



**Extension**  
UNIVERSITY OF WISCONSIN-MADISON  
MARINETTE AND OCONTO COUNTIES

Resource Center  
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If you will need any type of accommodation or assistance as you attend any Extension sponsored event, please contact the host county or Scott at the Marinette County office at least two days prior to the event. All requests will be confidential.

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## April/May, 2024 Ag Newsletter

As expected, conditions change from week to week. We go from thinking it is likely to be an early, dry planting season to having hundreds of utility poles snapped off by wet, heavy snow. Nonetheless, most areas are a bit ahead of schedule, so make sure you are paying attention to soil conditions, crop insurance planting dates, and other factors (both logical and borderline) that may impact your planting success.

The results of the three-year study regarding nitrogen rates and biological products conducted on farms in the region are found within this edition. This type of research works because ideas are brought to me by farms and agronomists and then I work with interested farms to try to answer the question at hand. If you are interested in testing something on your farm, get me your thoughts & Ideas. For 2024, I am still looking for additional farms that are interested in testing n-furrow fertilizer impacts, impact of zinc on corn, sulfur rates that are optimum for our crops, and continuing to test biological products in legume or manure credit field situations.

Stay safe, Scott Reuss, Crops & Soils Educator

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### Calendar of Events

Friday, May 3 Town of Center Ag Professionals Update Program

Saturday, May 11 Polar Pasture Walk (page 3)

Tuesdays and Fridays in May—starting May 10 or May 14. First Crop Alfalfa Quality Monitoring Program. Results available many different methods, contact Reuss to make sure you get updated results right away.

June 18, 20, 25 & 27 Antigo Youth Tractor & Machinery Safety Certification Course. See pages 5 & 6. Additional certification course will be offered in Coleman during July.

# HPAI & Dairy Herds / Workers

HPAI has made the news seemingly about 20,000 different ways in recent weeks. HPAI (Highly Pathogenic Avian Influenza) is continuing to spread through not only poultry operations in the U.S., but also dairy herds. As of these words being typed, South Dakota was the most recent state with first detection of dairy HPAI, so we should not be surprised if/when it gets to Wisconsin. The following is an overview of a few aspects of this disease situation and recommended resources to check into further when you want to know more and monitor the current status.

## Protecting animals from HPAI

While stopping the transmission of HPAI is complex, several ways exist to protect dairy farms from exposure.

- HPAI virus can be transmitted by waterfowl and other birds, infected cattle, and small mammals
- Minimize access of wild birds to cattle and their environment
- Manage the movement of cattle and their transport as much as possible
- Do not feed unpasteurized colostrum or milk to calves, cattle, or other mammals
- Implement precautions for caretakers and veterinary teams handling sick cows, sick or dead birds, small mammals, and unpasteurized milk
- Separate (quarantine) all new or returning animals for at least 21 days
- Contact your herd veterinarian if increased cow illness is observed in your herd, specifically in 2nd lactation or greater cows that are 150 days or more in milk.
- Animal symptoms may include:
  - Drop in feed intake
  - Drop in rumination
  - Fever
  - Decreased milk yield
  - Changes in milk (thicker and yellow to brown)
  - Respiratory symptoms

## Protecting humans from HPAI

The risk of humans getting HPAI is low, but infections have happened among highly exposed individuals. Humans exposed to infected animals should implement effective surveillance, preventative measures, and prompt treatment.

Possible signs and symptoms of avian influenza infection in humans are: - Fever - Shortness of Breath  
- Runny or stuff nose - Eye irritation - Body aches - Fatigue - Headaches - Sore Throat

- **Use Personal Protective Equipment (PPE)** when entering new or contaminated facilities
  - Clean boots or boot covers + Clean Clothing + Encourage Hand Washing
- Self-monitor (check yourself for signs and symptoms of an illness and report your observations to the public health department)
  - Perform daily temperature checks for fever
  - Be alert for flu-like symptoms

**Resources** (go to the electronic newsletter at any of the four local counties' website to click links directly)

<https://www.dhs.wisconsin.gov/occupational-health/farm-health.htm> Farm worker tips, human health information and resources specific to HPAI.

<https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/livestock> USDA APHIS site for livestock based information. All livestock species represented, with information specific to both farms and veterinarians. Map of current detections, FAQ documents, etc..

<https://www.wvdl.wisc.edu/wp-content/uploads/2024/04/Dairy-Biosecurity-Recommendations-HPAI-More-Mar2024-FINAL1.pdf> Thorough list of recommendations for dairy farm management from National Milk Producers Federation and American Association of Bovine Practitioners.

# First-crop Forage Quality & Pest Monitoring, the ‘Scissors Clip’ Project for 2024

**If you have ‘typical’ alfalfa fields for your neighborhood/region, please consider contacting Scott Reuss, 715-701-0966 (call/text) or email [scott.reuss@wisc.edu](mailto:scott.reuss@wisc.edu) with the field locations so that he can walk them as part of this quality and pest monitoring effort.**

We expect first crop to normally yield about 40-45% of overall tonnage, so it is very important to harvest at appropriate forage quality for your operation. There are also various insects and diseases that can change your harvest plans. Extension is assisting in the process of producer decision-making again this year by conducting region-wide forage quality and pest monitoring. Regional Crops/Soils Educator Scott Reuss will be walking alfalfa fields located throughout the four-county region starting May 9/10/11 window and then Fridays and Tuesdays as appropriate through the first week of June. Conditions may mean abbreviated circuits on the early or later dates, due to being either significantly early or getting past prime harvest. Watch for electronic (Email and text messages from Scott Reuss) communication about results, any schedule changes, etc...

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## Pasture Walk Featuring NoFence system, Bale Grazing Project, Forage Flush Management

@ SamanthaRose And Company; N3605 Cty. Road S; Antigo, WI  
(approx. one-half mile south of Hwy. 64 on Langlade County Hwy. S)

Saturday, May 11, starting at Noon, Light lunch provided

Pasture walks are meant to be a sharing of thoughts, ideas, and information in a production setting. This event will focus on a few different aspects of grazing management, including first flush, bale grazing, and the opportunities with electronic fencing, including the NoFence pilot project in which Hoffman’s participated over the winter on both sheep and cattle.

Roseann and Scott Hoffman will be sharing their experiences with NoFence, their farm’s transition processes (current transition is to fall calving), and other aspects of their grazing journeys. Cost-share opportunities that can assist in your transitions will also be discussed. Regional Crops/Soils Educator Scott Reuss will be on hand to share information from the state-wide bale grazing soil health research project of which Hoffman’s are a part. Paddock and hay acres’ nutrient management will also be reviewed, with a quick overview of nutrient considerations to maximize forage quality and quantity.

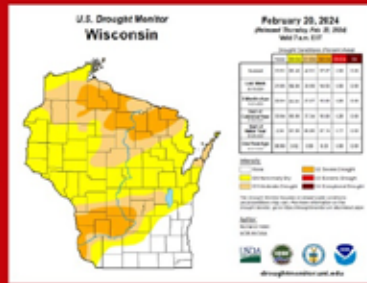


Proper forage management equals optimum animal performance!

## Resources You Can Use & Access free!

### Get weekly Wisconsin Ag Climate Outlook updates delivered to your inbox!

US Drought Monitor data,  
weekly and monthly  
temperature and  
precipitation data,  
and more!



[go.wisc.edu/ExtWIClimateOutlook](https://go.wisc.edu/ExtWIClimateOutlook)

The WI Ag Climate Outlook report gives you numerous pieces of data that may help you make decisions about cropping, animal movement, or risk management decision-making. Sign up for this free notice at the link shown here.

The Field Notes replaces what some of you may remember as the WI Pest Bulletin. It has news about pest levels, new pests, pesticide regulation changes, and many other similar topics. Go to [https://datcp.wi.gov/Pages/Programs\\_Services/FieldNotesNewsletter.aspx](https://datcp.wi.gov/Pages/Programs_Services/FieldNotesNewsletter.aspx) or simply type WI Field Notes into a search engine. At the bottom of any newsletter edition, there is a spot to sign up to receive e-notice of new editions.



The Badger Crop Connect is a free crops management webinar conducted the 2<sup>nd</sup> and 4<sup>th</sup> Wednesday's of April through October, starting at 12:30 p.m. and the recorded versions posted for viewing. Go to <https://cropsandsoils.extension.wisc.edu/programs/badger-crop-connect/> to register for the webinars or to sign up for event and news notices.

# 2024 FARM & VSQG PRE-REGISTRATION FORM MARINETTE & OCONTO COUNTY HOUSEHOLD & AGRICULTURAL CLEAN SWEEP

NAME \_\_\_\_\_ BUSINESS NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE \_\_\_\_\_ E-MAIL: \_\_\_\_\_

Agricultural Clean Sweeps are operating on an "appointment" basis to efficiently and safely serve area farmers, agricultural businesses, and businesses that are very small quantity generators (VSQG). Pre-registration is required to accurately assess eligibility for subsidies and volumes of product. **Please indicate below which location & time slot is best for you.**

**Who is a VSQG?** VSQG's are small businesses, churches, schools, municipalities, non-profit groups & organizations that generate less than 220 lbs/month & accumulate less than 2200 lbs of hazardous materials at any one time. VSQG'S disposing of ag related pesticides or chemicals may be eligible for 50% disposal cost subsidy. Other businesses must pay all disposal costs for non-agricultural pesticides or chemicals.

**Are you registering as a VSQG?** \_\_\_\_ YES \_\_\_\_ NO If yes, contact Oconto Co Solid Waste Dept 920-834-6827 for further details on receiving a cost estimate and any additional questions.

**How much does it cost?** All farmers, abandoned farm owners & agricultural businesses from Marinette & Oconto Counties are invited to participate. The first 200 pounds of agricultural waste from an individual farm is accepted free of charge to a farmer/farm owner or the owner of land that was formerly a farm. Ag businesses may be eligible for 50% subsidy.

**Please carefully inventory all farm (agricultural) chemicals in your sheds and barns & answer the following questions:**

1. I will bring \_\_\_\_ pounds of dry products (e.g., dry flowables, powders, granulars)
2. I will bring \_\_\_\_ gallons of liquid products (e.g., solutions, emulsifiables)
3. I will bring \_\_\_\_ gallons of lead-based paint
4. I will bring \_\_\_\_ number of 30-55-gallon drums.

**DO NOT  
MIX ANY  
MATERIALS  
TOGETHER**

How much product is in each drum? (Give each drum a number and estimate liquid quantity. Drum liquid quantity estimate should not be included in estimate on Question #2.)

\_\_\_\_\_

\_\_\_\_\_

5. Do you have any "unknown" chemicals? "Unknown" chemicals could be anything that has no labels identifying the product and you have no knowledge of its use. \_\_\_\_ YES \_\_\_\_ NO \_\_\_\_ UNSURE

6. Will you bring over 200 pounds of chemicals to the site? \_\_\_\_ YES \_\_\_\_ NO \_\_\_\_ UNSURE

7. **Send this form to the office in your county: Marinette County Land Information Department, 1926 Hall Avenue, Marinette, WI 54143 or Oconto County Land & Water Resource Department, 301 Washington, Oconto 54153. Form can be scanned and emailed to [lwr@co.oconto.wi.us](mailto:lwr@co.oconto.wi.us)**

8. Forms must be submitted by **May 2, 2024**

***Please check one location:***

- \_\_\_\_ Fri., May 10 (8-11am) Marinette County Fairgrounds,  
300 Fairgrounds Rd, Wausaukee
- \_\_\_\_ Sat., May 11 (8-11am) Marinette County Hwy  
Shop, 501 Pine Street, Peshtigo
- \_\_\_\_ Fri., May 10 (8-11am) Oconto County Highway Shop,  
8835 CTH Z, Suring
- \_\_\_\_ Sat., May 11 (8-11am) Oconto County Materials  
Recovery Facility, 153 Evergreen Rd, Oconto

***Please check a time slot:***

- \_\_\_\_ 8:00 - 8:30 am.
- \_\_\_\_ 8:30 - 9:00 am
- \_\_\_\_ 9:00 - 9:30 am.
- \_\_\_\_ 9:30 - 10:00 am.
- \_\_\_\_ 10:00 - 10:30 am
- \_\_\_\_ 10:30 - 11:00 am



# Marinette & Oconto Counties

## CLEAN SWEEP

### May 10<sup>th</sup> & 11<sup>th</sup>, 2024

## HOUSEHOLD AND AGRICULTURAL HAZARDOUS WASTE COLLECTION



This program is for the collection of hazardous waste generated within the geographical boundaries of Marinette and Oconto Counties. Many products you use in your home and yard contain hazardous materials. Improper disposal of these products can cause fires, injuries to people, animals and may contaminate groundwater. This guide will help you identify hazardous products in your home & farm. Keep your home safe and the environment clean by properly disposing of unused, unwanted hazardous products. Your items may be taken to the facilities listed for proper disposal. There is no cost for the disposal of household or agricultural (farm) hazardous waste. Waste generated from small businesses (VSQG's) may be accepted but will be responsible for paying all of the costs for disposal. See further details in flyer.

(Items may be modified at any time to meet the needs of the program.)

### USE THE FOLLOWING CODES AND CHART FOR EXAMPLES OF DISPOSAL

Key: ■ Place in trash ▲ Take to a hazardous waste collection site

- If connected to a municipal sanitary sewer you may be pour down the drain after reading product safety label, flush with lots of water.

<b>GARAGE AND WORKSHOP</b>		Wood filler	▲	Fungicide	▲
Acetone	▲	Wood preservative	▲	Furniture polish	▲
Artist's paint and media	▲			Insect spray	▲
Antifreeze	▲	<b>KITCHEN AND BATHROOM</b>		Light ballasts	▲
Auto body repair products	▲	Alcohol-based lotions	▲	Metal polish, solvent-based	▲
Batteries - automobile/motorcycle	▲	(Perfume, aftershave)	▲	Mothballs	▲
Battery acid	▲	Bleach	●	Pesticides	▲
Brake fluid	▲	Cleaners, ammonia-based	●	Pool chemicals	▲
Car wax, solvent-based	▲	Cleaners, solvent-based	▲	Rat poison	▲
Contact cement	▲	Cosmetics	▲	Shoe polish	▲
Driveway sealer	▲	Disinfectants	▲	Spot remover	▲
Fiberglass epoxy	▲	Drain cleaner	▲	Stump remover	▲
Fluorescent/incandescent light bulbs	▲	Floor care products	▲	Thermostats & mercury switches	▲
Gasoline/oil mixtures	▲	Hair remover	▲	Weed killer	▲
Gasoline and other fuels	▲	Medicine - (See Back for Other Medicine Disposal Locations)	■		
Glue, solvent-based	▲	Nail polish	▲	<b>FARM &amp; AG BUSINESS</b>	
Glue, water-based	▲	Nail polish remover	▲	<i>(Pre-registration required)</i>	
Joint compound	▲	Oven cleaner	▲	Pesticides	
Kerosene	▲	Permanent wave solution	▲	Examples include DDT, Chlordane,	
Lighter fluid	▲	Skin cream	▲	Lead, Arsenate, Lindane, 2,4,5-T, Silvex	▲
Non-automotive oils	▲	Thermometers	▲	Pesticide cylinders	▲
Paint, latex (see back)	▲	Toilet bowl cleaner	▲	Veterinary supplies	▲
Paint, oil-based	▲	Tub and tile cleaner	▲	Lead-based and other metal-based paints	▲
Paint thinner	▲	Window cleaner	▲	Other toxic metal paints	▲
Paint stripper	▲			(Fungicidal paints)	▲
Parts cleaner	▲	<b>HOME AND GARDEN</b>		Wood preservatives (Penta)	▲
Photographic chemicals	▲	Aerosol cans, empty	▲	Batteries (household and dry cell)	▲
Rust remover	▲	Aerosol cans, full	▲	Freon 11, 12 (refrigerant)	▲
Shellac	▲	Batteries, alkaline	▲	Compressed gas cylinders	▲
Stain	▲	Batteries, button	▲	(Propane, butane)	▲
Transmission fluid	▲	Batteries, rechargeable	▲	Picric acid	▲
Turpentine	▲	Dry cleaning solvent	▲	Pesticide rinsates	▲
Varnish	▲	Fertilizer (without pesticides)	▲	Unknown chemicals	▲
Windshield washer solution	●	Fertilizer (with pesticides)	▲		

### MATERIALS THAT WE ARE NOT ABLE TO ACCEPT

- Asbestos, ammunition-explosives, infectious or medical wastes, radioactive wastes, used oil, latex paints, TV'S & other electronics, light bulbs. For latex paint & medication disposal options, see the other side of this flyer. Used automotive oil can be disposed of at a local recycling facility or automotive stores that recycle used oil. TV'S, other electronics & light bulbs can be recycled at most local drop off sites or department/hardware stores.

### FOR FURTHER INFORMATION, CONTACT

Marinette County Land Information Department  
 1926 Hall Avenue, Marinette WI 54143 ~ 715-732-7780  
 Extension - Marinette County  
 1926 Hall Avenue, Marinette WI 54143 ~ 715-732-7514  
 OR, visit the county website: [www.marinettecounty.com](http://www.marinettecounty.com)

Oconto County Land & Water Resource Department  
 301 Washington, Oconto WI 54153 ~ 920-834-6827  
 Extension - Oconto County  
 301 Washington, Oconto WI 54153 ~ 920-834-6845  
 Or, visit the county website: [www.co.oconto.wi.us](http://www.co.oconto.wi.us)

## BEFORE YOU BUY PRODUCTS

- Think twice before you buy! Research nonhazardous alternatives.
- Read the label. Make sure the product will do what you want before purchasing. Follow label directions for safe usage, storage and disposal.
- Take inventory and purchase only the amount you need and use up what you buy.
- Avoid aerosols. Choose pump sprays or other alternatives.

## SAFE DISPOSAL

- Stores that sell vehicle batteries must accept them back for recycling.
- If you have leftover household products, check labels and review the chart for disposal options. Reuse products such as paint thinners and paints.
- Never pour oil, antifreeze or other hazardous materials on the ground, into storm sewers or down the drain.

## DISPOSAL OF LATEX PAINT

- Step 1:** Find an **outside** work area away from children pets, and rain. Locked screen porches and balconies work well. Because some old latex paint contains mercury, it's important to dry out paint outdoors in a safe place.
- Step 2:** Dry it out. Remove the lid and let the paint dry in the can. Stir the paint occasionally to speed drying. Or, brush paint in layers on newspaper or cardboard. **For larger amounts of latex:** Pour one-inch layers of paint into a cardboard box lined with plastic. Allow the paint to dry, one layer at a time – thin layers will speed up the drying process or mix paint with cat litter, sawdust or sand in a cardboard box lined with plastic and let it dry.
- Step 3:** Toss dried paint, cans and other materials in the trash. Leave lids off paint cans so trash collectors will see that the paint is dry and accept them.

## DISPOSAL OF MEDICINES (PHARMACEUTICALS)

For proper disposal of prescription and non-prescription medicines, drop boxes are located at the following locations:

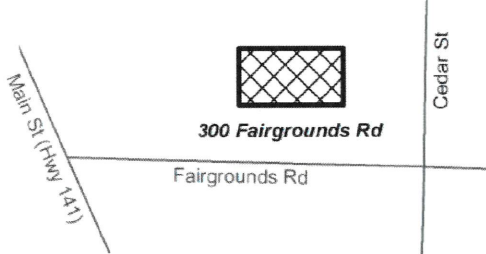
- Oconto County Law Enforcement Center 220 Arbutus Ave., Oconto, WI
- Suring Police Department 604 E. Main Street, Suring, WI
- Gillett Police Department 150 N McKenzie Street, Gillett, WI
- Oconto Falls Police Department 500 N Chestnut Ave., Oconto Falls, WI
- City of Marinette Police Department 1905 Hall Ave., Marinette, WI
- Nicolet Pharmacy 15481 Commercial Road, Lakewood, WI
- Marinette County Sheriff Dept. 2161 University Dr., Marinette, WI

## 2024 HOUSEHOLD & AGRICULTURAL HAZARDOUS WASTE COLLECTION FACILITIES

Safely package materials for transportation and bring to one of the facilities listed below. Hazardous waste staff will remove the items from your vehicle.

### Marinette County Fairgrounds - Wausaukee

Friday May 10th, 2024 ~ 8 - 11 am



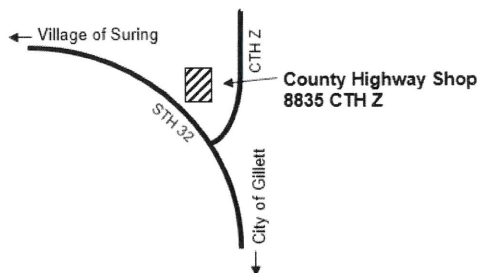
### Marinette County Highway Shop - Peshtigo

Saturday May 11th, 2024 ~ 8 - 11 am



### Oconto County Highway Shop - Suring

Friday May 10th, 2024 ~ 8 - 11 am



### Oconto County Materials Recovery Facility - Oconto

Saturday May 11th, 2024 ~ 8 - 11 am



**VSQG's-** The Marinette and Oconto County's Clean Sweep Program will accept hazardous waste from small businesses, churches, schools, emergency services, and county facilities that fill out a VSQG (Very Small Quantity Generator) **preregistration form**. VSQG participants will be responsible for paying all disposal costs. Agricultural pesticides brought in by an agricultural business (Pesticide Applicators, Farm suppliers) & classified as a VSQG, may be eligible for 50% grant funding for disposal of agricultural chemicals. **Upon preregistration**, a no obligation disposal price quote will be provided prior to bringing material to the collection facility. Please contact one of the departments listed on the front of this flyer for more information. **Preregistration is critical to assess safety of transporting hazardous materials to the event and any cost involved for proper disposal.**



Special thanks to the WDATCP (Wisconsin Department of Agriculture, Trade and Consumer Protection), Marinette & Oconto Counties for funding this program.



Extension  
UNIVERSITY OF WISCONSIN-MADISON



# Optimizing Return from Nitrogen: Rate and Biological Product Research on NE WI Farms



Nitrogen fertilizers are an important, variably expensive input into crop production systems. Along with the expense of utilizing nitrogen from either fertilizer or manure sources, there is the risk of nitrate moving through the soil profile and becoming a groundwater contaminant. Farms have increasing access to commercial bacterial products which may assist non-legume plant uptake of atmospheric nitrogen and/or decrease stress response. The cost of these products has hovered around \$15/acre (plus application if applicable), which farms would need to recoup with either 3-5 additional bushels corn yield/acre, or be able to achieve like yields with lower nitrogen inputs. At the request of farms and agronomists across NE WI, a multi-year, multi-site study was initiated to ascertain if these products produce a positive return to their usage in the region and to test nitrogen rate impacts on corn yield and profitability.

## How was the study conducted?

All of the study sites were managed as small plots within producer-managed fields to minimize variability of nitrogen and product application. The cooperating farm planted, applied starter fertilizer as normal, managed weeds, and managed all other practices within the plot other than nitrogen. Each product and nitrogen rate combination was replicated four times within the area to measure across inherent soil variability. The products were utilized in blocks within the plots to minimize edge effect and potential cross-plot contamination, particularly in 2022 and 2023 when the two products were applied via foliar application to corn at growth stages V-4 to V-6. Plots were hand harvested, with the middle 25' of the middle two rows of the full four-row, 50' plots harvested for yield determination. 2021: two sites with 8(0-200 lbs/acre) or 3(100-180 lbs/acre) nitrogen rates, with and w/o in-furrow applied Envita. 2022: five sites with four nitrogen rates (0, 80, 120 & 160 lbs/acre), with no product, Envita, or Utrisha. 2023: six sites with 3-5 N rates (from 0 to 200 lbs/acre), with no product, Envita, or Utrisha. NOTE: One site was abandoned at harvest due to inconsistent grass control.

## Key Result: Did the products show a positive yield impact and economic return?

The 2021 initial study showed that there is an opportunity for these products to be effective. Both sites showed an increase in yield due to Envita usage when averaged across all N rates, gaining 2.3 and 6.3 bushels/acre. The larger study site resulted in consistent, very high grain yields. There was very little response to nitrogen rate, but there was a positive Return on Investment (ROI) to Envita. The smaller site had inconsistent yield response to Envita, but an overall average increase, solely due to an unexpectedly low yield at the highest N rate without Envita.

The 2022 and 2023 study years utilized both products, but returned a positive ROI only at one site-year of ten for Envita, and three site-years of ten for Utrisha. Envita showed a positive yield increase in 8 of 10 site-years, but only the one positive ROI. Utrisha usage was as likely to decrease yield (5 of 10 site-years), as increase yield, even though it had the more likely positive ROI. Notable across all three years of the study is that positive ROI's were only noted where fields experienced high-yield, lower-stress (more consistent rainfall or irrigation) environments. This finding goes against one of the expected benefits of these product types, in that they are often touted as stress-mitigating.

2022 Main Trtmts: Envita, Utrisha, Control  
Yields averaged over Nitrogen Rates  
\* = Positive ROI

Site	Control	Envita	Utrisha
Langlade	179.7	180.9	*184.3
Lincoln	160.3	162.1	156.5
Marinette	152.3	154.8	149.1
Oconto	225.6	*238.1	*240.7
Shawano	109.3	110.8	110.4

2023 Main Trtmts: Envita, Utrisha, Control  
Yields averaged over Nitrogen Rates  
\* = Positive ROI

Site	Control	Envita	Utrisha
Langlade	180.8	182.2	*204.0
Marinette	154.7	151.3	150.3
Oconto	227.5	227.8	224.2
Shaw East	189.7	190.5	190.5
Shaw West	193.2	184.8	188.1



**Key Result: What was the Economically Optimum Nitrogen Rate (EONR)?**

The study’s findings regarding EONR consistently show that on-farm nitrogen usage can be reduced in many situations. Accounting for nitrogen applied via starter fertilizer, the EONR’s varied from 5 to 200 lbs N/acre in the 12 site-years of this study. However, the only EONR values above 140 were the 160 and 200 total N applied to the two irrigated study sites in 2023. Further, the highest EONR site (Langlade, 2023) utilized manure applied nitrogen as the primary nitrogen source. In the other 10 site-years, the EONR was as likely to be less than 100 lbs N/acre as it was to be between 100 and 140 lbs N/acre.

The two 2021 sites exhibited EONR values within the lowest pair of N rates utilized at each site. The larger site tested 8 nitrogen rates ranging from 0 to 200 and returned an EONR value of 50 lbs N/acre. The smaller site tested only 120, 160, and 200 lbs N/acre, and returned an EONR value of 120 lbs N/acre. As the tables below showcase, EONR rate varied across sites within each year, but was lower on average in 2022. Please note that there were two site-years with calculated EONR values nearly equal at two subsequent N rates.

**2022 Nitrogen Rate Averages, over trtmts**  
**\*\* = Economic Optimum Rate**

N rate	Langlade	Lincoln	Marinette	Oconto	Shawano
N applied via starter	5	22	44	20	5
0	169	**159	136	219.5	68.5
80	**187.5	161	**152.5	**237.5	**120
120	184	160	**161.5	239	125.5
160	186	159	158	244.5	127

**2023 Nitrogen Rate Yields, ave.'d over trtmts**  
**\*\* = Economic Optimum Rate**

N rate	Langlade	Marinette	Oconto	Shawano east	Shawano west
N applied via starter	5 (110 lbs. N as manure)	44	37	57	5
0			107	177	158
80			148	**231.5	**199
120			179	**163	**239
160			190	168	238
200			**199	174.5	247

**Summary of Findings, Current Status, Next Steps:**

**Biological Products:** The Return on Investment to utilizing Envita or Utrisha was not shown to be consistently positive via the results of this study. An actual negative yield response was shown in 7 of 22 site-years. A Positive ROI was seen in five of 22 site-years, but only where high-yielding, low-stress growth conditions were able to occur. This seems to countermand current product literature for the products. Other Midwestern University-conducted research with these products corroborates the findings reported here and shows that these products will not soon be found on the list of corn grain production Best Management Practices. That said, this research does not broadly indicate that the products have no opportunity to be profitably utilized in Northeastern WI, but does show that the investment is most likely to be returned when they are utilized on high-yielding soils likely to experience less stress. The fact that the strongest response to these products occurred at a site with manure nitrogen as primary source indicates an opportunity that needs further exploration.

**Nitrogen Rates:** The results of this study correlate strongly with past years’ N rate research in showing that moderate nitrogen rates (80 to 120 lbs. N plus 5-40 lbs. N in the starter fertilizer) are generally economically optimum in NE WI corn grain production. The likelihood of positive economic response to purchasing additional N fertilizer decreases significantly after 100 lbs. total N/acre. Higher nitrogen application rates often lead to a negative economic return along with the enhanced environmental risk of nitrate contamination in the region’s groundwater.

**Next steps:** There appears to be a possible fit for biological products in corn production systems in the region, but more research is needed to be able to readily recommend them in a given setting. The author intends to conduct additional research in future years in N credit-based systems to better hone in recommendations.

The study was graciously hosted by the following farmer-cooperators: Maly Dairy Farm, Langlade County; Hans Breitenmoser, Lincoln County; Dudkiewicz Farms, Marinette County; Aaron Behnke, Oconto & Marinette Counties; Sievert Dairy Farm, Oconto County; LeMere Farms, Oconto County; Tim Bulger, Shawano County; and Strassburg Creek Dairy, Shawano County. Also, United Cooperative, Coleman and YieldMaster Solutions generously supported this project through donations of nitrogen fertilizer and Envita, respectively.

This article and the research associated with it were written/conducted by Scott Reuss, Associate Professor and Regional Crops & Soils Educator for UW-Madison, Division of Extension. Contact at [scott.reuss@wisc.edu](mailto:scott.reuss@wisc.edu) or 715-732-7510.

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Front photo credit: Unsplash

# Ag Professionals Update



**Friday, May 3, 2024**

**9:45 am - 3:00 pm**

**Town of Center, Town Hall**

N3990 WI-47  
Appleton, WI 54914



**Extension**

UNIVERSITY OF WISCONSIN-MADISON

# Ag Professionals Update

Friday, May 3, 2024

Town of Center, Town Hall

- 9:30 am **Registration & Welcome** (Sugar, caffeine & other liquids )
- 10:10 am **"Is Soil Compaction Stealing from your Farm(s)?"** Chris Clark, Northeast Regional Outreach Specialist Nutrient and Pest Management Program, UW-Madison, Division of Extension
- 10:35 am **"Grazing Dairy Heifers for Economic & Ecologic Returns"** Liz Gartman, Regional Crops Educator and Stephanie Bowers Regional Dairy Educator
- 11:05 am **"Grain Markets and Margins for 2024 "** - Paul Mitchell, Director, Renk Agribusiness Institute, UW-Madison.
- 12:00 pm **Lunch Provided**
- 12:45 pm **"Emerging Herd Health Issues"** - Aerica Bjurstrom, Regional Dairy Educator
- 1:00 pm **"Ag Law Update"** - Kelly Wilfert Farm Management Outreach Specialist UW-Madison, Division of Extension
- 1:45 pm **"NE WI Crops Situation Update"** - Kevin Jarek, Regional Crops & Soils Educator, UW-Madison, Division of Extension.
- 2:00 pm **"Dairy Dynamics: Navigating Markets and Policies for Present and Future"** - Leonard Polzin, UW-Madison, Dairy Markets and Outreach Specialist
- 3:00 pm **Adjourn**



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**Registration Deadline: April 24, 2024**