



1010 W St. Germain Street Suite 750 St. Cloud, MN 56301

Minnesota Irrigator



Comments by the IAM **President**

Jake Wildman

Greetings IAM Members,

I hope everyone one had a Merry Christmas and a happy New Year. From all of us at IAM, I hope 2023 brings you joy and happiness.

I just want to first start out by saying thank you to every member that has supported IAM. Over the last year or so, the board has made it goal to get to that 500 member mark and I can tell you that goal has been achieved in 2022. Thank you to all of the long time members, as well as the new members who joined in 2022. The board cannot express enough how much we appreciate all of your support. It means so much, and we will continue to do everything in our power to advocate for your right to irrigate in 2023 and beyond.

It's that time a year again where the board has been busy planning IAM's annual meeting and convention. We are still

PRESIDENT continued on page 2



48th Anniversary!

Thursday Feb. 16th, 2023 Freeport Community Center Freeport, MN

(\$30 at the Door (\$25 pre-registration) - includes noon lunch Pre-registration can be done at https://mnirrigators.org/ as well as Membership Renewal -- 8:30 a.m. Doors open for visiting Exhibitors and refreshments --

9 a.m. Welcome & Introductions

Jake Wildman, IAM President

Annual Business Meeting

Meet IAM's Lobbyists

Commissioner Thom Petersen, MDA

9:15 - Break to Visit Exhibitors

---- 10:00 a.m. Program -----

"AFREC" Future: Bruce Montgomery, MDA "RCCP" Grant Update: Jeppe "Yebbe" Kjaersgaard, MDA 10:30 - Irrigation Research Update Dr. Vasu Sharma-UMN Extension Irrigation Specialist 11:00 - Electric Load Management

11:45 - Alan Peterson Scholarship Recipients Noon Buffet & Visit Exhibitors

Announcement of Service Awards --- 1:15 p.m. Program ---Agricultural Land Futures Bill Moore from Compeer Financial

2:15 - Is VRI Right for my Fields

Panel of Experienced Users

≈ **3:15** p.m. ≈

Cash Drawings: \$250 & \$100 at End of Meeting "Must be present to Win" Socializing with Neighbors and Exhibitors

MN Agriculture UPCOMING EVENTS

- February 7th-9th: Annual Nitrogen Conference: MAWRC & UM Extension Mayo Clinic Health Systems Event Center (1 Civic Center Plaza, Mankato) extension.umn.edu/event/ nitrogen-minnesotas-grandchallenge-compellingopportunity-conference
- February 21: Nutrient Management Conference -UM Extension & MAWRC at the Holiday Inn & Suites in St. Cloud, MN. Register online at extension.umn.edu/ courses-and-events/nutrientmanagement-conference
- March 1st, 8th, and 15th Minnesota **Irrigator** Program (MIP) Course -UM Extension (see page 3) at U of M Extension's Regional Office Farmington, MN. z.umn. edu/MIP23registration

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Welcome to the MN Irrigator's **Winter Newsletter**

Jerry Wright, IAM Membership Secretary Welcome to the Minnesota Irrigator's Winter Newsletter.

This newsletter comes to you thanks to the support of advertisers, current IAM members, Industry Sponsors listed on page 9.

The Directors on the IAM Board welcome and encourage you to renew your membership if you have not already joined. Last year we ended up with only 546 members.

Everyone benefits from each other's ideas, experiences, and partnership in IAM activities each year including keeping a watchful eye on MN Irrigators' Water Rights; telling personal stories about

continued on page 2

WHAT ARE YOUR **FELLOW IRRIGATORS DOING TO CONSERVE** WATER?

By Carmelita Nelson, DNR Water **Conservation Consultant**

Carmelita will be retiring on February 2, 2023 after 35 years with the DNR

2022 marks the second year that agricultural irrigators in Minnesota voluntarily completed Department of Natural Resources (DNR) Water Conservation Report.

PRESIDENT continued from pg 1

working out some of the details, but in the newsletter you will be able to find a tentative agenda for the day. The event is scheduled to take place on February 16th at the community center in Freeport MN. I feel we have a nice line-up of speakers again this year that will present on some interesting topics. I hope you are all able to attend and I look forward to seeing many of you on the 16th.

On the legislative side of things, IAM along with our lobbyist, have been busy preparing for legislative session that started at the begin-

ning of the month. As you are all aware, there was an election that took place last November which resulted in some changes in St.Paul. Because of these changes, IAM feels it will be more important than ever to have an active presence down at the capital and we plan on doing just that. There are a lot of new faces on both sides of the isle and all of us the Ag community, not just us as irrigators, need to be in front of these newly elected officials telling our story and discussing our issues. We need to be the ones forming the narrative before the narrative is formed for us.

I am excited to announce that IAM is planning Day on the Hill at capital again this year. We are currently working on the details, but please mark your calendars for Tuesday, February 28th. I will have more details at the annual meeting and you will also be able to find them on IAM's website as they come available. You can also register to on attend the event on the website as well. I can't stress enough the importance of having good attendance for events like this, so if your schedule allows, please plan on joining IAM at the capital for day on the hill.

I'll wrap up by just saying thank you again for all of your support. There will definitely be challenges over the next few years, no doubt. But I can assure you IAM will face these challenges head on and continue to represent your interests as irrigators so you are able to irrigate today and into the future.

Hopefully I'll see many of you at one of our events coming up here in February and I hope everyone has a good rest the winter.

> Jake Wildman 320-424-0713 jakewildman@outlook.com

WELCOME continued from pg 1

benefits of irrigation with local Legislators as well as representing the interests of irrigation practices across the state.

To become a member, simply return the signup form included on the last page of this newsletter or easier yet do it online at the IAM Website https://mnirrigators.org/ . As a member, you can also be placed on the IAM Email Alert list if you submit your email address.

If you are <u>not</u> <u>interested</u> in receiving future newsletters from Irrigators Association of Minnesota (IAM), please send a note to:

wrightsj@charter.net or IAM, 24 S. Edquist St., Appleton, MN 56208.

If you have a topic that you would like to see discussed in a future issue, drop a note to IAM president, Jake Wildman at <code>jakewildman@outlook.com</code>. Articles for the newsletter are solicited and gathered by the IAM officers and Membership Secretary, Jerry Wright whom can be contacted at <code>jerrywright1970@gmail.com</code>. Crow River Media in Hutchinson manages the advertiser space and edits, prints and mails the newsletter.

ADVERTISING DEADLINE: Minnesota Irrigator Newsletter next deadline for ads is March 28, 2023 TO SEND PRINT READY ADVERTISEMENTS, INQUIRE ABOUT ADVERTISING RATES AND INFORMATION CONTACT:

Kevin True, Hutchinson Leader Ad Director • 170 Shady Ridge Road NW • Hutchinson, MN 55350 • true@hutchinsonleader.com

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MINNESOTA IRRIGATOR PROGRAM HOSTING SECOND YEAR IN FARMINGTON



Dr. Vasu Sharma presenting at the MIP summer field day in Belgrade, MN 2022.

Are you an irrigator concerned about matching your irrigation with crop water use? Are you wondering how to improve water use efficiency and reduce water costs? The University of Minnesota Extension is offering the **Minnesota Irrigator Program (MIP)**, to help answer these questions and more.

This 3-day event will be held in person at U of M Extension's Regional Office in Farmington, MN on Wednesdays, March 1st, 8th, and 15th from 8:30 am - 3:30 pm. Breakfast and lunch will be provided.

With its sandy soils and limited precipitation, irrigation is a key component of production agriculture in the central region of Minnesota. Pro-

gramming will include a discussion of irrigation systems, how to use soil moisture sensors on your farm, irrigation scheduling, and special topics like variable rate irrigation and remote sensing.

In addition to learning about the most effective irrigation management, the MIP is one of the requirements to attain the **Irrigation Endorsement** of the Minnesota Agricultural Water Quality Certification Program. Certified farms will receive the endorsement with proof of attendance to this program and the adoption of a new irrigation practice or scheduling method on-farm. Continuing education credits (CEUs) for certified crop advisors will also be offered for this program.

If you can't make it this year, don't worry! We will be offering this program at rotating locations throughout the state in the coming years. Participation is capped at 25 individuals (20 growers and 5 agency staff), so be sure to register today! The cost of this 3-day program is \$75. Breakfast and lunch are provided.

For more information and to register, go to z.umn.edu/MIP23registration

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IRRIGATION AND GROUNDWATER LEVEL MONITORING: MORE THAN JUST DATA

By Brent Beste, Water Appropriation Hydrologist, DNR Southwest Region (January 2023)

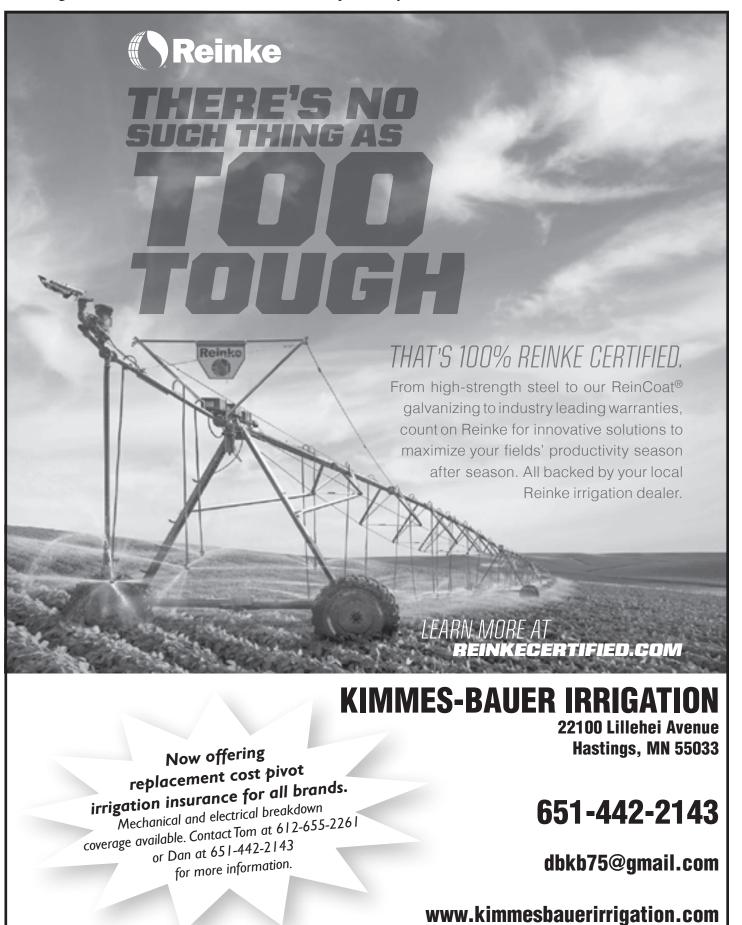
Many DNR water appropriation permits have groundwater level monitoring conditions added to the permit to require the collection of groundwater aquifer water levels. Occasionally, these permit conditions may not get the attention they deserve. Often, the goal of groundwater monitoring is to protect the aquifer and reduce impacts to other water users and groundwater-dependent natural resources. The information that is being collected, however, can be incredibly useful for irrigation management by high-capacity water appropriators. The DNR wants local landowners and water users to help the DNR manage local groundwater systems, as they are the most connected and familiar with the groundwater resource.

The DNR utilizes groundwater level monitoring as required in state law, to manage water demands and inform decisions. Specifically, the reason

may be to protect an aquifer, prevent or mitigate a well interference, or gather data to protect both irrigators and other water users if a well interference complaint is filed with the DNR. Water appropriation permits include these additional conditions to monitor groundwater levels for a specific and important purpose.

High-capacity water appropriators throughout Minnesota have learned to use required groundwater level monitoring for their benefit. This includes efforts to improve irrigation efficiency, protect resources, and make decisions on when and how much to irrigate. This is regularly practiced in areas of southwestern Minnesota where groundwater resources are limited by geology – the study of science that helps to explain how the rocks and

continued on page 7



UNIVERSITY IRRIGATION CROP MANAGEMENT WEBSITES

•

University of Minnesota Extension

https://extension.umn.edu/ soil-and-water/irrigation

•

North Dakota State Extension

https://www.ag.ndsu.edu/ irrigation

•

University of Wisconsin Extension

https://fyi.extension.wisc.edu/ cropirrigation

South Dakota State Extension

https://openprairie.sdstate.edu/ extension_circ/461

University of Nebraska Extension

https://water.unl.edu/ category/agriculturalirrigation

•

CARING FOR YOUR CENTER PIVOT END GUN

By Carmelita Nelson, Minnesota DNR Water Conservation Consultant

Somewhere in Minnesota, the county sheriff or the Department of Natural Resources (DNR) is getting a complaint about irrigation systems shooting water onto the roadway. Sending water through your center pivot's end gun onto public roads can create hazardous driving conditions for cars and motorcycles and can be a major liability issue. Minnesota State Statute 160.2715 states that obstructing a highway or any detrimental operation within the road right-of-way is a misdemeanor. Wasting water by shooting it onto roadways also reflects poorly on farmers and can lead to public anger and resentment.

Sometimes the shut off devices will fail and this should be fixed as soon as possible to keep water off the roadway. More commonly, according to Steve Melvin, Extension Educator Irrigated Cropping Systems, the overspray is caused by incorrectly setting when the end gun turns off. To prevent spraying the road, the end gun must be turned off well before it approaches the road, even on a windy day.

Do you have an end gun on your irrigation pivot? End guns are an optional piece of equipment placed at the very end of the center pivots that can deliver water up to 120 feet beyond the end of the equipment. They can be turned on when the pivots go by the corners and provide water for an extra eight to 10 acres on a 160-acre field. While this seems like an economical practice, there can be downsides. End guns are the most inefficient part of the pivot, because it does not apply water very uniformly. The large droplet size can displace soil particles or, conversely, cause soil compaction. End gun systems also have high energy requirements. Older models of end guns are especially prone to malfunction and require ongoing maintenance.

As the irrigation season continues and there is more wear and tear on the equipment, farmers are encouraged to take time to make sure your center pivot's end gun shutoff controls are working properly. There are two items



you can inspect to make sure the water is going where it is needed: the end gun valve at the end of the machine and the angle position settings at the center pivot control panel. Often malfunctioning control valves result in the end guns not shutting off properly and allowing the water to flow to unwanted areas including onto roadways.

By having properly functioning end gun shut off controls, farmers can save a significant amount of water and associated pumping costs. Neighbors and passers-by will also be grateful for the precision use of our precious water resources.



IRRIGATION AND GROUNDWATER LEVEL MONITORING continued from pg 5

soil below the ground determine water availability and aquifer extent.

Reed Van Hulzen, an irrigator in southwest Lincoln County, irrigates in an area with a thin layer of sandy soils and a thick layer of clay overlying a buried sand and gravel aquifer. Often, by late summer, water levels in the pumped aquifer reach a point that if pumping were to continue, permanent damage to the aquifer could occur. Van Hulzen said, "Groundwater monitoring helps make decisions on when to start and stop pumping to meet DNR regulatory requirements to protect the aquifer." By understanding how water levels respond, Van Hulzen is able manage irrigation timing to irrigate longer into the summer and ensure long-term water availability. Without understanding how water levels respond to pumping, water levels could fall below the safe yield threshold established by the DNR for the local aquifer. Water levels that fall below this water level for an extended period could limit long-term water availability of the aquifer, including for permitted uses and domestic needs. In this situation, the monitoring well is important to extend the irrigation season and sustain the water source.

In another area of southern Minnesota, the DNR works with high-capacity water appropriators to protect shallow groundwater resources through monitoring of groundwater levels. Groundwater level monitoring highlighted the need to coordinate irrigation scheduling to manage groundwater use, with the goal of avoiding well interferences due to a better understanding of the geology of the area. When a group of irrigators installed a required monitoring well nest (a group of wells near one another to monitor different aquifers to compare to each other), all involved learned how the two aquifers were interconnected and how deeper groundwater pumping was lowering the water level in the shallower groundwater (i.e., near the surface of the ground). By monitoring and managing water appropriation and irrigation timing, the irrigators have put less stress on the

aquifers and prevented domestic well interferences in the area for the past five years, including during the 2021 drought.

By reaching out to your local hydrologist to ask questions and understand the data irrigators are collecting, an irrigator can learn a lot to help manage the water availability and maintain that resource for the future. Groundwater level monitoring is a tool used to manage water use, protect domestic supplies and groundwater-dependent natural resources such as trout streams and calcareous fens. By understanding the benefits of groundwater level monitoring and using it as one of the many tools to help manage water availability and protection, irrigators can learn to manage impacts to resources to mitigate problems before they become a potential concern.

Groundwater level information collected by the DNR, irrigators and others can be found by searching the Minnesota DNR Cooperative Groundwater Monitoring website at dnr.state.mn.us/waters/cgm/index.html.

If you're interested in a better understanding of aquifer water levels and water appropriation demand in the area where you irrigate, contact your local DNR water appropriation hydrologist. A map and list of DNR hydrologists is available on the DNR website: https://files.dnr. state.mn.us/waters/area_hydros.







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CENTRAL LAKES COLLEGE - AGRICULTURE LITERACY PROGRAM HOSTS SEVERAL INTEREST GROUPS A YEAR

By Hannah Swartzentruber, Research Manager, CLC Ag and Energy Center



One of the priorities that we have at the Ag and Energy Center at CLC Staples is Agriculture Literacy. One way that we work to achieve this priority is by hosting different groups throughout the summer. Many times we will host over 20 tours throughout the growing season.

One of these groups that we host is twenty-five NRCS (Natural Resource Conservation Services) field agents. These in-

dividuals come to the farm three times throughout the season. The first session they attend is a planting and planning session. Breakout sessions included a ride and drive, a precision agriculture workshop, an irrigation workshop, and a tour of the hydroponics 'Sota Grown pod. Then there is a session about midway through the summer. This summer that session took place at Twin Eagle



Dairy Farm. Field agents learned about dairy nutrition, feed and forage, equipment used on a dairy farm, as well as different NRCS and EQIP Programs that dairy farmers are able to participate in and how it relates to their operation. The third session took place in the fall. This included a fall tillage demonstration, harvest of corn with a GPS operated combine, cover crop demonstration, as well as drone flights and operations. These sessions are working to build relationships between NRCS field agents, industry, and producers. The goal is to continue to grow these training days.

Another area that we are working to increase our Agriculture Literacy is in Precision Irrigation. A project funded by RCPP (Regional Conservation Partnership Project) was initiated this summer. This involved the installation of a precision irrigation on a full circle pivot field at the Ag and Energy Center. The irrigator is operable at this time. There have been some challenges in getting all the features of this irrigator to run. One reason as to "why" is that the irrigators on the farm are all operated off of surface water ponds. In order for this pivot to operate with variable rate, it is in need of a well to make this process work or a variable rate pump. Work was completed this summer to drill a well, but so far, there has not been success as the right amount of water was not found. Work will continue to be done to get this irrigator up and completely operable in the coming year.

Throughout the summer, we also reach out to the younger generation through children's gardens. The primary group of children that we work with meet every other Wednesday at the Living Legacy Gardens. These young aspiring gardeners enjoy the opportunity to be outside and learn more about where their food comes from. They each are able to join in with planting, weeding, and of course harvest! At each get together, there is a garden related



craft that ties in with gardening and brings joy and smiles to the faces of everyone involved. During our Annual Field Day event in August, we have a garden that is especially for kids. This garden has potatoes, beets, and kale that are harvested and taken home by the kids as well as zinnias, sunflowers, and marigold that are cut for a bouquet to be enjoyed by everyone who sees.

Agriculture Literacy is a key component to what we do here at the Ag and Energy Center. We look forward to continuing to share agricultural experiences with more groups throughout the 2023 growing season.

For more information contact Hannah at hannah.barrett@clcmn.edu

Thank you 2023 IAM **Industry Supporters**

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8 a.m.

Bruce Montgomery, MDA AFREC Coordinator

• UPDATES ON NUTRIENT MANAGEMENT INITIATIVES

What do AFREC dollars mean for farmers and Minnesota

Mike Schmitt, University of Minnesota

8:25 a.m. Climate smart agriculture- what to expect for

future nutrient management

Greg Klinger, University of Minnesota

POTASSIUM FERTILITY

8:40 a.m. Potassium recommendations based on clay mineralogy,

a North Dakota perspective

David Franzen, North Dakota State University

Potassium recommendations based on clay mineralogy, <u>9:20 a.m.</u>

an Iowa perspective

Antonio Mallarino, Iowa State University

Potassium recommendations based on clay mineralogy, 10 a.m.

a Minnesota perspective

Daniel Kaiser, University of Minnesota

10:40 a.m. Break

NUTRIENT MANAGEMENT

Interactions between irrigation <u>11 a.m.</u>

and nitroaen

Vasu Sharma, University of Minnesota

<u>11:40 a.m.</u> Does placement of phosphorus and potassium matter?

Jeff Vetsch, University of Minnesota

• BEYOND INORGANIC FERTILIZERS (CONSIDERING ECONOMICS, **CLIMATE AND ORGANIC SOURCES)**

Biological inoculation with nitrogen fixing bacteria 1 p.m.

Paulo Pagliari, University of Minnesota

Manure as a source of nutrients in an era of 1:40 p.m.

expensive inorganic fertilizers

Melissa Wilson, University of Minnesota

2:20 p.m. Minnesota climate conditions: Observations, trends,

and outlooks

Kenny Blumenfeld, Minnesota Department of

Natural Resources

Economics of fertilizers 3 p.m.

Bill Lazarus, University of Minnesota

Adjourn 3:40 p.m.

> TO REGISTER FOR IN-PERSON ATTENDANCE: 2023NutrientMgmtConf.eventbrite.com

TO REGISTER TO PARTICIPATE VIA ZOOM: mawrc.live/2023NutrientZoom



CONSERVE WATER continued from pg 1

The 2022 report reflects the water conservation practices that were implemented during the drought of 2021.

All agricultural irrigators are required to report their annual water use through the Minnesota DNR Permitting and Reporting System (MPARS) and pay an annual water use fee. Beginning in 2021, the DNR also offered farmers an opportunity to conduct a self-audit of their water conservation practices. This quick, free survey helps you think about all aspects of your water use and how you might improve efficiency. Just as every business should periodically audit their bookkeeping and energy use, it is a good practice to examine your water use and consider how you can reduce the amount of water used without negatively affecting your crops.

The Water Conservation Report is powered by ESPWater, a software system that is similar to one businesses across the state use to evaluate their energy savings. The checkboxes are easy to complete. The report systematically evaluate all aspects of agricultural water use and provides ideas for improving water efficiency.

The questions in the Water Conservation Report were developed in cooperation with irrigators, the Minnesota Department of Agriculture, staff from Soil and Water Conservation Districts, and the University of Minnesota Department of Soil, Water, and Climate. Questions examine wells, pumps, meters, irrigation equipment and system design, seed selection and plant management, maintenance, control systems, scheduling, training and education.

Here are some of the highlights from the 2022 Water Conservation Report by Agricultural Irrigators:

<u>Irrigation Equipment Efficiency - Top measures during 2021</u>

- 52% have end-gun management
- 46% can shut off water to unused areas
- 45% have low volume/pressure nozzles
- 42% have new or better nozzles
- 28% have a variable rate distribution system installed with speed control, zone control or both

Maintenance - Top measures 2021

- Leak detection and repair
- Off-peak irrigating
- Installed backflow prevention system
- Test sprinkler application rates and uniformity

Moisture Monitoring - Top measures 2021

- Regularly scout crops for moisture
- Rain gauges installed three or more per field
- Soil testing for water holding capacity

<u>Irrigation Scheduling - Top measures 2021</u>

- Crop-based irrigation scheduling method
- · Checkbook method
- Daily ET (evapotranspiration) monitoring

<u>Plant and Soil Management to Save Water – Top measures 2021</u>

- Crop rotation using some crops with lower water needs
- Use drought tolerant/lower water-use seed
- Use a soil test to determine fertilizer needs
- Regularly work to improve soil health cover crops, improve organic matter
- Regularly scout crops, follow integrated Pest Management and Best Management Practices

Water is an essential input for agricultural production, which in turn plays an important role in global food security. Irrigated agriculture is routinely more productive than rain-fed agricultural land, especially in sandy coarse-textured soils. Whether you're in a water-rich part of Minnesota or an area with water sustainability challenges, it is up to each individual farmer to increase their water stewardship efforts. What are you doing to use less water and still produce abundant crops?

You are encouraged to increase your water use efficiency each year and track your successes using the Minnesota DNR Water Conservation Reporting System. Watch for DNR emails in January and February reminding you to complete the Water Conservation Report by March 30. Assistance is available if you are unfamiliar with electronic reporting.



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3 AREAS OF FOCUS TO FEEL BETTER DURING COLD DARK WINTER DAYS

By Monica McConkey, MA, LPC, Eyes on the Horizon Consulting monicamariekm@yahoo.com | www.eyesonthehorizon.org



For many people, winter can be a difficult time with days overcome by a lack of motivation, negative thinking, and increased irritability. These can be symptoms of Seasonal Affective Disorder (SAD) which is defined as a mood disorder in which abnormal moods occur in a regular seasonal pattern, such as depression during the short days of winter. SAD impacts approximately 10 million Americans and it is important to note that while most people are affected during the winter, this disorder can be attached to any season.

There are multiple theories as to what causes SAD in winter months. Primarily it is thought that increased darkness stimulates production of melatonin which prepares our body for sleep. In addition, less vitamin D is produced which impacts our body's ability to build and maintain healthy bones, brain cell activity and more.

When exploring options for preventing the difficult symptoms that come with winter months, there are 3 areas of focus: environmental, psychological, and behavioral.

Environmental coping strategies include:

- Set your bedroom lights to turn on a half hour before you typically wake up to mimic sunrise
- Expose yourself to sunlight as early in the morning as possible
- Use an artificial light. These are also referred to as SAD lights, are relatively inexpensive, and accessible through sites like Amazon. Recommendations include utilizing a light that is full spectrum 10,000 lux and sitting within close range in the morning for approximately 20-40 minutes (varies based on level of symptoms).
- Declutter home to make it an enjoyable place to be
- Include plants and fresh flowers in your home

Behavioral coping strategies include:

- Exercise
- Increase water intake
- Eat fresh foods
- Take a daily multivitamin containing D-3
- Try something new to fight the monotony of winter days (new recipe, game time, date night, winter bonfire, etc.)
- Hot baths/sauna
- Meditation/prayer

Psychological coping strategies include:

- Set and focus on a goal
- Acceptance and positive mindset (pledge to make the best of the situation)
- Work to not entertain thoughts that are unhelpful and negative.

If it is difficult to get through the day, even with attempting coping strategies, it is critical that you reach out and talk with someone. That someone can be a trusted friend, faith leader, healthcare provider, counselor or therapist. It may be determined that medication combined with other approaches like those mentioned above might be the best course of action. Isolating and withdrawing often feels like the easiest thing to do when faced with difficult moods and emotions, however it usually serves to make symptoms worse.

Resources available in Minnesota include Ag Mental Health Counselors: Ted Mathews (320-266-2390) and Monica McConkey (218-280-7785), the MN Farm and Rural Helpline (833-600-2670), and the 988 Suicide and Crisis Lifeline.

Winter months do not have to be dreaded. Through a combination of changes to your environment, behavior, and the way you think it can be an enjoyable time of the year!

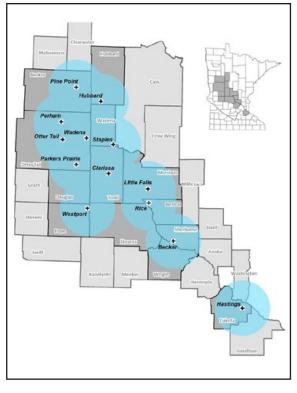
Find this article among others at www.eyesonthehorizon. org/blog



MINNESOTA EXPANDING REGIONAL ACCESS TO LOCAL WEATHER DATA

www.mda.state.mn.us/central-minnesota-ag-weather-network

Daily crop water use data (also known as evapotranspiration) is a crucial piece of information that irrigators need to efficiently manage water. Weather station information is required to precisely estimate water use of the growing crop.



The MDA partnered with the East Otter Tail Soil and Water Conservation District (SWCD), Wadena SWCD, Pope County SWCD, Benton County SWCD and Dakota County SWCD to install weather stations across central Minnesota. The weather stations are placed in agricultural settings with the intent to provide data for agricultural producers and those involved with atmospheric research in this environment.

Daily crop water use estimates for a particular field can viewed online with the Irrigation Management Assistant. **ima.respec.com**

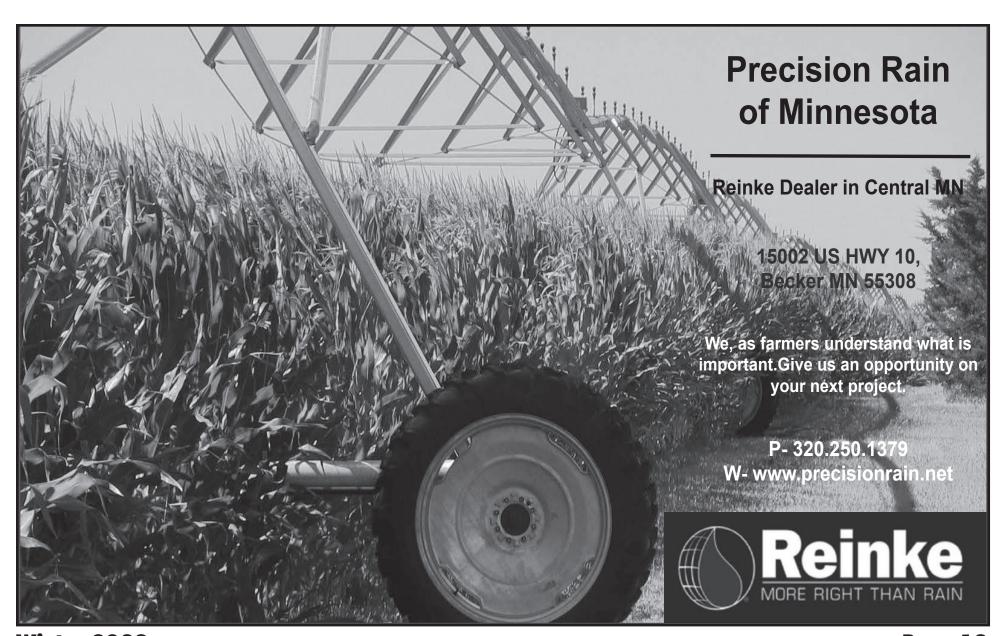
ADDITIONAL WEATHER STATIONS

Through a partnership with the North Dakota Ag Weather Network (NDAWN), these central Minnesota weather stations are now integrated into the NDAWN crop modeling, air temperature inversion, potato blight, and mapping applications. In addition, weather information from the stations is now available in real-time (5 minute interval) via the NDAWN website ndawn.ndsu.nodak.edu and mobile application. The mobile application is

called "NDAWN Inversion" and provides basic real-time weather information and air temperature inversion alerts. It is free to download at both the App Store (iOS) and Google Play (Android).

Across Minnesota there are now 38 NDAWN and MDA weather stations across Central and northwestern Minnesota. The MDA installed and manages 14, while NDAWN has installed and manages 24.





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Take your nitrogen management to a higher level, attend one of the Advanced Nitrogen Smart trainings, or all four at Nitrogen College. Now offering CEUs for Certified Crop Advisors. Pre-registration is not required and there is no cost to attend thanks to the generous support of Minnesota corn farmers and their checkoff. More information at z.umn. edu/nitrogensmart.

2023 Nitrogen College

• Willmar Conference Center

Attend any, or all four sessions.

No meal will be provided between sessions

January 31st: 9:00 a.m. Manure Management

1:00 p.m. A Deep Dive Into the 4Rs

February 1st: 9:00 a.m. Adapting N Management to Climate,

1:00 p.m. Reducing Nitrate Loss to Water

• Faribault - Rice County 4-H Building

February 28th: 9:00 a.m. A Deep Dive Into the 4Rs

1:00 p.m. Adapting N Management to Climate

March 1st: 9:00 a.m. Reducing Nitrate Loss to Water

1:00 p.m. Manure Management

2023 Advanced Nitrogen Smart

- Lamberton UMN Southwest Research & Outreach Center February 13th: 1:00 p.m. Reducing Nitrate Loss to Water
- Waseca UMN Southern Research & Outreach Center,
 February 14th: 1:00 p.m. Reducing Nitrate Loss to Water
- Paynesville American Legion
 February 15th: 1:00 p.m. Reducing Nitrate Loss to Water
- Ada Dekko Community Center
 February 16th: 9:00 a.m. A Deep Dive Into the 4Rs
- Morris UMN West Central Research & Outreach Center,
 - February 17th: 9:00 a.m. Adapting N Management to Climate
- Rochester UMN Extension Regional Office
 March 8th: 1:00 p.m. A Deep Dive Into the 4Rs
- Owatonna Steele Co Four Seasons Centre, North American Farm and Power Show

March 17th:1:00 p.m. Adapting N Management to Climate

If you have questions regarding these sessions, visit the website: z.umn.edu/nitrogensmart or contact Brad Carlson at bcarlson@umn.edu or 507-521-6012

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ESTIMATING THE AMOUNT OF PUMPED WATER

By Tom Scherer, Extension Agriculture Engineer, Agricultural and Biosystems, North Dakota State University 701-231-7239 | thomas.scherer@ndsu.edu

Article taken from the NDSU "Water Spouts" newsletter No. 325 September 2022 | www.ag.ndsu.edu/irrigation/water-spouts



If you have an irrigation water permit, sometime this winter you will receive a notice from the North Dakota State Department of Water Resources requesting a report of the amount of water you pumped for irrigation this past growing season. Here are three methods you can use to determine the volume of water pumped for irrigation depending on your equipment.

1. Do you have a working flow meter?

A working flow meter with a volume totalizer makes it easy to report water usage. The volume totalizer is a counter similar to the odometer in a car. Some meters record the volume in either hundreds or thousands of gallons. It is usually easy to determine which one because the manufacturer will show zeros to the right of the counter. If hundreds of gallons are recorded then there will be two extra zeros, and there will be three zeros if it records thousands of gallons. Some record the volume in cubic feet of water (1 cubic foot equals 7.5 gallons) and some record in acre-inches or acre-feet. Usually, the measurement unit for volume is shown on the face plate of the flow meter.

If you wrote down the numbers on the volume totalizer at the start of the season, then all you need do is read the meter again and subtract the numbers to obtain the volume pumped. You can report water use in either gallons or acre-feet. Just remember an acre-foot of water covers an acre one foot deep in water and is equal to 325,800 gallons. An acre-inch is equal to 27,150 gallons.

2. Do you have an hour meter on the center pivot or pump?

For a center pivot system, you can calculate an estimate of the amount of water pumped using the hour meter in the pivot control panel. However, you need to have written down the hour-meter reading at the beginning of the growing season. Subtract the current reading from the previous reading to get the number of hours the pivot operated this year. You then need to know the approximate flow rate to your center pivot. This can be obtained from the center pivot sprinkler chart. Now that you know the flow rate use the following formula to calculate the acre-feet of

water that were pumped:

Volume pumped = (Hours of operation) x (gallons per minute) / 5,430

For example, say your center pivot ran for 895 hours and the sprinkler flow rate is 800 gallons per minute then the volume pumped is approximately:

 $(895 \times 800) / 5,430 = 131.9$ acre-feet.

You can also use this method if you have a diesel or gasoline engine with an hour meter or have an hour meter in the pump electrical control panel and know the average flow rate being pumped.

3. No water meter or hour meter?

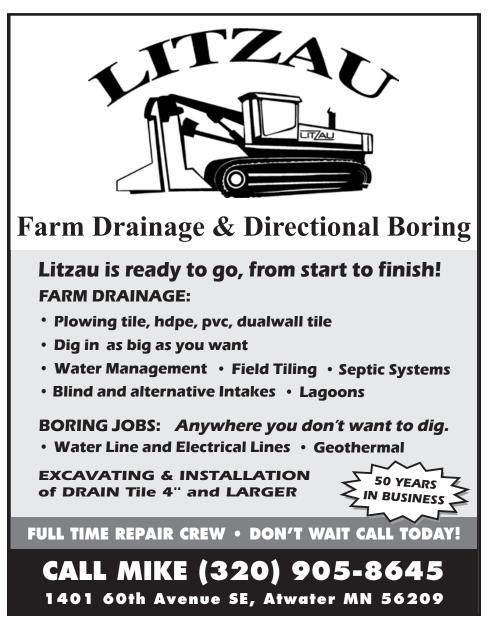
If this is the case, estimating the volume pumped will be difficult. However, for electrically driven water pumps, you can obtain an estimate of the number of hours of operation using the electric meter. Modern electric meters not only record the total energy use in kilowatt-hours (kwh) but also other parameters such as peak kwh and average kwh use. You can estimate total hours the pump was operated by dividing the total kwh used during the growing season by the average kwh. The seasonal total and average electric draw for each meter can be obtained from your electrical supplier. For instance, say your pumping plant used a total of 43,937 kwh and the average pumping load was 43 kw. Dividing 43,937

kwh by 43 kw shows that the pump operated for 1,021.8 hours. Again, you need an estimate of the flow rate which can be obtained from the sprinkler chart.

The calculated hours will be correct even if the meter is recording the electricity used by both the pump and center pivot or if it is recording electrical use of just the pump. The extra electrical load of the center pivot is recorded in both the average draw and the total so it doesn't affect the calculated hours of operation.

Estimating the volume of pumped water becomes very difficult where irrigation systems have one pump that supplies multiple pivots or multiple wells that supply a single or multiple center pivots.





IAM WEBPAGE INFORMATION

If you have not visited the IAM website www.mnirrigators.org Facebook and page recently it's time you do so! At IAM, our mission is to "support new science-based research on irrigation management and provide advocacy at the state and local level for the right of farmers to irrigate." This website highlights our work in this area, and we'll provide updates and events via our Facebook page.



The website also allows you to join/renew your membership online with credit card as well as register for the 2023 Convention and make other donations to IAM projects.

There is also a place for farmers to find irrigation resources from research farms across the state and access the latest copy of IAM's Minnesota Irrigator newsletter.

Renew Membership on the IAM WEBPAGE www.mnirrigators.org

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