

NORTHEAST OHIO AGRI-CULTURE NEWSLETTER

Your Weekly Agriculture Update for
Ashtabula and Trumbull Counties

June 27, 2023



Crops are enjoying a much-needed rain shower, but so are the weeds!

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Hello Northeast Ohio Counties!

Much needed moisture is finally making its way to Northeast Ohio this week. Although every little bit helps, we still have a long way to go before our water deficit is corrected.

Without water to move nutrients to roots we are starting to see nutrient deficiencies appear in most crops. Depending on the rainfall this week, most plants will grow out of the deficient symptoms

Have a good week and stay safe!

Lee Beers
Trumbull County
Extension Educator

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Weather Update: Unsettled Weather Continues

By Aaron Wilson

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2023-20/weather-update-unsettled-weather-continues>

Summary

Over the last two weeks, a more active pattern has brought numerous rounds of showers and thunderstorms across the Buckeye State. Many areas, from west central to southeast Ohio have received 2 inches of rain or more, with pockets of 4-6 inches across western Franklin, Fairfield, and Perry Counties. This has resulted in a decline in drought areas from 78% to 33% as of Thursday, June 22, 2023 (US Drought Monitor), leading to some

improvement in crop conditions. However, large portions of southwest, northwest, and northeast Ohio have received less than normal precipitation over this period (Figure 1), intensifying drought conditions across these areas. Our

CFAES Rapid Response Team continues to manage the early drought response resource site and encourages readers to continue to submit observations and impacts for your location by visiting https://go.osu.edu/drought_cmor.

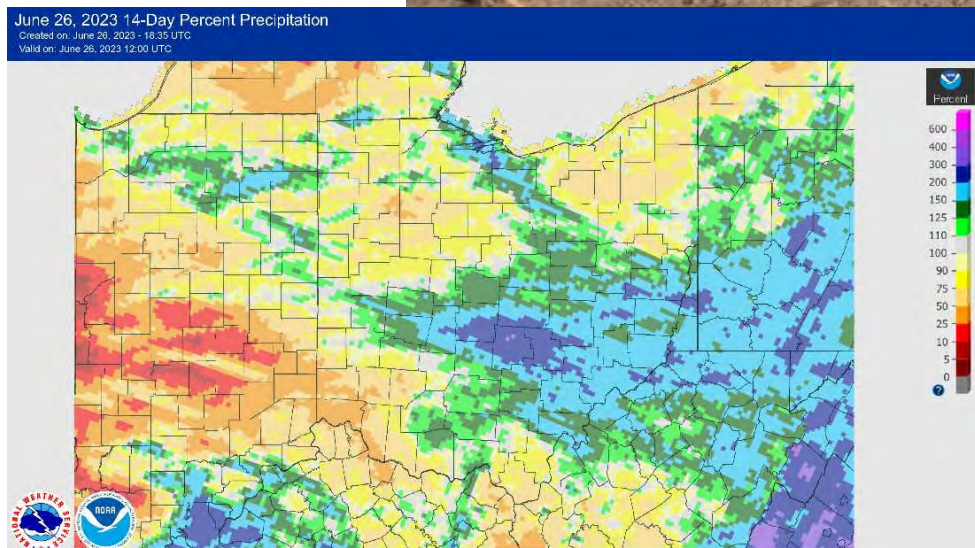
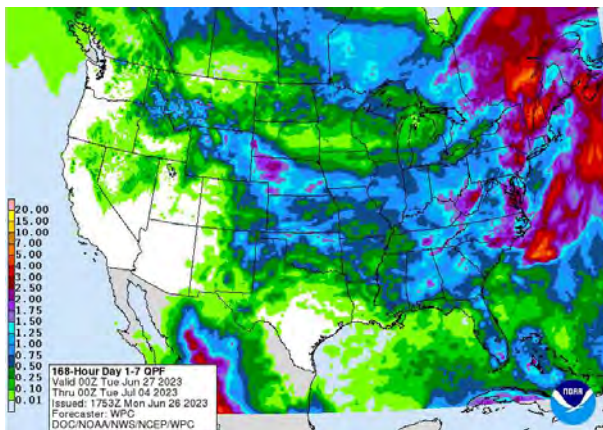


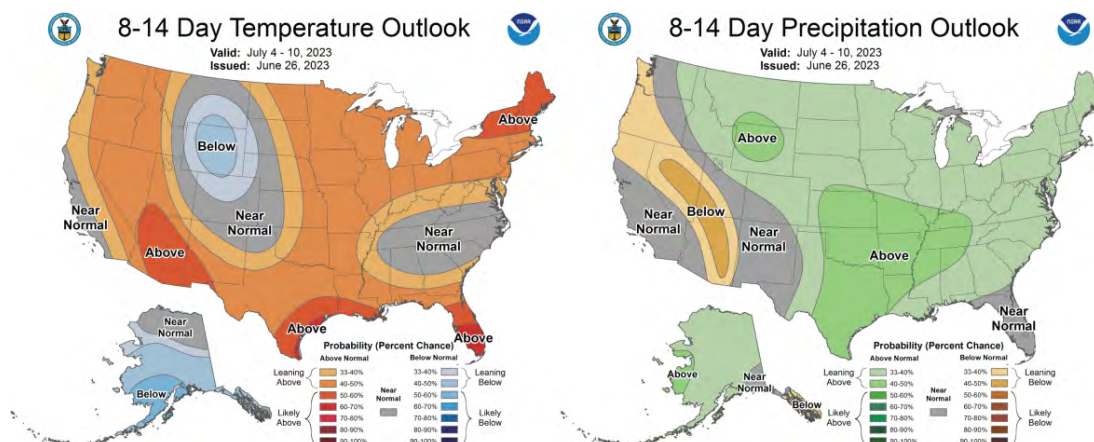
Figure 1: Percent of normal precipitation over the last 14-days ending June 26, 2023. Figure courtesy of the Advanced Hydrologic Prediction Service.

Forecast

An upper-level low-pressure system is sliding east across the lower Great Lakes with showers and isolated storms on Monday and Tuesday. Temperatures are expected to remain cool on Tuesday with highs in the 70s and overnight lows in the 60s. Tranquil weather will return for Wednesday with highs in the mid-70s to low 80s across the state. A warming trend will continue for Thursday through Sunday, with highs generally in the 80s, pushing 90°F across the south. With warmer temperatures and increased humidity, isolated showers and storms are also possible throughout this period. The current forecast shows 0.25-0.5" is expected this week across northern counties, with totals over 1" near the Ohio River (Figure 2).



(Figure 3) Climate Prediction Center 8-14 Day Outlook valid for July 3 - 9, 2023, for left) temperatures and right) precipitation. Colors represent the probability of below, normal, or above normal conditions.



(Figure 2). Precipitation forecast from the Weather Prediction Center for 8 pm Monday June 26 to 8pm Monday, July 3, 2023.

Potassium in Corn

By Elizabeth Hawkins, Amanda Douridas, Stephanie Karhoff, Greg LaBarge

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2023-20/potassium-corn>

Much of our early planted corn has exhibited signs of potassium deficiency after going through the May to early June dry spell. This article is a basic reminder of how potassium works in the plant so you can make informed decisions on whether you need to apply more potassium.

Potassium uptake occurs by diffusion where nutrients move to the root surface along a concentration gradient from high to low concentration. The effect of dry weather on root growth results in potassium deficiency symptoms. Other conditions such as compaction, herbicide root injury, or insect damage can compound root development issues and potassium uptake.

Identifying K Deficiency

Potassium is mobile in the plant which is why the lower leaves show deficiency first. The plant moves available nutrients to prioritize new growth. Potassium deficiency symptoms include yellowing to necrosis of the leaf on the outer edges or leaf margins, as opposed to nitrogen which starts from the leaf tip to the midrib. If the symptoms were a result of dry weather and not a soil deficiency, the new growth should appear normal as soil moisture is replenished and root growth improves. Corn begins to rapidly uptake potassium after V6 as demand increases (Figure 1). While the symptoms on the lower leaves will remain, no yield loss is expected due to a deficiency at the early stages (Swayer, 2000).

Soil Testing

If you have a recent soil test that did not show a deficiency, then any visible symptoms are likely a result of dry weather or slow root growth. However, if your soil samples were pulled during extremely dry weather like we had last fall and this spring, it could impact your results. We covered this in [episode 109](#) of the Agronomy and Farm Management Podcast. Listen in for more details. You can also learn more about how soil test potassium levels and pH are affected by low soil moisture by clicking [here](#).

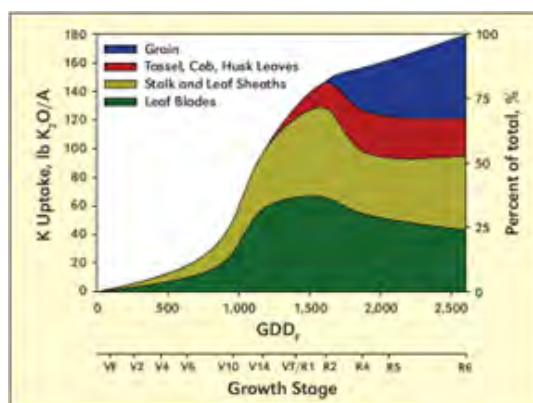


Figure 1. Total corn potassium uptake and partitioning across leaf, stalk, reproductive, and grain components. Source: Bender et al., 2013.

In summary, if your corn has outgrown the deficiency symptoms, then no action is needed and you should not expect an impact on yield. If the new growth continues to show symptoms, then you can confirm the visual symptoms with a tissue test and follow up with a soil test under adequate conditions.

2023 corn recovering from potassium deficiency.



Control flies to control economic losses

By Ted Wiseman, OSU Extension, Perry County (originally published in Farm & Dairy)

Warm weather has arrived for the summer and so have flying biting insects. I have seen estimates that flies cost U.S. livestock producers \$700,000 to \$1 million dollars annually. With high livestock prices it is more important than ever to keep animal performance at an optimum.

Flies can impact livestock performance by reducing weight gains, milk production and poor feed utilization. The major flies of concern are Horn flies, Face flies and Stable flies. Other annoying pests would include horse flies, deer flies, ticks and mosquitoes.

Types of flies

Horn flies are blood sucking found on the backs of livestock feeding 20 to 40 times per day. Recommended economic levels are reached when populations exceed 200 flies per animal and often peak this time of year. The female adults only leave the hosts to lay eggs in fresh manure. The complete egg to adult life cycle can be completed in 10 to 20 days depending upon the weather.

Stable flies are also serious insects affecting livestock since they too are blood sucking. These are normally found feeding on the legs and belly regions of livestock and can also cause significant reductions in performance. When these flies bite which are often painful, and livestock react to them by stomping their feet or gathering in groups or standing in streams and ponds. Because of the location of feeding areas on the animal these flies can be the most challenging to control. The adult female prefers to lay eggs in wet moist hay or straw mixed with manure such as in feedlots or winter hay feeding areas.

Face flies are not biting insects but rather feed upon livestock secretions from the eye, mouth and nose. This feeding can cause damage to eye tissue which increases the potential for infection and diseases such as pink eye. The females do lay their eggs in fresh manure piles found in pastures.

How to control

Several strategies can be used to help control fly populations. Sanitation is one of the most important management strategies especially in and around feedlots and buildings. As long as breeding locations are available other control efforts will be minimized. Larvicides are an option for pasture and feedlot situations either by applying directly to the fly breeding locations one could also use these products as a feed additive or incorporate into a mineral mixture.

For grazing livestock the first step is to correctly identify which type of fly you have. After correct identification then an application of insecticides directly to livestock can be accomplished using several application methods and products. Options include fly tags, direct spray, misters, pour-on, self-application devices (dust bags or oilers), walk through traps and the newer gun devices that shoots an insecticide capsule and explodes upon contact.

One key factor when using the self-applied applicators is getting your livestock to use them consistently. Often time producers will locate the devices in locations that force the livestock to move through them such as to get to water or mineral. Regardless of the method you use always read the insecticide labels for limitations and withdraw times. Finally be sure to utilize an integrated fly control program, to reduce resistance issues. Insecticide resistance can develop if less than recommended levels of an insecticide is used, or by using the same insecticide or family of insecticides every year.

Are Crops Part of the Land?

By Robert Moore

Source: <https://farmoffice.osu.edu/blog/fri-06232023-1024am/are-crops-part-land>

A situation that can arise between landowners and tenants is the ownership of a crop upon the termination of a lease or transfer of the property. Like most legal questions, the answer depends upon the specifics of the situation. Sometimes, crops are part of the land and sometimes the crop is personal property and not part of the land. The following is a discussion of these different scenarios.



The most common scenario, and the most common type of lease, is for annual crops such as corn and soybeans. Annual crops are generally personal property and not part of the land. If a landowner transfers the land midway through a lease, the tenant will retain ownership of the crops and will have an opportunity to harvest the crops.

Wheat is a unique situation in that it is a carryover crop, planted in the fall and harvested in summer. The wheat will generally be personal property and owned by the tenant with one exception. If the wheat was planted by the tenant before a lease for the following year was established, a court may determine that the tenant planted the wheat at their own risk. Wheat should not be planted unless a lease for the following year is in effect.

Situations relating to perennial crops such as hay largely depend on timing. If the land is transferred shortly after the crop is established, the tenant may be able to continue harvesting the crop or more likely the landowner will be liable to the tenant for the cost of establishing the crop and possibly lost profits. If the land is transferred several years after the crop is established, the tenant may not have any claims to the crop. A court will largely look to the intentions of the landlord and tenant in rendering its opinion on the tenant's rights.

All of the above scenarios can be avoided by a good, written lease. The lease should address the tenant's rights to the crop in the event the land is transferred during the term of the lease. The landowner and tenant can agree to address the rights of the tenant, in the event the land is transferred, in any way they wish. For

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tenants and landowners in current leases, the lease should be reviewed to see how tenant's rights are addressed in the event of a transfer of the land. For situations where there is no written lease or for new leases, be sure to include a provision to address the tenant's rights to the crop.

Electrical Weed Control in Vegetables and Field Crops

By Chris Galbraith, MSU/OSU Extension & Jenna Falor, MSU Extension.

Source: <https://u.osu.edu/vegnetnews/2023/06/24/electrical-weed-control-in-vegetables-and-field-crops/>

Late-season weed management is essential to consider when developing a weed control plan for your operation. Despite one's best efforts, weeds can often escape early-season control. This can be a result of poor timing, missing the plants with cultivation, spray applications or flaming, or due to herbicide resistance. If allowed to reach reproductive maturity, escaped weeds can cause management problems in future years due to replenishment of the weed seedbank. These larger weeds can also harbor crop pests and diseases, interfere with harvest by obstructing equipment, or degrade final crop quality through contamination from weed residues.



Management practices for escaped weeds are notoriously limited due to the difficulty of controlling weeds when they have reached a significant size. Weed wipers use an applicator made of an absorbent material, such as sponge or a rope wick, that is saturated with herbicide and used to contact weeds growing above the crop canopy, killing the weeds but leaving the crop unaffected. The downsides of this method include a lack of herbicide options effective on larger weeds, limited efficacy on herbicide-resistant populations (depending on what product is being applied), and its unsuitability for use in organic systems. Another option is sending in hand weeding crews to manually weed the fields, which is particularly common for managing escaped weeds in vegetable production. While this method does tend to be effective, the labor is expensive, time-consuming, and hard monotonous work for employees.

The major manufacturer and supplier of electrical weeding equipment in the United States is The Weed Zapper, a Missouri-based company that began production in 2017. Electrical weed control technology has also been developed by the Brazilian company Zasso and the European companies AgXtend, Rootwave, and Crop.Zone. While electrical weeders from foreign companies are as of yet rare in the U.S., familiarizing oneself with the technology that has been developed overseas shows the versatility of this technology in different cropping systems and gives a clue as to the future of the equipment in modern agriculture.

Pro-environmental attributes of the equipment are that it does not disturb the soil and does not require the use of any chemical herbicides. Electrical weeding provides systemic control of even larger plants, making it an effective option for controlling weed seed bank inputs by terminating weeds at or prior to reproductive maturity. Similar to mechanical weeding and certain herbicides, it is non-selective and therefore caution must be taken to prevent crop injury. This typically restricts in-season use to crops with low-canopy growth habits that don't come into the path of the electrode. While this limits the application of electrical weeding, there still remains many crops where growers might benefit from integrating this equipment into their weed control plan.

Read the full article ["Electrical Weed Control in Vegetables and Field Crops"](#).

View the factsheet ["Basics of Electrical Weed Control"](#).

Ohio State creates Drought Rapid Response team to provide resources for farmers, growers

By Tracy Turner

Source: <https://cfaes.osu.edu/news/articles/ohio-state-creates-drought-rapid-response-team-provide-resources-for-farmers-growers>

COLUMBUS, Ohio—From brittle, brown lawns and cracked soils to dry garden beds and crops, the signs are clear statewide: Ohio is officially in a drought.

The recent stretch of warmer temperatures combined with scant rainfall in recent weeks has resulted in moderate drought conditions over 62% of the state, with nearly 98% of Ohio considered abnormally dry, according to the June 8 update from the [U.S. Drought Monitor](#).

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“Moderate drought” is the initial level of drought, while “abnormally dry” means an area is moving in the direction of drought, according to the U.S. Drought Monitor. And while it isn’t time to panic, these are rapidly changing conditions that need to be monitored, said Aaron Wilson, Ohio State University Extension’s field specialist in agriculture weather and climate and the State Climatologist of Ohio. OSU Extension is the outreach arm of The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES).

“Our lawns are feeling it, our gardens are feeling it and now we’ve got a couple of communities that have issued water-reduction requests,” Wilson said. “There have also been agriculture impacts, including diminished soil moisture, deteriorating grazing conditions, and newly emerged crops that are starting to feel the stress as well.

“We should be seeing an inch of rain per week to hit normal rainfall amounts, so if we’re not hitting an inch per week, we’re not making up any rainfall deficits. And once we get into June, July and August, it’s really difficult to make up the moisture deficits.”

Amid growing concern among farmers and producers statewide about what drought can mean for their crops and livestock, CFAES has created a 25-member Drought Rapid Response team that convenes weekly to monitor conditions to provide farmers, producers, gardeners, turfgrass managers and others information on how to manage through a drought, said Sam Custer, OSU Extension interim assistant director, agriculture and natural resources.

The team has created an [Early Drought Response](#) webpage to provide resources for Ohio's farmers, Custer said. The page provides the best science-based recommendations to protect livestock, crops, and farm operations from weather impacts, commodity price changes and extreme events.

Custer said the rapid response team was created because of early signs of drought last week and because OSU Extension was hearing from educators and specialists statewide about concerns farmers and producers were expressing about growing drought conditions.

“We’re here to serve Ohio by providing the best researched based information they need to make informed decisions as they deal with drought considerations,” he said. “We’re also coordinating and collaborating with the Ohio Department of Agriculture, as well as providing state and federal elected officials up-to-date information on what we’re finding and recommending.”

The drought webpage, at go.osu.edu/ohiodrought, also provides links to numerous CFAES resources and newsletters, including information specific to agronomic crops, dairy, farm management, fruit, livestock, poultry, vegetables, wine grapes and turfgrass.

The information is especially timely and significant, considering that the rapidly expanding drought conditions are most similar to the 2012 drought, Wilson said, noting that last fall was the driest fall since 1966 in a few areas of the state. However, he said, “every drought is different, so we shouldn’t jump to automatically thinking 2012 outcomes will be realized this year.”

“Generally, in the last 30 days we should have seen about 4 inches of rainfall, with 8 inches over 60 days and 12 inches over 90 days,” Wilson said. “But we’re falling short on all of that, especially in pockets of northwest and northeast Ohio, where over the past 30 days they’ve picked up barely a quarter of an inch of rainfall.

“And it’s not just pockets of the state, but the entire state is turning dry all at once, with 3- to 4-inch deficiencies over the last month. Big areas of Ohio are now getting down to 10% of normal rainfall or even 5%. These very big deficits over a very short period bring about these rapid drying conditions, especially as the sun angle gets higher and temperatures are getting warmer and we start to lose a lot of moisture from the surface.”

As it stands now, Ohio farmers have gotten 95% of corn and 94% of soybeans planted, according to the [June 5 Crop Progress Report](#) from the USDA National Agricultural Statistics Service’s Ohio Field Office. Of those crops, 80% of corn and 74% of soybeans crops have emerged.

“Concerns about ongoing excessive dryness loomed last week as farmers in northern counties reported signs of drought stress in corn. Some farmers in western counties described soil crusting as posing challenges to crop emergence,” according to the report.

For up-to-date drought resources visit: go.osu.edu/ohiodrought.

Lee’s Monthly News Column

Hello Trumbull County, and welcome to summer! Dry weather last month made planting a garden, or crops, relatively easy without the need to plan around rain. As I mentioned last month, the lack of rain caused issues with seed germination and non-uniform crop stands, but the crops did come up with the help of rain last week. At my house in

Champion, we received about 1.5" of rain, but I've heard reports of higher amounts throughout the county.

As we enter summer, we need to shift our focus from getting seeds planted and germinated, to protecting the crops from disease and insects. Many of the common fungal diseases like powdery mildew, downy mildew, early blight, and white mold thrive under humid summer nights that are common in our area. Fungal diseases are usually spread on the wind and infection occurs when a spore lands on a susceptible plant and enters the plant cells. Once this happens there is no "curing" the plant from the fungal disease. The only option at this point is to minimize the spread to other plants.

Removing infected leaves, or fruit, and placing them in the garbage will reduce the number of spores available in the environment. Do not place infected leaves in your compost pile as they may still release spores. Fungicide options are available for most vegetables and crops, but they need to be applied before the infection period begins. Fungicides work by applying a thin layer to the plants that prevent fungal spore germination. Applying fungicides after infection will not prevent disease from occurring, but it will protect any tissue that is not yet infected.

If you choose to use a fungicide, please read the label to make sure that your crop is listed. The label will tell you everything you need to know about how much to use, how often to apply, and something called the pre-harvest interval (PHI). The PHI is the minimum amount of time needed between application of the chemical to when a crop can safely be harvested and consumed. Some PHIs can be several days to weeks, so it is very important to read the label!

As we're talking about chemicals, the same advice applies to insecticides. Not all insecticides are labeled for use in vegetable crops, and some PHIs will limit a timely harvest. For example, the common insecticide Sevin can have a PHI of as little as 1-day to 30-days depending on the crop being treated. You will not want to treat an infestation of aphids today if you plan to harvest the crop tomorrow. When it comes to insects, sometimes the best treatment is to do nothing. Most gardeners can't stand the thought of a hornworm on a tomato plant, but choosing an insecticide should be the last option. Don't forget that you can always pick it off and feed it to your chickens, or just throw it in the garbage.

The use of pesticides – herbicides, fungicides, insecticides, etc.- comes with an inherent risk. It is important to understand how to use them properly (it's all on the label), but most importantly is to know when to use them and how you can plan to limit their use for emergency situations only. The practice of integrated pest management (IPM) is a way to incorporate mechanical, biological, cultural, and chemical use to have a safe and productive garden by breaking the disease triangle – pathogen + environment + host = disease.

IPM starts with the fundamentals of garden design and layout. Providing adequate spacing between plants, choosing resistant varieties, encouraging water drainage, sanitation, and timely harvest can promote an environment that is not conducive for infection or removes the host. If you remove one component of the triangle, disease does not occur. The best approach to limit disease is to prevent it from occurring in the first place. If you have questions about pesticide use or improving IPM on your farm or garden give OSU Extension Trumbull County a call at 330-638-6783.

Stay safe and have a productive growing season!

Dry Weather and Drought in the Midwest, Middle-June 2023

By Gary Schnitkey, Nick Paulson, Jim Baltz, Carl Zulauf

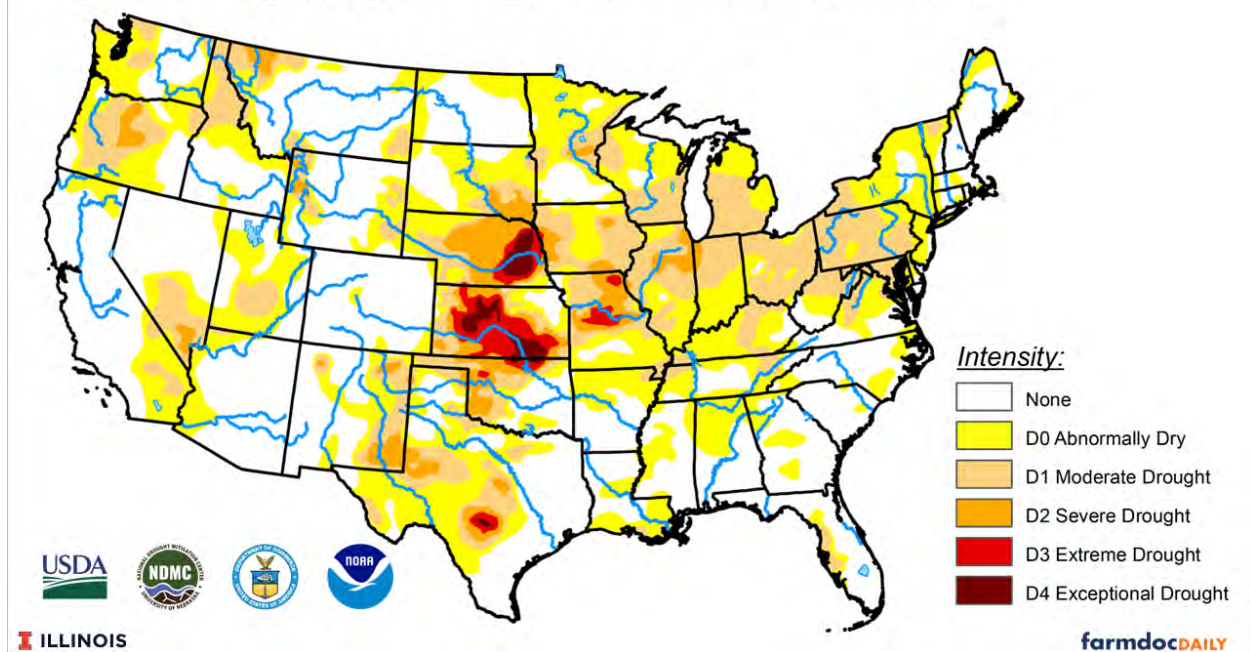
Source: <https://ace.illinois.edu/directory/schnitke>

As of middle June, much of the Midwest is either dry or in drought according to the U.S. Drought Monitor, raising the prospects of a serious drought like that which occurred in 2012. While a higher risk may exist in 2023 than in most years, a continuing drought and lower yields is not a foregone conclusion. However, farmer decision-making becomes more difficult as dry weather continues. Still, even if a drought occurs in 2023, net farm incomes for grain farms may not be low.

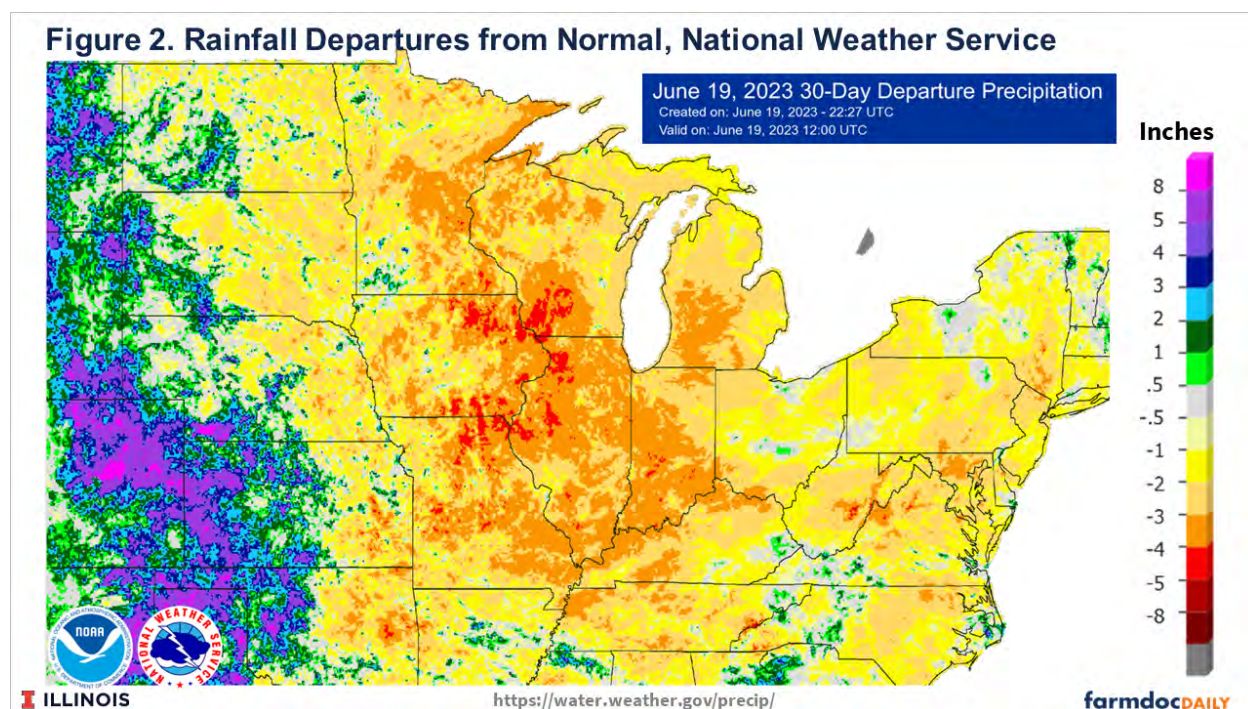
Dry Weather

Little rain has fallen over much of the Midwest since the beginning of May, resulting in most of the region being classified as abnormally dry or in a drought, according to the U.S. Drought Monitor. The June 13th Drought Monitor map shows the continuing drought in the Great Plains, with portions of Nebraska and Kansas being classified as in the two highest drought categories: extreme drought (D3) and exceptional drought (D4). From the Great Plains, dry conditions continue through the Midwest to the Atlantic Seaboard (see Figure 1). Most land is classified as dry or in drought in Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, and Ohio, continuing into New York and Pennsylvania.

Figure 1. Contiguous U.S. Drought Monitor Map for June 13, 2023



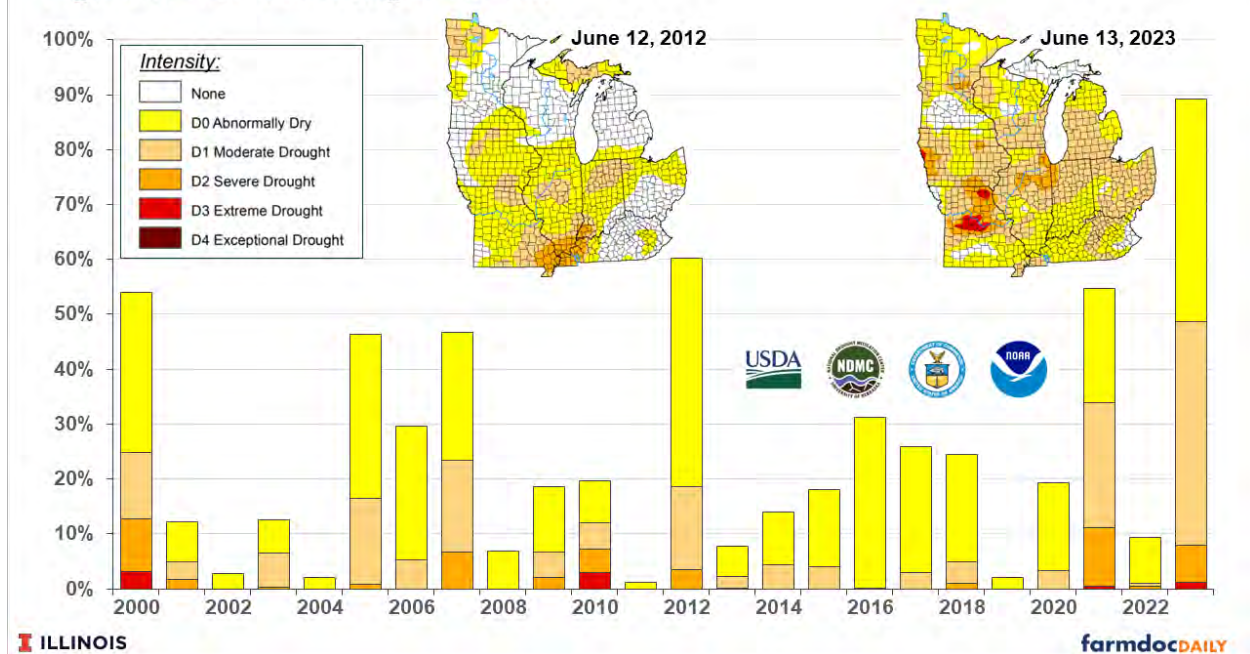
Some relief occurred over the weekend as rains fell over central Iowa. The National Weather Service (NWS) reported over an inch of rain in some parts of central Iowa. If the associated weather did not cause crop damage, this rain is welcome and will provide much-needed relief. Still, even with this rain, Iowa has below average rainfall during the last thirty days (May 23 to June 18), with some areas having 30-day departures of two inches or more (see Figure 2). The most significant departures occur in a geographical area centered in eastern Iowa, southeast Minnesota, southwest Wisconsin, western Illinois, and northeast Missouri (see Figure 2). Most of these areas have three inches below average, with some areas having 4 inches below normal rainfall.



The U.S. Drought Monitor provides time series of statistics for various geographical regions. We obtained data for mid-June to see the severity of 2023 compared to other years. We choose the Midwest region, which includes nine states from Minnesota in the northwest to Missouri in the southwest over to Michigan, Ohio, and Kentucky in the east (see Figure 3). These eight states have produced 64% of corn in the U.S. over the past five years. The Midwest state rank is:

1. Iowa (17% of U.S. corn production),
2. Illinois (15%),
3. Minnesota (10%),
4. Indiana (7%),
5. Ohio (4%),
6. Wisconsin (4%),
7. Missouri (4%),
8. Michigan (2%), and
9. Kentucky (2%).

Figure 3. Midwest Drought Monitor



States immediately west of the Drought Monitor's Midwest region also are significant producers of corn: Nebraska (12%), Kansas (5%), South Dakota (5%), and North Dakota (3%). Nebraska, Kansas, and South Dakota are dry.

The Midwest states also produce 64% of the soybeans in the United States:

1. Illinois (15% of U.S. soybean production),
2. Iowa (13%),
3. Minnesota (8%),
4. Indiana (8%),
5. Missouri (6%),
6. Ohio (6%),
7. Wisconsin (2%),
8. Michigan (2%), and
9. Kentucky (2%).

States immediately west of the Drought Monitor's Midwest region also are significant producers of soybeans: Nebraska (7%), South Dakota (5%), North Dakota (5%), and Kansas (4%).

On June 13, 90% of the Midwest region was dry:

- 41% was abnormally dry (D1).

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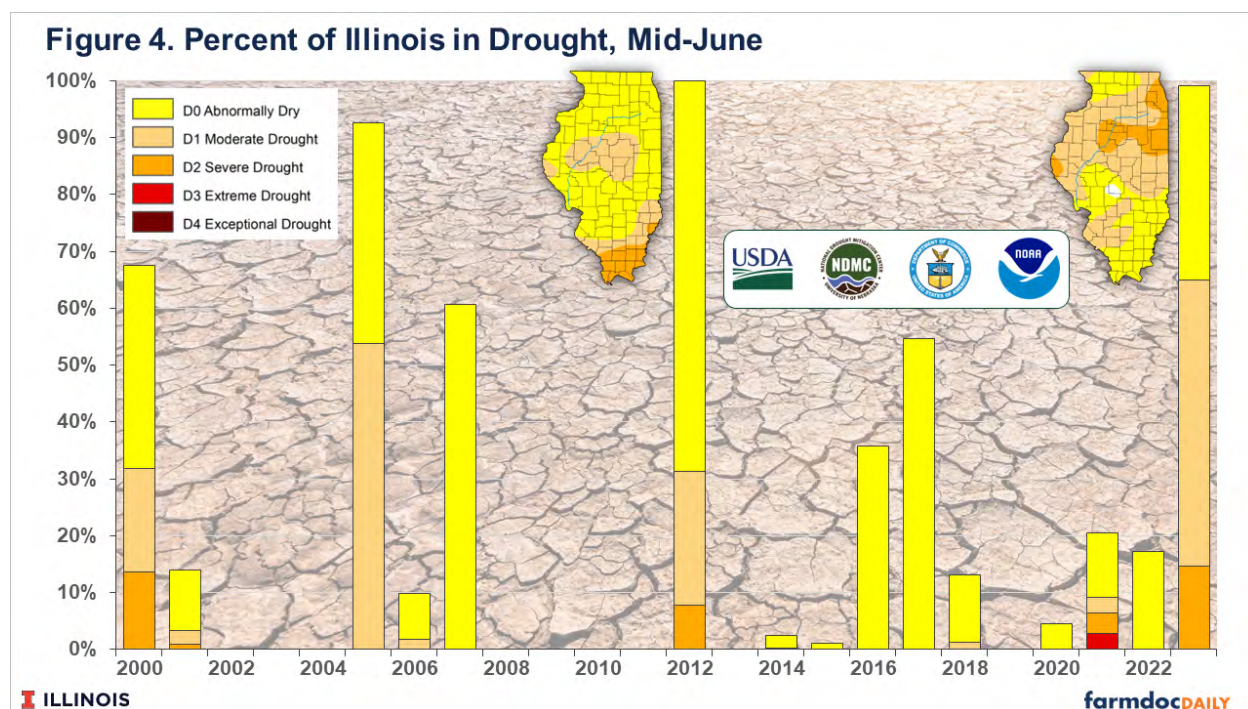
- 41% was in moderate drought (D2).
- 7% was in severe drought (D2).
- 1% was in extreme drought (D3).

The 90% classified as abnormally dry or worse for 2023 is the highest percentage since 2000, the first year the U.S. Drought Monitor has statistics available (see Figure 3). The next highest year is 2012 — the worst drought year from 2000 to 2022 — with 60% of land either dry or in drought.

Moving Forward

Mid-June dryness and drought can lead to a widespread drought like in 2012, resulting in large yield losses. However, the possibility of large yield losses is not a foregone conclusion. Any rain between now and early July could mitigate current dry conditions.

To illustrate, we related the mid-June percentages of land dry or in drought to state corn and soybean yields in Illinois and Iowa. Figure 4 shows the percentage of dry and drought land in mid-June for Illinois. In 2023, 99% of Illinois is dry or in drought, a very high rate. In 2012, 100% of Illinois was classified as dry or in drought. In 2012, corn yields averaged 105 bushels per acre, 63 bushels lower than the previous five-year average of 168 bushels per acre. In 2005, 93% of Illinois was classified as dry or in drought, and corn yields averaged 143 bushels in Illinois, down 13 bushels from the previous five-year average of 156 bushels per acre. In 2000, 67% of acres were dry or in drought. In 2000, Illinois had an excellent yielding year with a 151-bushel average, 19 bushels above the previous five-year average of 131 bushels.



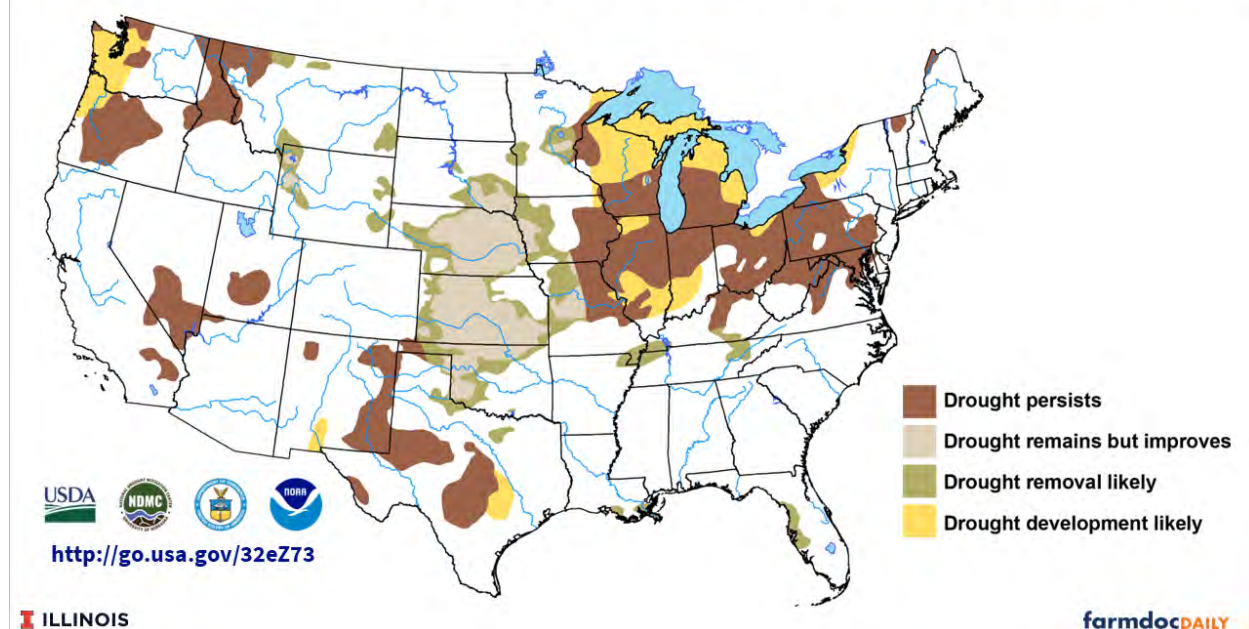
Our analysis had Illinois and Iowa state yields in a regression as dependent variables with explanatory variables of 1) a yield trend and 2) percent dry or in drought in mid-June. From a statistical standpoint, the percent dry or drought in mid-June did not explain corn or soybean yields in Illinois or Iowa.

The critical period for determining corn yields is pollination, which will occur in early to mid-July. Any rains that occur between now and then could elevate dry conditions and result in trend or above-average yields. Temperatures could play a role, with lower temperatures being preferred in dry conditions. For soybeans, the critical weather period is longer. A dry early July — if it occurs — could be offset by rains in later July or August.

As of June 20th, forecasts do not suggest much rain in most of the Midwest through Sunday, June 25. Predictions are for no rain in Illinois, with some rain projected for Ohio. If no precipitation occurs until June 25, the weather during the last week of June and July will become even more critical.

At this point, yield shortfalls from drought are not a foregone conclusion, but the risks are much higher in 2023 than in most years. Currently, it seems improbable that a large weather system will blanket the entire Midwest with rain. As a result, some areas likely will remain in a drought. Northern and central Illinois are particularly at risk since this area has less rain than other areas, and forecasts are pessimistic concerning rain (see Figure 5).

Figure 5. U.S. Monthly Drought Outlook for June to September 2023



Price Reactions

Both corn and soybean prices have rebounded in recent weeks, likely on the potential of lower yields. The December 2023 corn futures contract on the Chicago Mercantile Exchange (CME) was near \$5.00 per bushel in mid-May 2023, increasing to \$5.50 on June 14. From the \$5.50 level, the corn price shot up to \$5.97 on June 16. The \$5.97 is \$.06 higher than the \$5.91 projected price for crop insurance purposes in 2023.

The November 2023 CME soybean contract was \$11.45 per bushel at the beginning of June 2023. From the \$11.45 level, soybean prices increased to \$13.42 on June 15. The \$13.42 price is \$.34 below the 2023 projected price of \$13.76.

Typically, prices continue to rise in drought years. Price increases will depend on the size of reduced yields, and the most impacted geographical areas. Since Illinois and Iowa are large producers of both corn and soybean, drought impacted yields in those two states will have more pronounced price impacts than other areas. A widespread drought can have large price impacts. In 2012, for example, the projected price for corn was \$5.68 per bushel, and the harvest price was 32% higher at \$7.50 per bushel. Soybean prices rose from a projected price of \$12.55 to a harvest price of \$15.30, an increase of 23%. Similar increases are likely in 2023 if dry weather continues across much of the Midwest. A 32% increase in corn results in a projected price of \$7.80. Of course, a widespread rain system across the Midwest could lead to higher expectations of yields and price declines from current levels.

Farmer Decisions

At this point, the decisions that farmers need to make will become more difficult. For example, any late-planned applications of nitrogen on corn become questionable. Moreover, decisions on herbicide and insecticide spray to counter any unexpected pest problems become more complex. Double-cropping soybeans in dry soils after wheat may not be warranted. Marketing decisions also become more difficult as there is considerable price uncertainty. A continuation of dry conditions likely will lead to price increases, while large-scale rains could lead to price reductions. Large sales of new crop currently seem risky at this point.

Fortunately, most farmers purchase crop insurance with a guarantee increase, with Revenue Protection (RP) being the most used crop insurance plan. RP's guaranteed increase that is particularly useful in drought years. RP's guarantee is:

The higher of the projected or harvest price (for guarantee purposes, the harvest price is capped at two times the projected price)

x guarantee yield (either the actual production history (APH) yield or the Trend-Adjusted production history yield)

x coverage level

As illustrated above, a continuation of the drought likely will lead to harvest prices above projected prices (\$5.91 for corn and \$13.76 for soybeans). In 2012, the guarantee increase played a key role in large crop insurance payments.

A reduction in net income is not a foregone conclusion even if a widespread drought occurs, particularly for those farmers who purchased crop insurance. In Illinois, the 2012 drought year was a record income year up to that point (see *farmdoc daily*, November 15, 2022). Drought conditions could result in rising prices. Those rising prices will increase revenues on grain that is produced. Crop insurance could fill gaps, particularly if harvest prices are above projected prices. Moreover, a large drought could prompt the continuation of disaster assistance programs like we have seen in recent years through the Wildfire and Hurricane Indemnity Program (WHIP), WHIP plus, and the Emergency Relief Program (ERP).

Moreover, a large-scale 2023 drought could delay a return to lower prices in the future. Corn and soybean prices were expected to fall this year with normal yields. And, up until late May and early June, new crop bids were declining. The potential of a large-scale drought has brought this decline to an end. A continuation of dry conditions could push price declines into 2024 or beyond.

Summary

Mid-June conditions raise the prospect of a large-scale drought over much of the corn and soybean-producing areas of the United States. While risks are large, drought-reduced yields are not a foregone conclusion. Much attention will be given to actual and forecast weather over the next several weeks.

Farmer decisions become more challenging during a drought. Even given a drought, lower incomes are not a foregone conclusion. A combination of higher prices, crop insurance payments, and disaster payments could at least partially offset losses and still result in relatively good income levels for grain farms in 2023.



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