

# MSU Extension Crops Newsletter for Northwest Michigan

Dear Northwest Michigan Field Crop Producer,

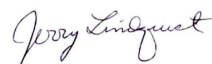
**August 2017**

Summer is winding down and for the most part our field crops across Northern Michigan are looking good. Our MSU Enviro Weather Station in McBain shows that as of April 1, 2017 we are running ahead of the five year average on rainfall – a total of 14.95” have been recorded thus far versus the five year average of 13.19”. However on growing degree days for corn (base 50) we are ever so slightly behind with 1,800 GDDs as of August 21 versus 1820 for a five year average. And here is the great news – most our reporting stations around the Traverse City region are showing above average rainfall for the first time in many years! It is about time that farms up in the NW corner have a good growing year. Corn maturity across Northern Michigan is advancing at a normal to slightly above normal rate and will be dependent on day and night time temperatures from this point on to know where it will land on harvest timing.

Hay crops across Michigan have been variable. The southern part of the Lower Peninsula has been largely dry and yields were lower thus far. The northern portion of the Lower Peninsula saw some very good yields for most farms. The Upper Peninsula received too much rain and dry hay was almost impossible to make for some and some first cutting crop was lost. Hay prices are running good for high quality hays like the pure alfalfas testing above 150 RFQ. They are selling for \$150 - \$180 per ton in big square baled packages. On the other end of the spectrum lower quality grass hays are holding in \$75 - \$90 per ton range for beef hay in round or big square packages. These are hays that would test less than 100 RFQ. All other hays that fall somewhere in between these two groups in quality are selling in the \$100 - \$140 per ton range depending upon quality, if it was rained on, and what bale package it is in.

Market price for most grain crops lack much excitement so barring a late market rally, profitability this year will hinge upon input cost control and above average yields. Let’s hope your crop comes off well!

Jerry Lindquist



MSU Extension Grazing & NW MI.  
Field Crops Educator

## Inside this issue:

Focus on Forages at MSU Ag Innovation Day	2-4
Growing degree-day accumulations around Michigan	5-6
What to expect at the Midwest Mechanical Weed Control Day	7
2017 Michigan wheat variety performance report	8-9
Research findings on reduced-lignin alfalfa featured at MSU Ag Innovation Day	10-11
Mid-July results in peak water use for most field crops	12-13



**Jerry L. Lindquist**  
MSU Extension Grazing  
and Field Crop Educator  
lindquis@anr.msu.edu

**OSCEOLA COUNTY  
MSU EXTENSION**  
301 West Upton  
Reed City, MI 49677  
231-832-6139

www.msue.msu.edu/osceola  
e-mail - msue67@msu.edu

Agriculture and Natural Resources  
Children, Youth and Families /4-H  
Community and  
Economic Development  
Family Nutrition Program

*MSU is an affirmative –action,  
equal-opportunity employer.*

*Michigan State University  
Extension programs and  
materials are open to all  
without regard to race, color,  
national origin, gender,  
gender identity, religion, age,  
height, weight, disability,  
political beliefs, sexual  
orientation, marital status and  
family status or veteran sta-  
tus.*

*Michigan State University,  
U.S. Department of  
Agriculture and counties  
cooperating.*



# Focus on Forages at

## MSU Ag Innovation Day

**Educational sessions range from reduced-lignin alfalfa to fitness tracking for cows.**

Ron Bates, Michigan State University Extension

Michigan State University is packing a huge educational punch into its second annual MSU Agriculture Innovations Day Aug. 24 at the Lake City Research Center. Experts, scientists and researchers will tackle the most pressing issues facing farmers through breakout sessions and demonstrations on new and emerging technologies and how they can help farm businesses improve sustainability and profitability.

MSU Agriculture Innovations Day began last year after a steering committee of industry experts convened to develop a replacement for the discontinued Ag Expo. The day is designed as an educational event that moves annually throughout the state, providing information based on the identified needs in that specific locale.

Each year the theme changes. Last year's theme, "Focus on Soils," was hosted at the Michigan State University Saginaw Valley Research and Extension Center. It focused on cutting-edge technology regarding crop fertilization, drainage and soil compaction.

This year's theme, "Focus on Forages and the Future," is being hosted at the Lake City Research center located at 5401 W. Jennings Road, Lake City. This free event begins at 12:30 p.m. with registration and sessions starting at 1 p.m. [Preregistration](#) is not required, but is suggested.

A catered dinner is available to all participants to celebrate Michigan agriculture. The dinner will feature a short program with comments from MSU President Lou Anna K. Simon and Ron Hendrick, the dean of the College of Agriculture and Natural Resources.



## Educational sessions offered

The educational sessions will discuss topics that address newly completed research on reduced lignin alfalfa, new technology to improve silage quality, better methods to produce baleage, ways to stretch acreage for manure application, and several sessions regarding improved methods in beef production. Each session will highlight key ideas needed for successful implementation and show financial analysis of how these ideas will impact farm profitability. They will include:

**Reduced-lignin alfalfa in cattle feeding systems.** Reduced-lignin alfalfa is a new innovation in alfalfa production, with limited information available regarding how it will perform and be used in modern dairy feeding systems. Mark Sulc, Ohio State University, will discuss the first release of results of a three-year study across multiple locations including MSU, comparing reduced-lignin alfalfa to traditional varieties. This will include both yield and quality results. Producers will learn how this technology may be used across Michigan depending on the length of the growing season, and see an example calendar demonstrating this concept. A cost analysis will show how this technology may positively impact farm profitability. **Improve chopped silage with app.** Improving silage quality can have a tremendous impact on milk production and farm income, but improving particle size when chopping silage is difficult to do. Brian Luck from the University of Wisconsin will demonstrate a new phone app and how it can be used in the field when chopping silage. This technological breakthrough will help dairy farmers improve particle size while chopping silage in the field and will help to create more consistent silage. Participants will be able to learn how to use this technology and how it may affect their cost of production.

**Precision dairy cattle monitoring.** Precision agriculture is an often-used phrase that can mean many different things. However, how it will be used in cow management is emerging. Barbara Jones from Tarleton State University will discuss how precision animal monitoring can be used in modern dairy production to improve both health and reproductive management. This will include an assessment of how different forms of this technology impact the producer's bottom line.

**Baleage made right.** Baleage is an alternative to traditional silage or dry hay, but many producers face a challenge when trying to turn baleage into a high-quality feed for both developing heifers and overwintering cattle. Wayne Coblenz, USDA scientist at the Dairy Forage Research Center in Wisconsin, will discuss how better practices can improve baleage quality and show differences in forage quality based on different methods used in making baleage. The financial implications of differences in baleage quality will be featured as well.

**Manure as a soil amendment.** Manure as a soil amendment is an important component to improving soil quality and reducing the use of commercial fertilizers. Two sessions will cover manure application as a soil amendment. MSU educators Kim Cassida and Marilyn Thelen will talk about using cover crops in a double-cropping system that can increase forage production and improve forage quality for use in growing stock in both dairy and beef. This double-cropping approach is used to enhance soil nutrient removal to effectively increase the amount of manure applied on those acres. This type of system can increase forage production and stretch those acres in which manure can be applied. The financial impact of this on the farm will also be addressed.

MSU's Lisa Tiemann and Dean Baas will show producers how manure application is an important component to improving soil quality. Using manure along with forage crop selection, crop rotation and cover crops in a systematic approach will improve soil quality and overall soil fertility and sustainability. Emerging strategies show that a systematic approach to enhancing soil quality improves overall soil health and better support crop production.

**Creating profitable beef operations.** Beef production can be a rewarding and challenging business. Burke Teichert, past manager of Deseret Land and Cattle Co., will show how beef production can be successful from a farm business and holistic point of view. As a featured columnist for BEEF magazine, Burke will draw on his vast knowledge, as well as experiences of the many cattle producers he has worked with throughout his career.

**Grass-fed beef.** Consumer preferences are changing, and how they want their food produced is opening new marketing opportunities for farmers. Lately, grass-fed beef has begun commanding higher premiums than feedlot-finished beef. MSU Extension beef educator Kable Thurlow will cover the results from a five-year MSU study that provides important insights on how to successfully implement grass-fed beef production on Michigan farms and what the cost analysis indicates for farm profitability. John Nelson, beef producer from near Midland, will discuss how he has successfully implemented grass-fed beef production on his farm.

**Land-to-Market program.** To further address new opportunities to meet changing customer preferences, MSU's Matt Raven and Jason Rowntree will demonstrate how the Savory Institute's Land-to-Market program can improve soil quality and forage quality for both beef and sheep producers, allowing them to tap into emerging markets requiring these production specifications. This session will address how farmers can improve the quality of their soil, boost forage production and access these emerging markets with products meeting specified attributes.

Go online for more information on [MSU Agriculture Innovation Day](http://msue.anr.msu.edu/news/focus_is_on_forages_for_msu_ag_innovation_day). Bates is the MSU Extension agriculture and agribusiness director. [http://msue.anr.msu.edu/news/focus\\_is\\_on\\_forages\\_for\\_msu\\_ag\\_innovation\\_day](http://msue.anr.msu.edu/news/focus_is_on_forages_for_msu_ag_innovation_day)



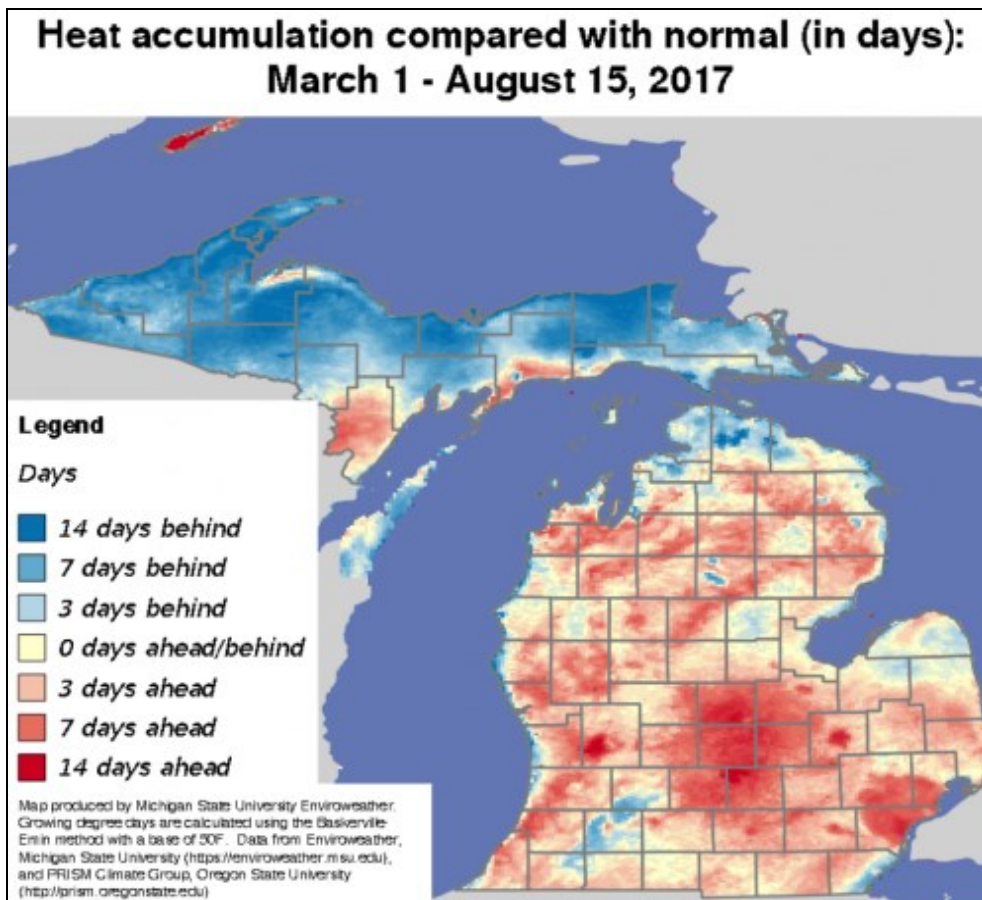
# Growing degree-day accumulations around Michigan

Use MSU Enviroweather to determine whether heat units where you are located are behind, ahead or even as compared to normal.

by [Bob Battel](#), Michigan State University Extension

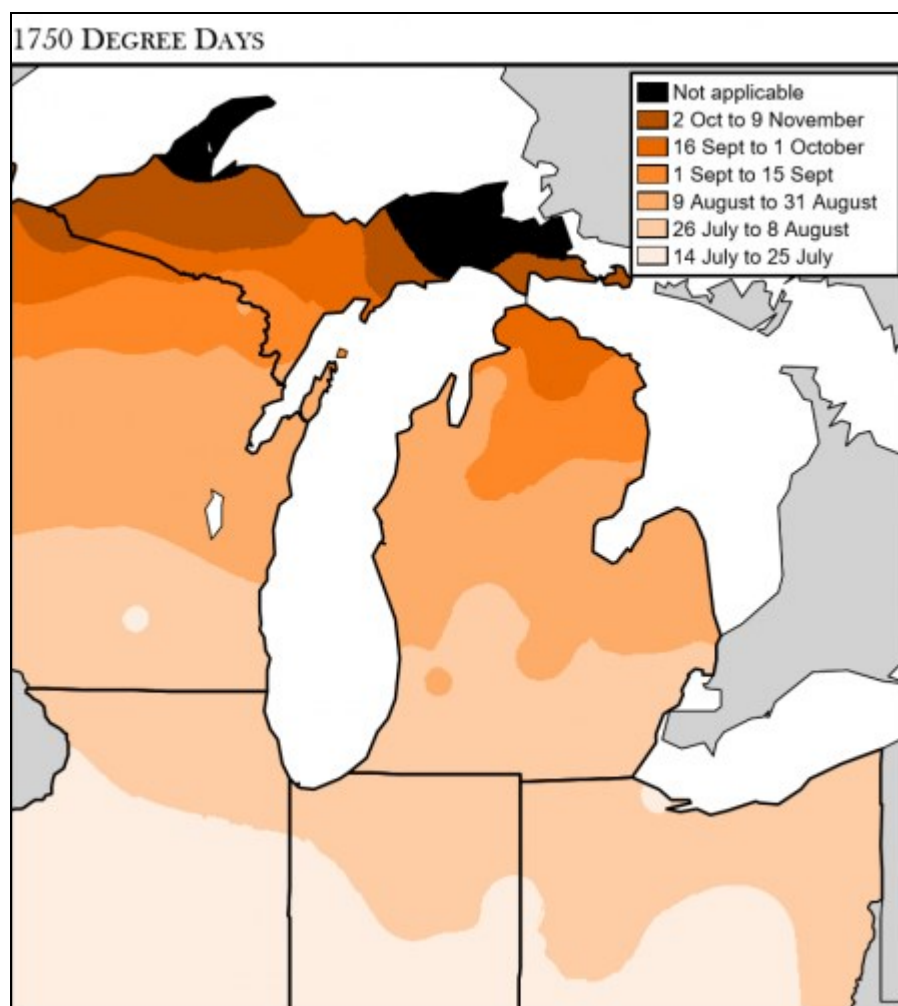
I was talking with a grower who lives near Michigan's Huron/Sanilac County line a few days ago and he mentioned his concern that heat units were way behind and thought corn would have a tough time maturing. His assessment matched my experience for the summer thus far.

A couple days later, I was talking with another grower who lives about 15 miles south of the first grower. He mentioned how happy he was that heat units seemed to be right on schedule. The differences in the two observations prompted me to look up the following map generated by [Michigan State University Enviroweather](#).



To my surprise, relatively little of the Lower Peninsula is behind in heat accumulation, and significant portions of the central and south eastern part of the state are a week or two ahead in accumulation. To the credit of the first grower, his home as well as mine are in spots near the tip of the Thumb that are about three days behind in heat accumulation.

Another tool available on [Enviroweather](https://enviroweather.msu.edu/) are maps that show the average dates when areas reach a particular accumulation of growing degree-days (GDD) base 50 degrees Fahrenheit. Measurements begin March 1.



This particular map shows the southern couple tiers of counties reach 1,750 GDD on average in mid- to late July, most of the center of the state late July to early August, and the northern part of the Lower Peninsula, as well as the Delta County region, mid- to late August. Parts of the Upper Peninsula don't typically ever reach 1,750 GDD base 50 during the typical growing season.

Growing degree-days as well as other useful weather-related management tools are available on MSU's [Enviroweather](https://enviroweather.msu.edu/) website. <https://enviroweather.msu.edu/>

# What to expect at the Midwest Mechanical Weed Control Field Day

The event will focus on the principles and tools for precise mechanical weed control from farmers and researchers.

By **Sam Hitchcock Tilton**, Michigan State University Extension

The Midwest Mechanical Weed Control Field Day, hosted by Dan Brainard, Sam Hitchcock Tilton and Marisa Benzle of Michigan State University Department of Horticulture, will take place at the MSU Horticulture Teaching and Research Center, located at 3291 College Rd, Holt, MI 48842, on Sept. 26, 2017 from 10 a.m. to 5p.m. The field-day will begin with time to inspect many types of weeding machines and cultivating tractors and discussion amongst fellow growers. Jean-Paul Courtens' presentation will focus on getting the most out of your tools and the principles of effective mechanical weed control. Courtens started Roxbury Farm in New York, which grew into a large and innovative vegetable operation. He now helps train experienced farmers at the Hudson Valley Farm Hub. After lunch, farmers and researchers who have been using tools to control weeds in the row will talk and demonstrate in-row tool use in the field. Later, watch manufacturers demonstrate their weeding tools and cultivating tractors on lettuce and young beets.

The fee for the field day and lunch is \$15, and registration closes on Sept. 15, 2017. Payment and registration information can be found on the [Midwest Mechanical Weed Control Field Day event page](#). Those who can't register online can send a check for \$15 payable to 'Michigan State University' to Sam Tilton, Department of Horticulture, 1066 Bogue Street, East Lansing MI, 48823. Also see the Cultivation Field Day page on [Facebook](#).

In 2017, a team from Michigan State University's Horticulture Department received a Partnership grant from the North Central SARE to support investigations by researchers and farmers into new in-row weed control machines. In April of 2017 three Midwestern vegetable growers, along with a professor and two graduate students, traveled to a conference on physical weed control in Switzerland and toured Swiss vegetable farms. Building on earlier work, researchers and growers have been using in-row weeding tools over the 2017 season and collaborating to find the best techniques, including combining certain weeding tools in a single operation. More information about this project can be found in the [SARE database of projects](#).

Many brands of finger-weeders, torsion weeders, flex-tine harrows will be on display and demonstrated, as well as many other cultivation tools. Also, in addition to the many older cultivating tractors on display, manufacturers like Tilmor, Oggun and the Kult-Kress company will demonstrate new cultivating tractors. This is a unique opportunity for farmers to learn from each other, hear from a master-farmer, inspect many weeding tools for themselves and see and compare almost all of the cultivating tractors made today.

# 2017 Michigan wheat variety performance report now available

It is not too early to think about selecting wheat varieties to plant this fall.

Dennis Pennington, and Eric Olson, Michigan State University, Department of Plant, Soil and Microbial Sciences

The 2017 Michigan State Wheat Performance Trials have been harvested, tabulated and are now published. The full trial included 125 entries (64 of which were experimental lines) from 13 organizations, including Michigan State University, and data analyses were conducted using all of these entries.

For ease of viewing, two versions of the report are available. The “commercial only” version (available online and will be printed in the “Michigan Farm News” publication) includes the data of 57 commercially available varieties from 12 organizations. The “including experimentals” version (online only) includes all commercial and experimental lines. View both versions at 2017 Michigan State Wheat Performance Trials.



**Allegan County State Yield Trial located near Hamilton, Michigan. Photo taken July 28, 2017, provided by Dennis Pennington, MSU.**

## Variety selection

Variety selection is best made using at least three years of data. Varieties selected using data across all locations will likely perform well under a wide range of conditions. However, performance of a given variety will vary based on testing location.

In selecting varieties for a specific location, identify varieties that perform well near the location where the variety will be grown. In the report, Table 4 provides information on which varieties are top performers in each of the five trial locations in 2014 through 2017. MSU Extension recommends selecting and planting two or more varieties.



As an example, planting varieties that differ in flowering date can allow for staggering of management applications, specifically fungicides to control Fusarium head blight. When selecting varieties, look at disease resistance as well as yield potential.

## Summary of wheat crop

Where wheat followed soybeans, planting was delayed in many parts of the state due to green stems not drying out in soybeans. Weather conditions in the fall made it tough to get wheat planted early. Overall, wheat survived the winter very well with only small pockets of winter injury.

Wet conditions in March and April created waterlogging in many counties. Unseasonably warm temperatures early in the spring helped wheat to break dormancy and advance in growth rapidly with growth stages being reached about two weeks early. However, cool weather in the latter half of April and May slowed development back to normal rates. Periodic rain showers extended the 2017 harvest to as long as three weeks.

Test weights were variable with reports between 55 and 61. Deoxynivalenol (DON) levels were very low. Falling numbers were a big problem early in the harvest season, but after the early planted wheat was harvested, became less of a problem overall. Some farmers reported falling numbers as low as 165.

## Trial management practices

All seed was treated, but the chemicals and rates used varied according to the preferences of the originating organization. Seeding rates per linear foot of row were standardized to the rate that would equate with a stand of 2 million seeds per acre in a solid stand planted in 7.5-inch rows.

Fall fertilizer application varied with cooperator practice. Spring nitrogen was applied as urea (90 pounds per acre actual nitrogen) at green-up and Affinity BroadSpec was used for weed control at all sites. All sites were coordinated under high management with the exception of an additional conventionally managed trial at Tuscola County. Under high management, an additional 30 pounds of nitrogen was applied using streamer bars and 28 percent nitrogen.

Quilt was applied at Feekes 8.5 – 9 to control lower-canopy and early-season diseases. Prosaro was applied to control late-season fungal diseases. The timing of the Prosaro application coincided with the average flowering date of the trial location.

For questions regarding the trials, variety selection or any other questions, please contact Dennis Pennington at [pennin34@msu.edu](mailto:pennin34@msu.edu) or Eric Olson at [eolson@msu.edu](mailto:eolson@msu.edu).

# Research findings on reduced-lignin alfalfa featured at MSU Agriculture Innovation Day

Research findings from a six-state study on reduced-lignin alfalfa will be featured at Michigan State University Agriculture Innovation Day: Focus on Forages and the Future.

**Zach Robertson**, MSU ANR Communications & Marketing

Research findings from a six-state study on reduced-lignin alfalfa will be featured at [Michigan State University Agriculture Innovation Day: Focus on Forages and the Future](#). The event will be held from 12:30 to 9 p.m. on Aug. 24, 2017, at the [Lake City Research Center](#) in Lake City, Michigan.



Mark Sulc is a professor and Extension forage specialist at the Ohio State University. He will discuss factors affecting alfalfa quality and review three years of findings from the study he led on the performance of a new reduced-lignin variety of alfalfa. The variety is genetically modified to be easier for livestock to digest and to allow for longer intervals between cuttings without reducing the quantity or quality of the crop.

The variety was released in extremely limited quantities in 2016 and made available more widely for the 2017 growing season. It was designed to produce increased yields from less frequent harvests, without the typical loss of forage quality.

Kim Cassida, a Michigan State University Extension forage specialist, was a key member of the research team. She said one of the team's goals was to find out how many cuttings producers could eliminate in a growing season without reducing crop quality or yield.

"Conventional alfalfa is cut every 28 days for the highest quality," Cassida said. "That means in southern Michigan you can get four to five cuttings during the growing season."

## Research findings on reduced-lignin alfalfa—continued

With reduced-lignin alfalfa, Cassida noted, “If you extend that cutting interval by 7 to 10 days, you get one less cut in, but the alfalfa continues to grow during those ten days. So you can theoretically end up with the same yield and quality while reducing your harvest expenses by one cutting.”

High-quality traits create a wider harvest window for dairy-quality forage and rain delays are less harmful. Reduced-lignin varieties can make growing alfalfa easier and more economical for producers and allow them to increase the acreage in rotation and diversify their cropping systems. Making alfalfa more digestible for dairy cows can also mean increased milk production and profitability.

The reduced-lignin alfalfa research presentation is just part of all-day program, MSU Agriculture Innovation Day: Focus on Forages and the Future that runs from 12:30 p.m. to 9 p.m. on Aug. 24. There will be numerous opportunities to learn about the latest research on silage production, double cropping, baleage and grass-fed beef, among other topics.

[MSU Agriculture Innovation Day](http://msue.msu.edu/msuaginnovationday) is an annual event focusing on in-depth education on critical topics. The event rotates to various locations throughout the state to give farmers access to experts who can help them improve their businesses while maintaining environmentally sound practices on their farms. To learn more about the event and the sessions being offered, visit <http://msue.msu.edu/msuaginnovationday>. [Pre-registration](#) is encouraged, but not required.

# Mid-July results in peak water use for most field crops

We're now in peak water use. Be prepared if the rains fall short.

**Lyndon Kelley, Michigan State University Extension**

Recent rainfalls have been timely and many areas have adequate moisture for the peak crop water use period for corn and soybeans for a week more. Mid- to late-July corn will use 1-inch of water every four hot days or every five cloudy or cooler days. Soybean during this time will use 1-inch of water every five hot days or every six to seven cloudy or cooler days.

Many irrigators use pET data (potential evapotranspiration) to help schedule their irrigation applications. The term reference evapotranspiration (rET) may also be used. Michigan and Indiana use 6-inch tall grass as the reference crop for reporting pET.

“We have seen no major advantage or disadvantage irrigating crops either during the night or day”, says Lyndon Kelley, irrigation educator with [Purdue University](#) and [Michigan State University Extension](#).



Mid- to late-July pET values will vary greatly depending on cloud cover and temperature from 0.15 to 0.27 inches per day, but when averaged over mid- to late-July, most years will be 0.20 to 0.21 inches per day. Irrigator will need to apply 120 percent of pET for corn from tassel through dough stage to meet water needs. Soybean will use 100 percent of pET at first blossom and increase water needs to 120 percent of pET from R3 (beginning pod) through R-6 (full seed stage).

Indiana producers may use data from their own ET gauge station or rET data from [Purdue University's PAC weather stations](#). They would then take that number and multiply by 1.2. Multiply that result by seven (days) to estimate the corn water use per week.



Michigan and Indiana producers in the adjacent counties can have daily rET data sent to them by email or text by signing up for the service at [Michigan State University's Enviroweather website](#). Messages are sent at 5:30 a.m. each day providing rET data for the previous five days and estimates of projected rET for the following seven days from any of the networks 87 stations. Estimates of rET can also be found by going to the Enviroweather website—select your region, then follow the link to Potential Evapotranspiration under the Water-Use Tool heading.

To make the best use of irrigation water, producers should try to provide five to six days' worth of crop water use per application, typically 1–1.25 inches. These larger irrigation applications increase the amount of effective water available to the crop by reducing the water loss by evaporation in the corn canopy and on the residue and soil surface—about 0.1 inches per application regardless of the amount applied.

A producer making two half-inch applications provides 0.8 inches of effective water, compared to a producer making a single one-inch application that provides 0.9 inches of effective water. Irrigators with center pivots that apply water faster than the soil can infiltrate are forced to use smaller applications (less than half-inch) to avoid irrigation runoff.

The time of day irrigation water is applied has not been critical.

“Avoiding afternoon irrigation, making multiple small applications and using pivot drop nozzles are all management practices developed for the arid west and have little to no advantage in irrigating Indiana and Michigan fields. Applying water when the crop needs it should be the producer's most important goal.”

Visual signs of water stress in corn occur too late to use as a good irrigation scheduling method without lowering yields. The corn plant has a natural defense mechanism that rolls the leaves up to cut the amount of sunlight that is captured. During extremely hot days, corn may roll even if it has adequate water. A good indication of under-watering is when corn leaves are still rolled into the early evening hours or, worse yet, into the pre-dawn hours. This symptom represents severe stress and will likely reduce potential yield. Compacted areas or sandier parts of a field can be monitored for leaf rolling, providing an early warning of the field's moisture status for the rest of the crop.

Irrigation applications made prior to the heat of the day can be beneficial to pollinating corn when afternoon temperatures are extremely high. By wetting the canopy and soil surface, temperatures are lowered and the relative humidity is raised, both of which can help the pollination process. The myth of “cold shock” to the crop scares some producers into avoiding irrigation just when it is needed the most.

For more information on irrigation water use and when to irrigate see [Irrigation Scheduling Tools](#).

[http://msue.anr.msu.edu/uploads/235/67987/FactSheets/3\\_IrrigationSchedulingTools5.14.pdf](http://msue.anr.msu.edu/uploads/235/67987/FactSheets/3_IrrigationSchedulingTools5.14.pdf)