

## **Southwest Michigan Field Crops Updates** **July 17, 2020**

Here are updates from the MSU Extension Field Crops team in Southwest Michigan. If you have any items you would like me to include in future email updates—whether events you want others to know about or topics you would like to have addressed—please send me an email or call the office.

## **Michigan Agricultural Safety Grant Program Application** **Now Live**

Approved by the Michigan Strategic Fund on July 7, the [Michigan Agricultural Safety Grant Program](#) will allocate \$15 million of federal CARES Act funding to provide much-needed funding to Michigan's agricultural processors and farms for their COVID-19 mitigation efforts in support of this critical industry in the state.

The application process is now open for \$15 million in grants for Michigan farms and agricultural processors to mitigate risks of the COVID-19 virus across the state's food production industry, the Michigan Economic Development Corporation (MEDC) and the Michigan Department of Agriculture and Rural Development (MDARD) announced on July 15<sup>th</sup>. The application, along with more information and eligibility criteria, can be found at [michiganbusiness.org/agsafety](http://michiganbusiness.org/agsafety).

The Michigan Agricultural Safety Grants are divided between agricultural processors and farms:

- \$10 million in grants will be provided to processors statewide, with a minimum grant of \$10,000 and a maximum grant of \$200,000.
- \$5 million in grants will be available to farms statewide, with a minimum grant of \$10,000 and a maximum grant of \$50,000.

Funds will provide grants of up to \$1,000 per employee to fund COVID-19 mitigation costs, including but not limited to testing costs, personal protection equipment, facility needs, increased sanitation costs, employee training, and upgraded safety procedures for farm-provided housing. The program will cover costs incurred from June 1, 2020 through September 15, 2020. Grants will be awarded on a first come, first served basis until all funding has been awarded. To qualify for grant support, applicants must be a farm or agricultural processor located in Michigan and meet the following requirements:

- A minimum of 10 employees in Michigan, with supporting documentation.
- Provide proof of good standing with the state of Michigan, as applicable (Certificate of Good Standing).
- Attest that the business is current on all state, local and real estate taxes, or is otherwise contesting them in good faith.
- Have completed registration in the State of Michigan Integrated Governmental Management Applications (SIGMA) Vendor Self-Service website prior to applying for grant funding.

Other, related resources available to support Michigan employers in obtaining needed Personal Protection Equipment includes MEDC's [Pure Michigan Business Connect COVID-19 Procurement Platform](#) – a procurement program to assist businesses in accessing non-medical grade PPE to keep their employees and customers safe as they begin resuming in-person operations.

To learn more about MEDC's COVID-19 response programs and the impact they are having on economic recovery efforts, visit [michiganbusiness.org/covid19response](http://michiganbusiness.org/covid19response). The MEDC has also developed a FAQ for Michigan businesses and communities at [michiganbusiness.org/covid19-faq](http://michiganbusiness.org/covid19-faq).

## Profitability vs Cash Flow

[The following is excerpted from an article of the same title from the [University of Minnesota's FINPACK News](#).]

Profitability and cash flow are two important business concepts that can be confused by many small business owners. Just because a business is profitable, doesn't necessarily mean it cash flows. Alternatively, a business can have positive cash flows and not be profitable. These are topics that are often difficult to understand, so let's dig into how these statements are possible. First off, let's take a deeper look at profitability and cash flow.

**Profitability is the ability of a business to earn a profit, meaning business revenues exceed business expenses.** The income statement is used to analyze business profitability. This seems simple and straightforward, but one needs to remember that not all checkbook debits are business expenses. One common example of this are loan payments. Specifically, principal payments on loans are not business expenses. Remember, a loan payment is comprised of two components – principal and interest. Interest paid on business loans qualifies as a business expense. Principal payments do not. Principal payments made on loans impact the balance sheet and statement of cash flows but do not impact the income statement. What replaces principal payments on term loans as deductions on the income statement? Depreciation. Depreciation is a deductible expense on the income statement. But, depending on tax management strategies, these two items may not align. If “fast depreciation” strategies are used for tax management, like Section 179 expensing and Bonus Depreciation, and loans are taken out to finance capital purchases, principal payments may be a cash flow detriment beyond the depreciation expense.

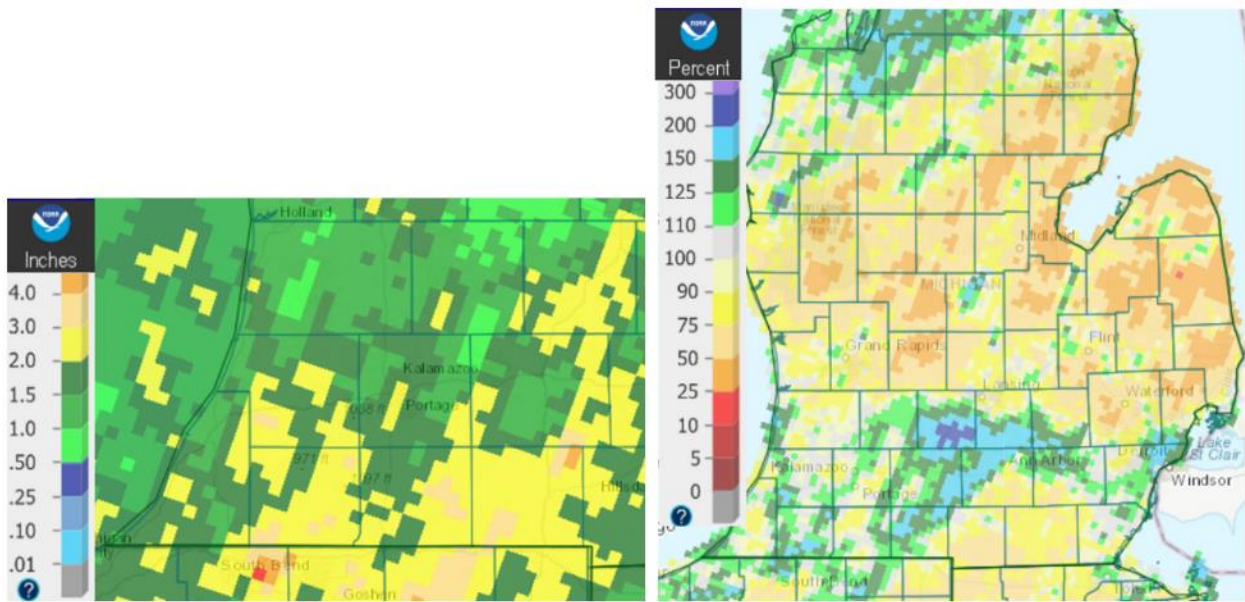
**Cash flow is cash utilization by the business or the flow of money through the operation.** The cash flow statement measures how well a business manages its cash. Can it generate enough cash to pay back debt and fund operations? Cash flow encompasses the flow of money to three places for business activities – operating, investing, and financing. Therefore, all sources and uses of cash are taken into account when considering cash flow - including income, expenses, capital purchases, capital sales, money borrowed, and loan payments.

### How can a business be profitable and not cash flow?

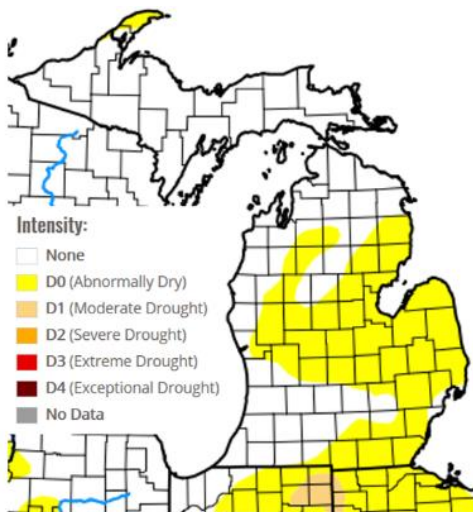
Back to the original questions, “Can a business be profitable and not cash flow?” and “Can a business have positive cash flow and not be profitable?” The answer to both is yes. Money borrowed has a positive impact on cash flow, but does not provide profitability. Also, a business strapped with large loan payments may turn a profit, but not provide enough cash for loan payments. Additionally, owner withdrawals or family living expenses in excess of profits would be a detriment to cash and another opportunity for a business to show profits and not cash flow. The timing of cash is also important. On a day to day basis, a business may not have adequate cash available, but over time has adequate profits. A classic example of this would be a grain operation. There is typically a large portion of the year with little income or cash inflows, but expenses incurred. Cash is needed to pay expenses to put the crop in the ground months before any cash revenue from grain sales is available. If a farm doesn't have adequate cash going into the year, an operating loan will be needed to get to the end of the year, when grain is sold, and profits are turned.

## Weather

The warmer-than-normal trend for the summer continues, although this was moderated somewhat with cooler temperatures this week. Rainfall on July 10 and 15-16 has helped to make up for the nearly two previous weeks without rain. Much of the state remains in need of more rain, as is seen by the newly-updated US Drought Monitor, and unfortunately the system that just made its way through did not supply that much to the eastern half of the state. A high pressure system moving into the state on Friday will give way to a low pressure system over the weekend bringing high heat and humidity over the weekend with heat indices near 100 degrees. Our next chances of rain will be Sunday through Wednesday next week with as much as 1 inch predicted for the southwest. The 6-10 and 8-14 day outlooks both call for a very high chance of above-normal temperatures for the rest of the month. Warmer-than-normal conditions are expected to continue into August, but MSU Extension ag climatologist Jeff Andresen says there may be signs that a cooling trend will bring more normal temperatures next month.



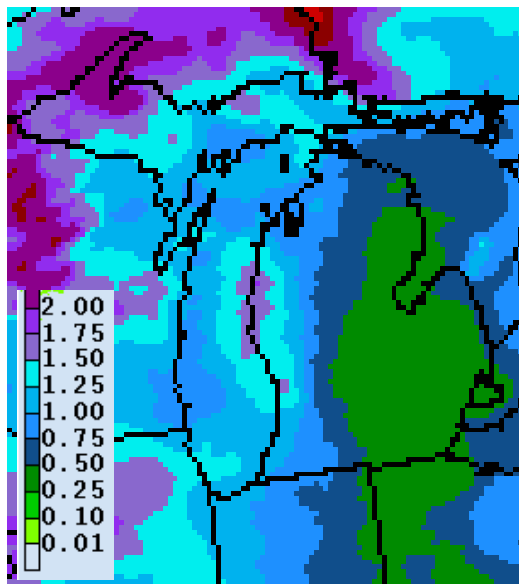
Rainfall totals for the past 14 days (left) and percent of normal over the past 30 days (right) as of July 17. The southwest received between 0.5 and 2.0+ inches more than normal this past week which helped make up for the lack of rain the previous 10 days. The central and Thumb regions are still struggling.



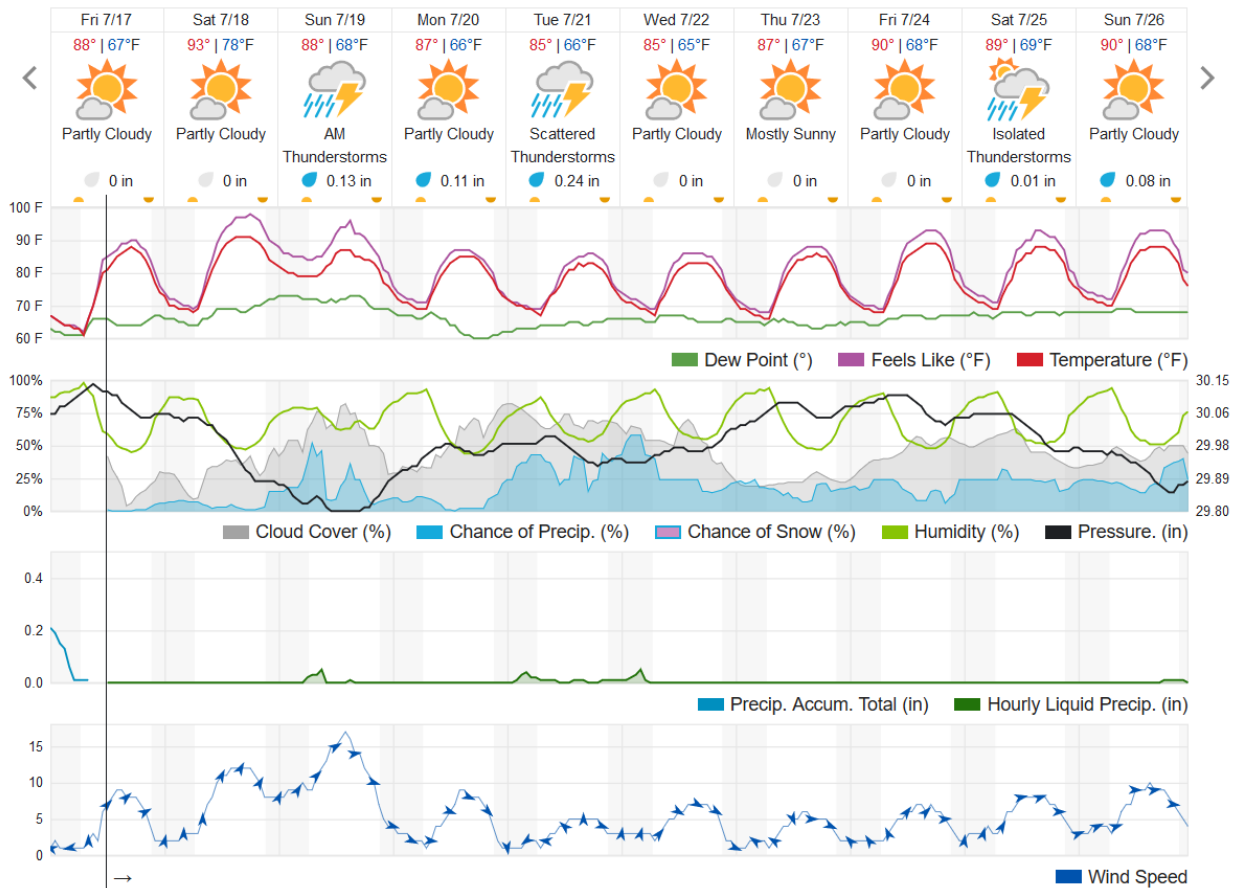
US Drought Monitor, released July 16, 2020.



Excessive heat advisory from the Weather Prediction Center. Excessive heat persist into the weekend where heat indices could exceed 100 degrees.

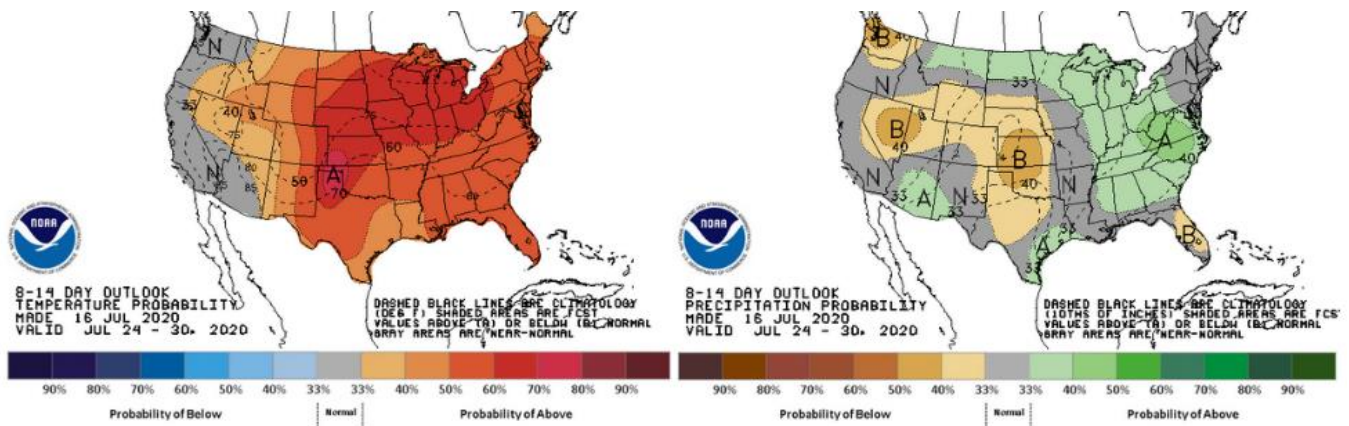


Precipitation forecast for July 17-24, 2020. Most of this is expected Sunday through Wednesday next week.



The 10-day forecast for Kalamazoo as of July 17, 2020.





The 8-14 day (July 24-30) outlook for temperature (left) and precipitation (right) as of July 17, 2020.

## Crop and Pest

**Crops.** Early planted **corn** is tasseling while later planted corn is around V7-V8, with a few later planted fields further behind. Fields that have received adequate moisture over the past week look excellent, although wide variability can be seen in many fields. Purdue corn agronomist Bob Nielsen has refreshed a couple of timely articles for those wanting more in-depth information for this point in the season: “[Tassel Emergence & Pollen Shed](#)” and “[Silk Development and Emergence in Corn](#)”. Early-planted **soybean** fields are well into flowering. Early (R1) and full (R2) bloom are when white mold is a concern as the spores infect flower petals. However, even in irrigated fields with tighter row spacing, conditions so far this season have not been conducive to white mold, although we’ll see whether the extended period of rainfall in the coming week may push humidity levels in the canopy. Edges of many fields throughout the region are showing spider mite injury symptoms—no bronzing, just yellowing so far. If we do get an extended period of moisture this week, that may provide good conditions for the fungal pathogen that keeps spider mite populations in check.



Irrigated commercial corn field at tasseling with the dry corners up to six days behind. Photo courtesy of Lyndon Kelley, MSU/Purdue Extension.

**Pests.** The first tar spot lesions are being found in northwest Indiana. They have had more rain than us, so not much of a surprise. If we have an extended period of wet weather as is predicted from Sunday through Wednesday, we may see an advance in this disease. Growers should also look at gray leaf spot this season, given that the temperatures are expected to soar soon, and hot and wet is the perfect scenario for trouble. Fungicide applications should be targeted at both diseases, especially where extended leaf wetness may cause infection periods. MSU Extension field crops pathologist Marty Chilvers has said that a fungicide application at or shortly after tasseling has proven most effective in reducing tar spot severity. Dr. Chilvers will be presenting on tar spot and white mold during the [MSU Extension Field Crops Virtual Breakfast](#) on July 23<sup>rd</sup> at 7:00 AM.

MSU Extension field crops entomologist Chris DiFonzo was featured on this week's [Field Crops Virtual Breakfast](#) where she talked through numerous insect species and what we should be monitoring, including tarnished plant bug, potato leafhopper, spider mites, ear-feeding caterpillars, and more. She showed pictures of spider mite symptoms in soybean and corn, advised when insecticide applications may be warranted and most effective, and pointed to additional resources at the [MSU Extension Field Crops Entomology Program website](#). Western bean cutworm moth captures in Indiana are still mostly single-digit, although higher counts were measured this past week in Lake and LaPorte Counties.

Asiatic garden beetle (AGB) adults were emerging later this year in fairly high numbers. Reports of damage on fruit and flowers have come in from growers. Look for them at night, especially around brightly lit areas. This pest continues to become more prevalent and might warrant a use of soil insecticide routinely in areas that have had issues.

Epic numbers of potato leaf hoppers have caused damage in re-growth of second cutting in alfalfa. Dr. DiFonzo says that the best treatment is to cut if possible, and if insecticides are warranted, be mindful of the harvest intervals. Several on the Virtual Breakfast call commented on the improvements in resistance of current alfalfa varieties to leafhopper, although it was mentioned that damage will still occur with severe infestations.

**Water Usage and Irrigation.** With the hot weather subsiding a bit this week, daily potential evapotranspiration (PET) rates were slightly lower than last week. From the Enviroweather reference PET screenshot below for Kalamazoo, we can get a more precise estimate of water use needs. Corn from tasseling through beginning dent (VT-R5) has a crop coefficient ( $K_c$ ) of 1.2; soybean has a  $K_c$  of 1.0 and 1.1 at R1 and R2, respectively (from "[Soil Water Balance Sheet](#)"). Multiplying the daily rPET by the current  $K_c$  gives the crop daily water use. If we get 1.0 inch of rain in the coming week, corn at VT or R1 (silking) will require an additional 0.75 inch of water and soybean at beginning bloom (R1) will require 0.5 inch.

**Kalamazoo Potential Evapotranspiration Daily Summary (Report issued 7/16/2020 9:58)**

Note that frozen precipitation amounts may not be accurate.

Day	Date	Max Temp (° F)	Min Temp (° F)	Ave Temp (° F)	Rainfall (in.) Today	Rainfall (in.) Since 3/1	Chance of Rain	Reference Potential Evapotranspiration (in.) Daily Total	Reference Potential Evapotranspiration (in.) Since 3/1
Sun	7/12/20	81.6	58.8	70.2	0	16.6	--	0.17	6.02
Mon	7/13/20	82.1	53	67.6	0	16.6	--	0.19	6.21
Tue	7/14/20	82.8	50.4	66.6	0	16.6	--	0.18	6.39
Wed	7/15/20	85.9	57.6	71.7	0	16.7	--	0.17	6.56
<b>Today's data:</b>									
Day	Date	Max Temp (° F)	Min Temp (° F)	Ave Temp (° F)	Rainfall (in.) Today	Rainfall (in.) Since 3/1	Chance of Rain	Reference Potential Evapotranspiration (in.) Daily Total	Reference Potential Evapotranspiration (in.) Since 3/1
Thu	7/16/20	Forecast: 80	Actual (2:55-3:00AM): 66.9	73.45	0.2	16.9	100%	Observed: 0 Forecast: 0.17	6.73
<b>Forecast data:</b>									
Day	Date	Max Temp (° F)	Min Temp (° F)	Ave Temp (° F)	Rainfall (in.) Today	Rainfall (in.) Since 3/1	Chance of Rain	Reference Potential Evapotranspiration (in.) Daily Total	Reference Potential Evapotranspiration (in.) Since 3/1
Fri	7/17/20	88	62	75	--	--	1%	0.25	6.98
Sat	7/18/20	90	67	78.5	--	--	7%	0.24	7.22
Sun	7/19/20	88	75	81.5	--	--	58%	0.23	7.45
Mon	7/20/20	84	71	77.5	--	--	71%	0.19	7.64
Tue	7/21/20	82	64	73	--	--	54%	0.18	7.82
Wed	7/22/20	84	62	73	--	--	27%	0.19	8.01

Reference potential evapotranspiration (rPET) for the Kalamazoo Enviroweather station.

Date	rPET	Crop Water Use	
		Corn Kc=1.2	Soybean Kc=1.0
<b>16-Jul</b>	0.17	0.20	0.17
<b>17-Jul</b>	0.25	0.30	0.25
<b>18-Jul</b>	0.24	0.29	0.24
<b>19-Jul</b>	0.23	0.28	0.23
<b>20-Jul</b>	0.19	0.23	0.19
<b>21-Jul</b>	0.18	0.22	0.18
<b>22-Jul</b>	0.19	0.23	0.19
<b>Week</b>	<b>1.45</b>	<b>1.74</b>	<b>1.45</b>

Crop water use estimate for corn at tasseling (VT) and soybean at beginning bloom (R1) for Kalamazoo during the coming week.

For those needing to finish nitrogen fertilization through the pivot, here are a few thoughts from Lyndon Kelley's article, "[Last-chance nitrogen application with irrigation](#)":

Irrigated production has the advantage of fertigation as an option in nitrogen management. Fertigation is the process of applying fertilizer through irrigation water. Liquid 28 percent nitrogen is the most common product for fertigation, but urea and micro-nutrient solutions are also available to meet crop nutrient needs, with proper equipment. Fertigation makes up the remainder of the budget [following starter and sidedress] supplying nitrogen to the crop just prior to tassel emergence. For efficient use, nitrogen applications need to be made prior to tasseling or soon after to ensure the nitrogen applied is in an available form for the plant to uptake and use during early grain formation.

As an example, let's say you have a 210 bushel yield goal on an irrigated field that calls for 230 pounds of nitrogen. At planting, you apply 30 pounds of nitrogen followed by 120 pounds applied at cultivation in early June. No nitrogen credit is given because of sandy soils and the continuous corn production. This leaves a nitrogen need of 80 pounds. You decide to apply the remaining 80 pounds split into two 40-pound applications through the irrigation. We get about 3.1 pounds of actual nitrogen for each gallon of 28 percent nitrogen applied. You calculate that you need to apply just short of 13 gallons per acre. Knowing that your system irrigates two acres per hour, you calculate that you need to inject 26 gallons of the fertilizer per hour.

## Calendar

Titles are clickable links to online content when highlighted and underlined.

**July 23+** [MSU Extension Field Crops Virtual Breakfast](#). 7:00-7:30 AM. [Participants must sign up](#) to receive an email notification with instructions for joining the Virtual Breakfast. You only need to do this once and you will receive the Zoom link and call-in phone number, as well as weekly reminders every Wednesday.

**The Virtual Breakfast has become one of our team's flagship outreach programs. Here is the tentative schedule. [RUP credits are now available for the live sessions](#) and **\*\*NEW\*\*** we were able to get approved to offer 1 credit for each live session. If you can't participate in the live session on Thursdays at 7 a.m., you can view the recorded version at any time. Recordings are closed-captioned and available on the [MSU Extension Field Crops webpage](#) and social media platforms: [Spotify](#), [Apple Podcasts](#), [YouTube](#), [Facebook](#) and [Twitter](#).**

- **July 23 - Tar spot and white mold with Martin Chilvers**
- **July 30 - Cover crops after wheat with Dean Baas**
- **August 6 - Irrigation and diseases with Lyndon Kelley and Martin Chilvers**
- **August 13 - Alfalfa autotoxicity with Kim Cassida**
- **August 20 - Grain marketing with Aleks Schaefer**
- **August 27 - Wheat planting with Dennis Pennington**
- **September 3 - Corn silage mycotoxins with Manni Singh**
- **September 10 - Industrial hemp with Kurt Thelen**

**July 21** [MSU Extension Manure Management VFD](#). 10:00 AM – 12:00 PM. More details and registration information on these and other VFD's can be found on the [MSU Extension Virtual Field Days website](#).

**July 29** [Berrien, Cass, and Van Buren Clean Sweep](#). Benton Harbor, MI. Clean Sweep is a free, safe disposal option for unwanted agriculture pesticides. Clean Sweep is open to all Michigan farmers, greenhouses, golf courses, pesticide retailers, and individuals. Participants must register at least one week prior to the event. The next closest Clean Sweep collection program site is in Kalamazoo. Contact the [Kalamazoo County Household Hazardous Waste Collection Center](#) for more information.



**August 28 CFAP Application Deadline.** USDA’s Coronavirus Food Assistance Program (CFAP) provides direct payments to offset impacts from the coronavirus pandemic. The application and a payment calculator are [now available online](#), and USDA’s Farm Service Agency (FSA) staff members are available via phone, fax and online tools to help producers complete applications.

## MSU Extension Digest Briefs

### Southwest Michigan field crop update – July 16, 2020

*PUBLISHED ON JULY 16, 2020*

Hot and dry conditions give way to slightly cooler temperatures and an upcoming extended period of possible wet weather—scouting focus may need to shift.

### Midwestern Hemp Database Project seeks grower participation

*PUBLISHED ON JULY 16, 2020*

Land-grant universities team up with Rock River Laboratory and hemp growers to develop a public hemp database.

### Corn tar spot and soybean white mold topic of July 23 Field Crops Virtual Breakfast

*PUBLISHED ON JULY 15, 2020*

Join the MSU Extension Field Crops Virtual Breakfast on July 23, 2020, as Martin Chilvers discusses tar spot in corn and white mold in soybean.

### Enviroweather adds an additional station at North Central Michigan College

*PUBLISHED ON JULY 15, 2020*

The new station will serve commercial and community agriculture and provide hands-on education in Emmett County.

### Moisture stress and high temperature effects on soybean yields

*PUBLISHED ON JULY 9, 2020*

How soybeans respond to moisture stress and how yield is reduced by stress occurring at various growth stages.

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