows a \$44/acre profit with a 62 bu yield.

I have been in this position long enough to know that the markets and the growing year never turn out exactly like we predict. As always plan wisely, and hope for the best. Here's to 2015 being better than expected!

Jerry
Lindquist,



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MSU Extension Grazing &
Field Crop
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Extension



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U.S. Department of
Agriculture and counties
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**MICHIGAN STATE
UNIVERSITY**

Northern MI Crop Budgets for 2015

	Corn	Wheat	Canola	Alfalfa	Soybean
Income Per Acre					
Yield/acre	126	63	33	3.8	31
Selling Price Per Bushel or Tons (price based on projected futures price at harvest)	\$3.81	\$6.14	\$9.00	\$130.00	\$9.69
Gross Income/Acre	\$480.06	\$386.82	\$297.00	\$494.00	\$301
Direct Costs Per Acre					
Seed	\$80.00	\$42.00	\$38.00	47.26*	\$53.00
Fertilizer & Lime	\$103.55	\$67.09	\$66.44	\$123.69	\$44.84
Herbicides	\$28.00	\$14.00	\$28.00	\$0.00	\$24.00
Insecticides	\$3.20	\$0.00	\$2.63	\$4.00	\$4.00
Drying Fuel	\$44.00	\$0.00	\$6.00	\$0.00	\$0.00
Equipment Fuel & Oil	\$17.58	\$18.00	\$15.25	\$21.26	\$11.44
Equipment Depreciation & Repair	\$70.00	\$52.53	\$54.00	\$75.00	\$51.00
Crop Utilities	\$4.00	\$3.00	\$3.00	\$5.00	\$3.00
Crop Haul & Trucking	\$25.00	\$12.00	\$27.00	\$27.00	\$7.65
Crop Marketing & Storage	\$14.00	\$4.50	\$16.00	\$11.00	\$7.00
Crop Insurance	\$20.00	\$20.00	\$0.00	\$0.00	\$20.00
Land Charge	\$70.00	\$70.00	\$70.00	\$70.00	\$70.00
Total Direct Cost/Acre	\$479.33	\$303.12	\$326.32	\$384.21	\$295.93
Gross Profit Per Acre	\$0.73	\$83.70	-\$29.32	\$109.79	\$5.07
Straw sales 1 ton/acre		\$130			
Wheat Straw baling		\$57			
Wheat Straw bale hauling		\$10			
Wheat Gross Profit Per Acre w/h straw harvest		\$146.70			
Cost per unit (breakeven)	\$3.80	\$4.81	\$9.89	\$101.11	\$9.55
Crop Risk Factor (1 low - 5 high)	2	3	4	2	3
Crop risk factors include frost damage, drought, wildlife damage, hail, wind, etc. These crop budgets do not include labor cost.					
Estimated Labor requirement hrs. per acre	3.1	3.2	2.7	4.6	2.5
Budget projections as of 1/1/2015 Fertilizer prices \$460 for 46-0-0; \$594 for 11-52-0; \$492 for 0-0-60. lime \$30/ton *alfalfa seeding year cost is prorated over 5 years using a seeding yr. cost of \$330/acre Fuel price used for diesel is \$3.25/gal					
Developed by Jerry Lindquist, MSU Extension for Northern Michigan farms.					

How to Profit Even in Low Price Years

Though these budget projections do not look good for corn and soybean some farms in Northern Michigan will turn a profit in 2015 raising them. Here's how you can too :

1. Push the pencil/computer keys on your budget. Don't let University budgets be yours. Their numbers are State averages but they are not your farm's averages. Use your records and knowledge to come up with your numbers and then work on trimming costs i.e. buy in volume, utilize pre-season pricing discounts, nitrate test corn after sod and save on N, etc.
2. Optimize your yields to lower your cost of production per bushel or ton. You must spend wisely, but within reason, utilize technology, crop nutrients, irrigation, etc. to become an above average producer (look for research ideas within this newsletter to help decide on these directions)
3. Soil test, soil test, and then foliar test. There is no better way to optimize your yields and still not over spend than to soil test. In most soils you cannot short-change the crops nutrients needs and still make a profit. If you want a profit don't starve it. If fertilizer dealers in your area have variable rate application technology consider getting started on grid soil sampling your fields. Nitrate test corn fields and don't apply most of the crop's nitrogen need until it really can use it in June and then do it with side dressing. After soil testing go the next step and take foliar leaf samples and end of season stalk samples to see if you hit the plant's target on nutrition or to learn if nutrients are lacking in the plant.
4. Use the best varieties that you can afford and that are near the top of un-biased University variety trials like MSU's at <http://www.varietytrials.msu.edu/> . If you had to harvest fall grains on wet soils causing soil compaction/rutting issues realize that these soils will probably take longer to dry and get fitted out before planting this spring. So the probability is high that you will be planting later than normal again. Especially if you have had crop dry down problems the last few years, you need to seriously review your grain maturity levels with professionals and possibly make slight adjustments to those varieties that you plant this spring.

Making Seed Purchases This Winter - Check out the MSU Varietal Trials

For un-biased test plot comparisons of varieties of alfalfa, dry beans, corn, grasses, soybeans, and wheat go to the MSU Field Crops Varietal Trials at <http://www.varietytrials.msu.edu/>. If for example you have to buy seed corn and trying to decide which varieties are the best for your farm, the MSU Corn Varieties Compared should be the first document you turn to. Each crop has a different publication with 2014 results loaded with yield results for grain, forage and corn silage yields from across the State of Michigan. These publications also have agronomic recommendations for the specific crops to make sure you are following the latest recommendations.

2014 Farm Bill Educational Meeting

Tuesday, January 20, 2015 1:30 - 4:30 P.M.
Wexford County MSU Extension Office
401 N. Lake St. #400 Cadillac, MI 49601

*****Same Meeting coming to NW Hort Station on January 27—See page 10**

The 2014 Farm Bill will affect Michigan farmers in many ways. Many of the components of the previous Farm Bill have been changed or eliminated. Navigating those changes poses many challenges. Provided by the Michigan State University Farm Management Team with assistance from local MSU Extension Educators and in cooperation with the USDA Farm Services Agency and Natural Resources and Conservation Service Offices.

All meetings will be conducted with the following agenda:

- "New Provisions of the Agricultural Act of 2014" , Travis Murray, Farm Service Agency
- "Farm and Risk Management Implications of the Agricultural Act of 2014" , Curtis Talley, MSU Extension
- Questions, Answers and Discussion

To register for this meeting or to find dates, times and locations of other meetings around the State

visit <http://events.anr.msu.edu/FarmBill1415/>.

The meetings are free but pre-registration is required.

If you do not have internet access, you may contact your local MSU Extension or Farm Service Agency office to register.

For Farm Bill information and resources visit the MSU Extension Farm Bill Program website at http://msue.anr.msu.edu/program/info/farm_bill.



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Persons with disabilities who require accommodations to attend or participate in this meeting should contact your local Farm Service Agency office or call the Federal Relay Service at 1-800-877-8339 three days or more prior to the meeting site of your choice.

Restricted Use Pesticide Review and Exam

WHEN: Thursday, March 19, 2015

9:30 a.m. to 12:30 p.m. - Pesticide Update & Exam Review offered by MSU Extension
(pesticide re-certification credits have been requested)

1:00 p.m. - Restricted Use Pesticide Exam offered by Michigan Department of Agriculture
and Rural Development

WHERE: Wexford County MSU Extension, 401 N. Lake St., Cadillac, MI. 49601

The review is for those wishing to receive final training before the exam or for those wishing to receive pesticide re-certification credits (credits have been requested for this event). You do not have to attend the review to take the exam. The exam is for those wishing to become certified to purchase restricted use pesticides or who need to re-certify.

For the exam: You must bring a photo ID (driver's license).

- Bring a #2 pencil and an ink pen.
- Bring your registration paperwork received in the mail from Michigan Department of Agriculture and Rural Development (MDARD) if renewing.
- Make check/money orders payable to "State of Michigan". Cash or credit/debit cards are not accepted.
- If retaking an exam that you failed you must bring receipt of payment from the previous exam session.
- Calculators if needed will be available from the exam proctor. Personal calculators or cell phone calculators are not allowed.

Cost: Exam -\$50 for private applicators (farmers); \$75 for commercial applicators (cash is not accepted). No charge to attend the review. Lunch will be sponsored by Bader & Sons at 12:30 P.M.

Registration: Please register for these two events by either:

1.) Contacting Jerry Lindquist 231-832-6139 or at lindquis@anr.msu.edu or Jill O'Donnell 231-779-9480 or at odonne10@anr.msu.edu

or

2.) You may register on-line for the exam at www.michigan.gov/pestexam

Exams are also offered at various times and locations around the State. For the complete list of exams go to www.michigan.gov/pestexam.

Accommodations for persons with disabilities may be requested by contacting Jill O'Donnell at 231-779-9480 by March 13, 2015 to make arrangements. Requests received after this date will be fulfilled when possible.

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Gypsum on Sulfur Deficient Soils Worked for Soybeans in Northern MI

MSU Extension Field Crop Educator James DeDecker found that in 2014 the application of gypsum was beneficial increasing soybean yields by 6.5 bu/acre and thus was more profitable as well.

Gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) is a mineral mined from sedimentary deposits created by the evaporation of saline water, where sulfuric acid comes into contact with calcium carbonate. A number of productive gypsum quarries have operated in Michigan's Lower Peninsula over the last 150 years, marketing the mineral as plaster, stucco and fertilizer. Agricultural gypsum is applied as a soil amendment and fertilizer containing roughly 22 percent calcium and 18 percent sulfur. Most soils in Michigan provide adequate amounts of calcium for soybean production. However, coarse-textured soils with low potential for sulfur mineralization from organic matter may be at risk for sulfur deficiency that can limit soybean yields. This scenario is becoming more common due to a decrease in atmospheric deposition of sulfur from air pollution since the Clean Air Act of 1963 (once as much as 8-15 pounds per acre annually) and the removal of sulfur-containing impurities from fertilizers and pesticides.

In 2014, a Soybean Management and Research Technology (SMaRT) on-farm research project was conducted in Rogers City, Michigan, to evaluate gypsum as a source of calcium and sulfur for soybean production. Gypsum was surface broadcast at 0.5 tons per acre just before planting at a cost of \$22.50 per acre for the product and \$9.29 per acre for application to be compared with an untreated control. Plots were 40 feet wide and 200 feet long with Pioneer 91M01 soybeans drilled in rows 7.5 inches apart at 175,000 seeds per acre. The two treatments were randomized and replicated four times. The trial was planted May 23, 2014. The soil was Cheboygan loamy sand with a pH of 6.9 and Cation Exchange Capacity (CEC) of 5.1 meq/100g. The previous crop was wheat followed by an oat cover crop and seed was treated with inoculant prior to planting. Uppermost fully developed trifoliolate leaves were sampled Aug. 6 for nutrient analysis and soybeans were harvested Nov. 1.

Effects of Gypsum on Leaf Nutrient Concentrations and Soybean Yield in Rogers City, MI 2014

Treatment	Leaf calcium (%)**	Leaf sulfur (%)	Leaf nitrogen (%)	Leaf magnesium (%)	Leaf boron (ppm)	Yield (bu/A)*
0.5 T/A Gypsum	1.26	0.30	4.72	0.28	15	31.94
Control	1.14	0.19	4.01	0.30	21	25.34

*Soybean yields were significantly different ($p < 0.05$). Yield adjusted to 13 percent moisture.

**Nutrients analyzed in the first trifoliolate leaf tissue.

For soybeans, the calcium sufficiency range is 0.35 to 2.00 percent. Both treatments provided sufficient calcium. Soybean's sulfur sufficiency range is between 0.20 to 0.40 percent. The gypsum treatment brought soybeans from a state of mild sulfur deficiency to optimum sulfur sufficiency. It is important to note that application of 20 to 40 pounds of sulfur per acre will generally correct sulfur deficiency. Our gypsum treatment supplied 180 pounds per acre. This rate was selected to highlight gypsum's reported advantages as a soil amendment capable of improving soil tilth and water infiltration. However, in coarse soils these physical properties are not of concern, and it is assumed that the yield increase measured was solely related to sulfur fertilization. If this is the case, a lower rate may have performed just as well.

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Effects of Gypsum on Leaf Nutrient Concentrations and Soybean Yield in Rogers City, MI 2014

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Interestingly, in addition to addressing sulfur deficiency, the gypsum treatment also increased nitrogen uptake by soybean plants. This is likely due to the interrelated roles of sulfur and nitrogen in protein synthesis, where sulfur deficiency can limit efficient nitrogen uptake and utilization. Other less desirable nutrient interactions also occurred. The gypsum treatment limited magnesium and boron uptake by soybeans in our trial. Calcium is known to chemically compete with other cations like magnesium and inhibit the uptake of boron. Our gypsum treatment brought soybean plants from a state of sufficiency to one of mild deficiency in both of these secondary and micronutrients. Still, the plants treated with gypsum were anecdotally observed to be greener in color with longer internodes, a larger number of healthy root nodules and more pods per plant, though these variables were not measured (see photo). The yield difference between the gypsum treatment and untreated control was statistically significant, averaging 6.6 bushels per acre ($p < 0.05$, see table). Total product and application costs were \$31.79 per acre.

Gypsum contributed to attractive results in the context of this trial. However, other sources of sulfur such as ammonium sulfate (AMS), potassium sulfate, elemental sulfur and organic matter are available and may provide advantages over gypsum. For one thing, other sources do not contain large amounts of calcium that can compromise the uptake of secondary and micronutrients. In addition, AMS and elemental sulfur will acidify alkaline soils, while gypsum and potassium sulfate have little effect on soil pH. Many producers already use AMS as an adjuvant with glyphosate. Adding manure or cover crops to a cropping system as a source of organic sulfur can offer other benefits, such as improved water holding capacity and increased biological activity.

Increasing Wheat Yields with Fertility Management

Dr. Kurt Steinke, MSU Soil Fertility and Nutrient Management Specialist is in the middle of a multi-year wheat fertility trials funded by the Wheat Program of Michigan. His preliminary findings are revealing a benefit to using a sulfur fertilizer as a part of the spring time nitrogen application, like ammonium sulfate. He is now trying to determine what is the correct nitrogen to sulfur ratio to apply.

He is also investigating with more trials the reports that a split application of nitrogen, some at green up and a second application when the flag leaves are just visible can significantly increase wheat yields. He is trying to determine the proper timing and the application rates on N and also trying to see if there is a correlation of these findings to the time of planting the wheat in the fall (late planted vs planted at the optimum time). Stay tuned for these results.

Teff Grass is Working in Hay Crop Rotations—Teff Grass is Gaining in Popularity as an Alternative Forage Crop in Michigan

Teff, *Eragrostis tef* Zucc., is a warm season annual grass that is native to Ethiopia and is grown commonly in many African countries as a cereal grain for human consumption. It grows in frost free environments preferring temperatures from 60 – 85 degrees Fahrenheit and tolerates soil moisture levels ranging from moist to drought-stressed conditions.

In recent years researchers in the U.S. have discovered that Teff Grass makes a good one year hay crop. It's rapid re-growth after cutting can provide two to three harvests in a summer even though it is commonly not planted until June.

Teff is finding favor on many Midwest hay producing farms for two main reasons. First, animals including cattle and horses really like it, and secondly, it works well in hay crop rotations. Michigan State University Extension does not recommend planting alfalfa after alfalfa because of disease, insect and autotoxicity issues. Autotoxicity, which is produced by mature alfalfa plants, will cause crop stunting and yield reduction of the new plants. Rotation to another crop is always advised at least for one year and Teff – which is a grass and not in the alfalfa legume family – can fit that bill.

Farms can always rotate to other grain crops like corn, wheat or soybeans, but not everyone has equipment to plant and harvest cash crop grains. With Teff the same planting equipment as well as the same hay mowing and baling equipment that you use for other hay crops can be used. It also means the farm's rotation acres never have to be out of hay production if they so desire.

The feed quality of Teff is moderate, not as high as a pure alfalfa hay crop, but generally, if cut at the pre-boot stage of growth, higher than most cool season grasses. You can attain crude protein levels of 12 – 16 percent C.P. depending upon maturity at harvest and if the crop was fertilized with nitrogen. It meets the nutritional needs of the light working horse, the dry cow and if supplemented with grain, the growing replacement heifer. Horse owners feel their horses stay healthier and maintain the proper stage of body condition when fed Teff Grass hay.

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Teff Grass is Working in Hay Crop Rotations—Teff Grass is Gaining in Popularity as an Alternative Forage Crop in Michigan

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Research trials at Michigan State University and other land grant universities reveal that Teff varieties can yield 3 – 5 tons of dry matter hay per acre. Northern zones may only get two cuttings and yields will be closer to 3 tons per acre, but southern parts of Michigan and beyond can attain three cuttings and over 5 tons per acre of hay is possible in good years.

The seed is small, 1.25 million seeds per pound, so planting into level, firm seed beds is strongly advised. Planting approximately 8 - 10 lbs. of seed per acre is the recommended rate and it should not be sown until the risk of spring frost is gone. If wet, cool spring conditions prevail, waiting for soil warm-up is advised as planting in Mid-June in trials yielded the best at the MSU Campus.

Like all new hay seedings, weeds can be a problem in the first cutting of Teff grass. If a grass herbicide was used to eliminate the previous sod hay crop, the only weed issue that will normally appear in the first cutting will be broadleaf weeds and they can be easily controlled with timely applications of inexpensive broadleaf weed herbicides.

Soil testing and fertilizing to meet the nutritional needs of Teff grass is important, especially making sure it has adequate nitrogen. If a previous hay crop had at least 30 percent legumes in it, there may be enough residual nitrogen to grow Teff well, but if not, it is advised to apply 60 – 80 lbs. per acre of actual nitrogen at planting time.

Teff Grass has a finer stem than most cool season grasses, even finer than many alfalfa varieties. Because of this it will lay more tightly in a windrow and not dry as rapidly as some other hays. With good drying conditions it is not a problem, but at the end of the summer season, or in periods without much sunshine or wind, it can be a challenging crop to dry. Laying a wide swath at mowing time, conditioning the stem and even using a tedder may be necessary to get it to dry properly for baling.

When taking on new acres that have been idle for some time, Teff makes a good first choice for a hay crop. Weeds are usually an issue and soil pH may require some lime so Teff Grass is the better first choice for a hay crop to get the weeds and soil fertility in order before planting a perennial hay crop. Planting Teff even for two years in a row may be beneficial and make for a better, long lasting alfalfa hay crop.

There are many choices for a rotation crop following alfalfa/grass hay crops. Teff grass is the newer alternative that has some unique attributes which may make it a good choice when buying seed this winter.



Teff Grass makes a good one year hay crop. | Michigan State University

Snaplage Use Increasing on Northern Michigan Dairy Farms

Jerry Lindquist, MSU Extension

The use of snaplage as a feed source on dairy farms seems to be gradually increasing in recent years. Snaplage by definition is the harvest of the ear of corn including the kernels, husk, cob, and part of the shank that attaches the ear to the stalk. It is harvested with a forage chopper equipped with a snapper head and kernel processor in the moisture range of 36 – 42% for the product. Snaplage is taking the place of high moisture shelled corn in some dairy rations for a few different reasons.

One of those reasons is because of the poor summer growing conditions we have had the last two years. Corn maturity and dry down have been slower than normal and since snaplage is best harvested when kernel moisture is at 34 -36% moisture and high moisture shelled corn should be below 32% moisture, many farms looked at snaplage as a way to get the crop off sooner in what was still going to be a late fall harvest.

Some dairies tried snaplage, or something similar called earlage back in the 1970s. It did not feed well and did not continue as a practice for very long. One reason why is the size of equipment back then was not large enough for rapid harvest and thus the non-kernel parts of the earlage got too dry and did not ferment well in the silo. In upright silos these drier husks and cob parts sorted out coming out the blower causing drier pockets in the silo that were not highly palatable, nor as digestible as corn silage or high moisture shelled corn. Farms often were not happy with how cows milked on it.

But today with the size and speed of forage choppers snaplage harvest can be completed in one or two days reducing the moisture dry down concern with the cob. Also very few upright silos are still in use so uniform distribution of the snaplage in the pile is much easier to accomplish. Still there are some challenges as well as some current advantages for snaplage. They are listed below.

Snaplage challenges include:

- letting the product get too dry before starting harvest, as usually by the time farms realize they may have a corn dry- down problem in their fields and they can schedule the custom harvester, the snaplage may be below 35% moisture and at this level corn cob digestibility decreases rapidly
 - not being as consistent of a feed as high moisture shelled corn that it replaces because the husk, cob and shank can add more variability to the ration moisture level and digestibility from day to day requiring more frequent feed testing
 - aggressive material processing is required for snaplage and often if the processing unit is just left at the same setting as for corn silage, it may not be aggressive enough
 - starch digestibility tends to gradually increase in snaplage the longer it is stored so again more frequent feed testing is required
 - because it is drier going in the silo than corn silage, and has more fibrous material than high moisture shelled corn, fermentation shrink losses can be higher than silage and high moisture shelled corn so you may need more storage capacity to end up with the same amount of feed coming out in the end
- if you do not have a custom harvester in your area that is willing to run snaplage you will need to purchase a snapper head

The advantages of snaplage include:

- the harvest window for snaplage falls between corn silage and high moisture shelled corn harvest so it spreads out the harvest window which may make custom harvesters more available
- the harvest window moves up your harvest date on the calendar versus waiting for high moisture shelled corn, which on wet soils and/or in late maturing crop years can make a big difference in soil damage, crop yield, machinery wear and tear, and human safety factors
- in comparison to high moisture shelled corn harvesting snaplage gives you more tons of TDN per acre (10 – 15% more) so you may need less land and/or have to buy less shelled corn
- leaving corn stalks and leaves in the field after snaplage harvest can build soil organic matter and provides better erosion protection to the soil
- when balanced correctly in the ration snaplage can provide good nutrition with effective fiber to keep cows milking and healthy

If you are feeding snaplage for the first time monitor dry matter intake and milk production carefully this year to determine if you have a uniformity, digestibility and/or moisture issue with the snaplage. Always error on the wet side and try to harvest snaplage at 36 – 42% moisture (34 -36% kernel moisture) to avoid these problems in the future.

Will snaplage usage increase in future years? If we can harvest the product at an optimal level so it produces good feed and cow's milk on it well, it just might.

Sources used:

Hudson, D. (2011), [Is Snaplage a "Good Fit" For Dairy Farmers in the Northeast?](#) University of Vermont Extension.

Holin, F. (2014) [Harvesting Snaplage Successfully – Chop wet, process well, says Pioneer Silage Nutritionist Bill Mahanna](#), Hay & Forage Grower.

MSU Extension Winter Agricultural Programs

2014 Farm Bill Educational Mtg. in Cadillac January 20, 2015, 1:30 – 4:30 P.M., Wexford County MSU Extension Office, Cadillac, MI. No charge to attend but must pre-register at <http://events.anr.msu.edu/FarmBill1415/> or call 231-779-9480 as seating is limited.

2014 Farm Bill Educational Mtg. at NW Horticultural Station January 27, 2015, 9:00 – Noon, 6686 S. Center Hwy, Traverse City, MI. No charge to attend but must pre-register at <http://events.anr.msu.edu/FarmBill1415/> or call 616-994-4580.

Buckley Farm Show February 19, 9:30 A.M.—3:00 P.M. Hannah Elementary School, M-113, Kingsley, MI. In honor of the show founder, the late Frank Lipinski, the Buckley Farm Show will continue with Field Crop Updates for farms in Northwest MI. For details call Ed Breitmeyer at 231-263-5846 or Jerry Lindquist at 231-832-6139.

Field Crops On-line Webinar Six online programs on Mondays, 7:00 – 8:00 PM, February 23rd through March 30th, 2015. Participants will learn how to enhance their corn, soybean, malting barley/hops, wheat, and dry bean production systems and have an opportunity to ask questions of MSU agriculture experts from any high speed internet connection. One MDARD Pesticide Recertification Credit will be available for each webinar. Pre-registration is required but there is no cost to participate. Visit <http://events.anr.msu.edu/fieldcropswebinars2015> to register and access connection information. Contact James DeDecker at (989) 734-2168 or dedecke5@msu.edu for more information.

Focus on Dairy Production, March 4, Falmouth Community Center, Falmouth, MI. topics on calf & cow health, feeding higher amounts of corn silage, proper animal handling skills, & winter manure spreading. Contact Kathy Lee at 231-839-5850 for details.

Great Lakes Forage & Grazing Conference, March 12, 9:30 A.M. – 4:00 P.M., Kellogg Center, East Lansing, latest info on hay/haylage production and grazing practices, go to <http://fis.msue.msu.edu/> for complete details. Carpooling is possible, contact Jerry Lindquist at 231-832-6139.

Pesticide Certification Review and Exam, March 19, Review is 9:30 A.M. – 12:30 P.M. & Exam is 1:00 P.M., MSU Extension Office, 401 N. Lake St., Cadillac, MI. \$10/person for review, exam is \$50 for private applicators and \$75 for commercial applicators; must register for exam at www.michigan.gov/pestexam and for review at 231-832-6139 or 231-779-9480. Pesticide credits have been requested for review.

For a complete list of MSU Extension educational programs around the State go to <http://web2.msue.msu.edu/events/>.

From the 2015 MSU Weed Control Guide for Field Crops

For a complete copy of the 199 page guide go to

<http://msuweeds.com/publications/weed-control-guide/>

TABLE 1A – Weed Response to Soil-Applied Herbicides in Corn*

Soil Applied	SITE OF ACTION	CORN TOLERANCE**	ANNUAL BROADLEAVES										ANNUAL GRASSES							PERENNIALS							
			COCKLEBUR	JIMSONWEED	LAMBSQUARTERS	T-R LAMBSQUARTERS ^a	NIGHTSHADE (E. BLACK)	PIGWEEED	RAGWEED (COMMON)	RAGWEED (GIANT)	SMARTWEED	VELVETLEAF	WILD MUSTARD	BARNYARDGRASS	CRABGRASS	GIANT FOXTAIL	GREEN FOXTAIL	YELLOW FOXTAIL	FALL PANICUM	WITCHGRASS	SANDBUR	CANADA THISTLE	QUACKGRASS	YELLOW NUTSEDGE	JOHNSONGRASS (seedling)	JOHNSONGRASS (Rhizome)	
ATRAZINE	5	1	F	F	E	N	E	G	E	G	G	F	E	G	P	F	F	G	P	P	P	F	P	F	N	N	
BALANCE FLEXX	27	2	P	E	E	E	E	E	E	F	G	E	E	G	F	G	G	F	P	P	F	P	P	P	G	F	
BREAKFREE NXT/DEGREE/HARNESS/ SURPASS NXT	15	2	P	N	F	F	G	G	F	N	P	P	P	E	E	E	E	E	E	E	F	N	N	F	P	N	
CALLISTO	27	1	P	G	E	E	E	E	F	F	E	E	G	N	P	N	N	N	N	N	N	P	N	N	N	N	
DUAL II MAGNUM/ CINCH/PARALLEL	15	1	N	N	P	P	F	G	P	N	P	N	P	E	E	E	E	E	E	E	F	N	N	F	P	N	
MICRO-TECH	15	2	N	N	P	P	G	G	P	N	P	N	P	E	E	E	E	E	E	E	F	N	N	P	P	N	
OUTLOOK	15	2	N	N	P	P	G	G	P	N	P	N	P	E	E	E	E	E	E	E	F	N	N	P	P	N	
PRINCEP	5	1	F	F	E	N	E	G	E	F	G	F	E	G	F	F	F	G	P	P	P	P	F	F	N	N	
PROWL H ₂ O ^b (PRE only)	3	3	N	N	G	G	P	F	P	N	P	F	P	G	G	G	G	G	G	G	G	N	N	N	P	N	
PYTHON/ACCOLADE	2	3	F	F	E	E	G	E	F	P	G	G	E	P	P	P	P	P	P	P	N	N	N	N	N	N	
RESOLVE SG	2	1	G	F	F	F	P	E	F	P	F	F	E	G	F	G	G	F	F	P	P	P	P	P	P	P	
SHARPEN	14	1	G	G	G	G	E	G	F	G	G	G	G	N	N	N	N	N	N	N	N	P	N	N	N	N	
VALOR ^c (7d EPP or more)	14	2	P	F	G	G	G	G	F	F	F	F	G	P	P	P	P	P	P	P	P	N	N	P	P	N	
ZIDUA	15	1	P	F	F	F	G	E	F	N	F	F	F	E	E	E	E	E	E	E	F	N	N	F	F	N	
Premixes																											
ANTHEM	15/14	1	P	F	F	F	G	E	F	N	F	F	F	E	E	E	E	E	E	E	F	N	N	F	F	N	
ANTHEM ATZ	15/14/5	1	P	F	G	F	E	E	G	F	F	F	E	E	E	E	E	E	E	E	F	N	N	F	F	N	
BASIS BLEND	2/2	1	G	F	G	G	P	E	F	P	F	F	E	G	F	G	G	G	F	F	P	P	P	P	P	P	
BICEP II LITE MAGNUM/ CINCH ATZ LITE	5/15	1	F	F	G	P	E	G	G	F	F	F	E	E	E	E	E	E	E	E	F	P	N	F	P	N	
BICEP II MAGNUM/CINCH ATZ/ PARALLEL PLUS	5/15	1	F	F	E	P	E	G	E	G	G	F	E	E	E	E	E	E	E	E	F	F	P	F	P	N	
BREAKFREE NXT LITE DEGREE XTRA/FULTIME NXT/ KEYSTONE LA NXT	5/15	2	F	F	G	F	E	G	G	F	F	F	E	E	E	E	E	E	E	E	F	P	N	F	P	N	
BREAKFREE NXT ATZ HARNESS XTRA/KEYSTONE NXT	5/15	2	F	F	E	F	E	G	E	G	G	F	E	E	E	E	E	E	E	E	F	F	P	F	P	N	
BULLET/LARIAT	5/15	2	F	F	E	P	E	G	E	F	G	F	E	E	E	E	E	E	E	E	F	F	P	P	P	N	
CORVUS	2/27	2	G	E	E	E	E	E	E	G	E	E	E	G	E	E	E	E	E	E	G	P	F	P	G	F	
FIERCE ^c (7d EPP or more)	14/15	2	P	F	G	G	G	E	G	F	F	F	G	G	G	G	G	G	G	G	F	N	N	F	F	N	
HORNET WDG/STANZA	2/4	3	G	F	E	E	G	E	E	G	G	G	E	N	N	N	N	N	N	N	N	F	N	N	N	N	
INSTIGATE	2/27	1	G	G	E	E	E	E	F	F	E	E	E	G	F	G	G	G	F	F	P	P	P	P	P	P	
LEXAR EZ/LUMAX EZ	5/27/15	1	F	G	E	E	E	E	E	G	E	E	E	E	E	E	E	E	E	E	F	F	P	F	P	N	
SURESTART III/TRIPLEFLEX II ^d	2/4/15	3	G	F	E	E	G	E	G	F	G	G	E	E	E	E	E	E	E	E	F	P	N	F	P	N	
VERDICT ^d	14/15	2	G	G	G	G	E	G	F	G	G	G	G	G	G	G	G	G	G	G	F	P	N	P	P	N	
ZEMAX	27/15	1	P	G	E	E	E	E	F	F	E	E	G	E	E	E	E	E	E	E	F	P	N	F	P	N	

Herbicide Effectiveness: P = Poor; F = Fair; G = Good; E = Excellent; N = None; – = Not enough information to rank