CFAES COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

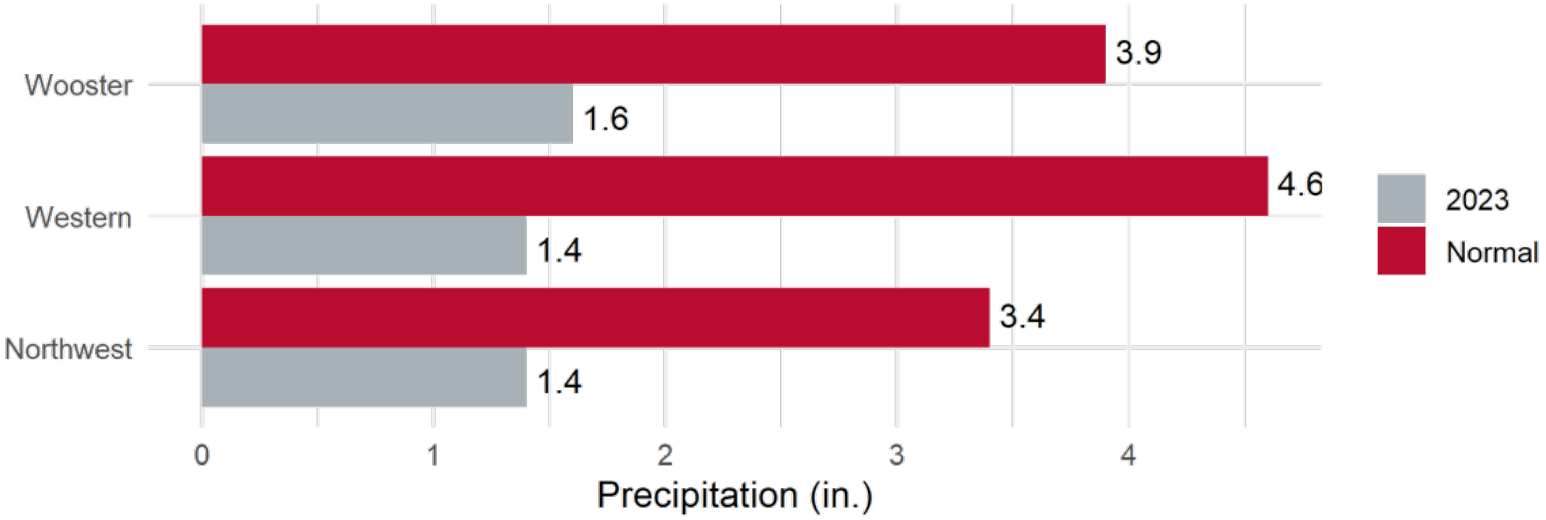
Auglaize County ANR

News from OSU Extension

June 9th, 2023

Dry Weather Impacts on Corn and Soybean Establishment and Wheat Grain Fill

Authors; Stephanie Karhoff, Osler Ortez and Laura Lindsey. Edited by Jamie Hampton



In past years we dreamt of a dry spring. Guess we should be careful what we wish for as we face an early dry spell this season.

The CFAES weather stations on Wooster Campus and Northwest and Western Agricultural Research Stations reported 58-70% less precipitation in May than normal (Figure 1). Dry weather is not only a concern for Ohio now (Figure 1), but several other states are also facing similar or worse conditions, especially those in the central Corn Belt (Figure 2). Soil surface conditions are the most affected at this point. Moving a little deeper into the soil profile, better moisture is available. USDA-NASS reported subsoil moisture at 68% adequate and 3% surplus in last week's report (5/28/23). For topsoil moisture, 7% is very short, and 38% is short. So how will current abnormally dry conditions impact early corn and soybean growth and wheat grain fill?

Wheat

Nearly all wheat in Ohio was jointed as of May 28 and 75 percent had headed (USDA NASS, Great Lakes Regional Office). With recent dry weather, the risk for head scab development remains low (https://www.wheatscab.psu.edu/). Dry, hot weather will shorten the grain-fill period of small grains between Feekes 10.5.4 (kernels watery ripe) and Feekes 11.3 (kernels hard, but dividable with thumbnail). If dry, hot weather persists, winter wheat harvest may be earlier than normal. Keep an eye on wheat maturity. Dry grain that is re-wetted increases the risk of disease, lodging, and seed sprouting, ultimately reducing grain yield and test weight.

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Corn and Dry Weather

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Corn

As of May 28, 89 percent of Ohio corn was planted, and 54 percent had emerged (USDA NASS, Great Lakes Regional Office). Corn planted in mid to late April is between V3 and V5 growth stages. Fortunately, corn is moderately tolerant to dry conditions during early vegetative stages (up to V12) and can rebound if good rainfall conditions occur during silk emergence and pollination (Table 1). Early season dryness may even encourage deeper initial rooting. However, if the soil surface is too dry it can negatively affect nodal root system development. The developing roots will desiccate and die if they do not reach adequate soil moisture. Nutrient uptake will suffer, and lodging may occur if the nodal root system is not properly established (i.e., "floppy corn syndrome").

Stage	Water Use Rate Inches per day
Prior to 12-leaf stage (<V12)	**<0.20**
12-leaf stage (V12)	0.24
Early tassel (VT)	0.28
Silking (R1)	0.30
Blister (R2)	0.26
Milk (R3)	0.24
Dent (R5)	0.20

Conventionally tilled fields and ones without residue are more at risk as the soil surface warms and dries more quickly. Corn planted in late May this year and close to the V1 growth stage is more vulnerable than more established plants (V3-V5). Corn yield components are determined during both vegetative and reproductive stages (Assessing yield components in corn). Corn requirements vary depending on the development stage (Table 1), with corn's water use reaching its peak daily need during the pollination period. Shortfalls in water availability can affect the crop this season, however, tasseling (VT) and silking (R1) are the most critical periods when it comes to water use.

Soybean and Dry Weather

Soybean

Soybean planting also made significant progress the last week of May, with 87 percent planted and 45 percent emerged (USDA NASS, Great Lakes Regional Office). Soybean seeds must imbibe half their weight in water to germinate, so dry soil conditions may delay emergence in the remaining 55 percent. Recently planted fields may experience slowed radicle and hypocotyl elongation. Emergence may not be uniform, but this is not critically important for soybeans.

Soybeans planted in mid to late April reaching the V1 growth stage can expect reduced plant height and smaller leaf size as resources in the plant are reallocated to roots. During dry periods, the plant will prioritize root growth and grow deeper into the soil profile to search for moisture. The crop can then “catch up” and put on compensatory vegetative growth during later periods of rainfall. Vegetative development takes place over more than half of the soybean growing season, so leaf area that is lost early can often be recovered as growth continues with no loss in yield. This is why short-term, moderate dryness during early growth stages does not generally impact soybean yield.

Significant yield losses occur when drought stress coincides with flowering and pod fill. However, even then, soybean plants are master compensators. Hot, dry conditions may reduce flower and pod number, but with late-season rainfall, seed size will increase. We will keep an eye on conditions as soybean fields progress through vegetative to reproductive stages.

For more information on the soybean growth cycle, including important risks, management, and misconceptions, please see the Science for Success bulletin:
https://soybeanresearchinfo.com/wp-content/uploads/2022/01/Science-for-Success-Soybean-Growth-Stages-V3.pdf

Weed Management in Dry Conditions

Author Alyssa Essman

Here are some reminders and considerations for weed control in dry conditions.

•To wait or not to wait – one consideration is whether it's better to apply POST herbicides when weeds are small or to hold out for some rain. Weeds are most effectively controlled when actively growing and drought stress can impede control to some degree. However, large weeds are more difficult to control especially if the stress-inducing conditions persist. For this reason, and the fact that herbicides generally work across a range of conditions, it might be best to go ahead and spray when weeds are small unless there is some definite rain in the forecast.

•Weed emergence – dry conditions can delay the later emergence of weeds, especially those that are in the upper portion of the soil and have small seeds. The emergence of large-seeded species and those at lower depths will be less affected. Weed emergence flushes can occur periodically following rainfall events.

•Residuals – residual herbicides will not be properly incorporated, and thus not available for uptake by weeds, to help control those that do emerge before we receive a decent rain. Mark Loux talked about this and the use of a rotary hoe in an article a couple of weeks ago, which can be read here. A layered residual strategy for control of waterhemp is still recommended, especially where crops were planted early. Rain will still be needed to incorporate later-applied residual herbicides into the soil profile.

•POST applications – plants respond to drought stress in part by increasing cuticle thickness to preserve water. This can decrease herbicide absorption, and translocation within the plant is also affected. Optimizing the use of adjuvants can help to increase absorption by improving coverage and uptake. Follow the label and herbicide/adjuvant manufacturer recommendations to determine the best type and rate. Also, be aware that an increase in activity can lead to crop injury in some instances, and that applications early or late in the day may reduce the risk of injury.

•Antagonism – dry conditions can exacerbate antagonism issues, especially when using POST grass and broadleaf herbicides together. Control can be reduced especially for larger grasses with substandard root systems (hanging on by a few roots). Sequential applications can help overcome this antagonism. Wait seven days between applications when the broadleaf herbicide is applied first, and about one day when the grass herbicide is applied first.

For more information on weed control in a variety of conditions, check out the Weed Control Guide for OH, IN, IL, and MO available for purchase here.

Done with Planting?

Collect Soil Sample for SCN Test

Author HoratioLopez-Nicora

The soybean cyst nematode (SCN) remains the most devastating and yield-limiting soybean pathogen in Ohio and North America. SCN can cause over 30% yield reduction with **no visible symptoms**, therefore, early detection of this pathogen relies on testing your fields to know your SCN numbers!

Spring is a good time to sample for SCN. A soil test in spring will reveal if SCN is present and if so, at what levels. If you are planning to participate in an on-farm trial that requires soil sampling, *a subsample can be used for SCN testing*. Additionally, if you planted corn, a soil sample from that field will reveal if you have SCN but most importantly, how much SCN. **Knowing your SCN numbers will help you determine the best management strategy.**

With funding from the Ohio Soybean Council and promoting the mission of The SCN Coalition, we will process up to **TWO soil samples, per grower, to be tested for SCN, free of charge**.

Download and complete this **Soil Sample Submission Form** and mail your samples to:

OSU Soybean Pathology and Nematology Lab
Attn: Horacio Lopez-Nicora, Ph.D.
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Aphids on Milkweed

Author Ryan Pankau, Illinois Extension,
Edited by Jamie Hampton

" Accepting some milkweed damage to ensure Monarchs are unimpacted"

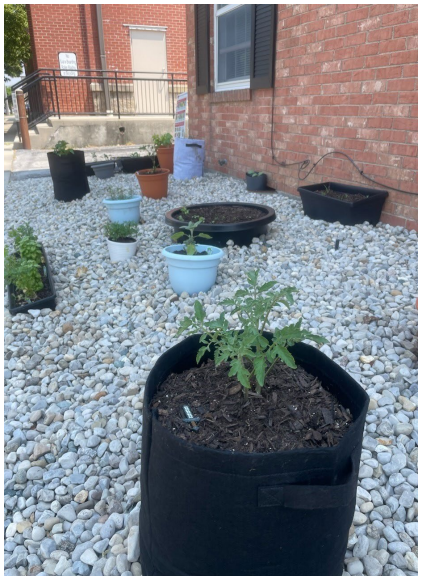
Many gardeners are starting to integrate more and more milkweed into their landscaping in support of monarch butterflies. Plants in the milkweed genius (*Asclepius*) are the exclusive food source for monarch caterpillars, making them incredibly important in the race to sustain imperiled monarch populations across our continent.

Like so many other landscape plants, milkweeds are not free of pest and disease issues, which has spurred a real uptick in gardening questions related to the care of these milky-sapped, native plants. Perhaps the most common milkweed pest question comes from concerned gardeners that have observed masses of tiny bright yellow insects feeding on their plants. The obtrusive mob of sap sucking insects seems to appear overnight, multiplying at an astonishing rate.

Oleander aphids (*Aphis nerii*) make up the congregation that many gardeners in our area find on milkweeds each year. They are a non-native pest that feeds on a wide range of plants in the dogbane family (*Apocynaceae*). Control measures need to be carefully weighed to avoid impacts to monarch caterpillars that may be feeding as well. A steady stream of water can be used to knock off aphids and break up colonies, but it must be really targeted. Insecticides are not recommended for control as they will certainly have unintended consequences for monarchs. Many times, I just accept some milkweed damage from aphid feeding to ensure monarchs are unimpacted. Since aphids focus on lush new growth, their colonies tend to diminish as hot weather puts stress on plants.

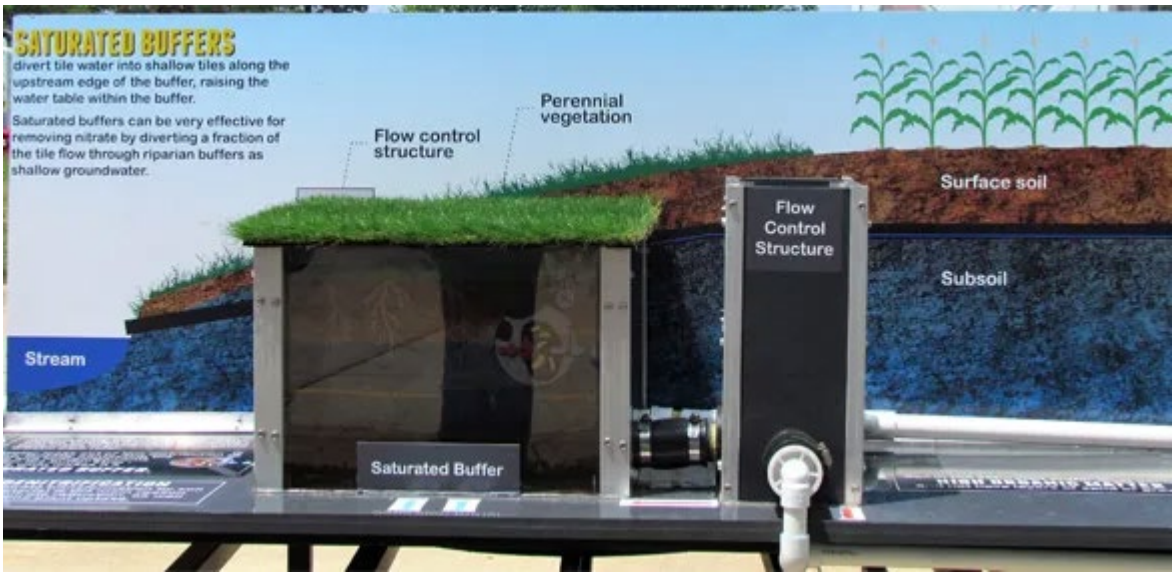
For the full article click HERE

Auglaize County Extension Office Container Garden



This year we have been learning about garden plants. Over the winter we started seeds and now we have moved to a container garden in front of the office at 208 S. Blackhoof Street in Wapakoneta. I am excited to share with you different styles of container gardening and how to grow your own veggies in small spaces. We have information from our SNAP Education program on how to prepare some of the vegetables and herbs to eat as well as information from our water quality associate on how plants can filter and help clean water before it enters the waterways, and an example of a small pollinator pot. You can watch videos and explanations of some of the practices we are using on our Facebook page (Ohio State University-Auglaize County Extension) Please stop by and look at the garden and send any questions that you may have. You can email me at Hampton.297@osu.edu.

OSU Extension Water Quality Team to Host Regional Field Day Focusing on In-Field and Edge-of-Field Conservation Practices



Join the Ohio State University Extension Water Quality Team for a field day sponsored by The Nature Conservancy on Thursday, July 20th, 2023. The event is being held in collaboration with Michigan State University Extension, USDA-ARS, and Cargill. This field day, held near New Bavaria, Ohio, will feature four breakout sessions and a keynote speaker focusing on design, implementation, and results from projects looking at different conservation practices. The event will run from 9:00 AM until 1:30 PM with lunch provided at Oedy Farms, A256 Co Hwy 19, New Bavaria, OH. Registration begins at 8:30 AM on the morning of the event. The keynote speaker for this event will be Kevin King, USDA-ARS Research Lead and Agricultural Engineer, who will discuss water management and research results from in-field practice monitoring.

Four breakout sessions will start in the morning, focusing on cropping system practices such as cover crops, soil conditions and management, ditch design and funding opportunities for two-stage ditches, and considerations and benefits of utilizing Phosphorus filters. Michigan State University will be providing education through the demonstration of a rainfall simulator. The target audience for this event are farmers, landowners, and industry professionals who wish to learn more about the ins and outs of conservation practices. Session speakers include Chad Penn, Soil Scientist with USDA-ARS National Soil Erosion Research Laboratory, Justin McBride, Conservation Engineer with the Ohio Department of Agriculture, Brent Nichol, Agriculture Conservation Practitioner with The Nature Conservancy, Kushal KC, Ph.D. Student in Agricultural Engineering, The Ohio State University, and Christina Curell, Statewide Cover Crops and Soil Health Educator, and Sarah Fronczak, Environmental Management Extension Educator, both with Michigan State University Extension. There is no charge to attend this event, but registration is strongly preferred. Register online at go.osu.edu/WQTeamFieldDay. Contact the OSU Water Quality Team with questions via email at waterqualityassociates@osu.edu, or call (567) 344-5016.

June Events

Auglaize County Events:

- **June 9th, Cover Crop Roundtable, Happy Daz Restaurant in Wapakoneta, 8:30 am**
- **Insect and Field monitoring**

I will be out weekly, if you need me to check a specific field or crop send me a message or give me a call.

Nearby Happenings:

- **2023 Wheat Field Day, Western Agriculture Research Station, June 13th 9 am-1 pm, South Charleston Ohio Online registration** https://osu.az1.qualtrics.com/jfe/form/SV_eSh3QB4Fi0vUoIe
- **In-field and Edge of field Conservation Practices field day, July 20th New Bavaria Ohio Register online at** go.osu.edu/WQTeamFieldDay

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THE OHIO STATE UNIVERSITY
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