Hello Northeast Ohio Counties!

I hope your crops were able to get a little bit of water from the recent storms that moved through the area. I know they were highly scattered, and there may be a few fields still hurting for moisture.

Mark your calendars for August 24th for our upcoming hay workshop in Trumbull County. We’ll be discussing all the steps needed to make quality hay. It’s free, and lunch will be provided. Call today to register!
Below Normal Rainfall Favored Until at Least Mid-August
By Jim Noel, NOAA
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2019-25/below-normal-rainfall-favored-until-least-mid-august

The weather pattern is not real supportive of rainfall. The weather models continue to try and support rainfall of normal or slightly above normal, however, current topsoil conditions along with a west to northwest flowing weather pattern does not support that. The last 7 days shows dry conditions across most of the corn and soybean growing areas. In light of that, we expect 0.25-0.50 inches of rain per week the next two weeks on average with the range from near none to 2 inches in isolated areas. Normal per week about 0.75 inches. Hence, total rainfall for the next two weeks is forecast to average 0.50-1.00 inches with normal being about 1.50 inches for two weeks.

There is some indications that a more normal rainfall pattern will return for the second half of August but still much of Ohio will end August normal or below normal rainfall due to the quite dry first half.

Temperatures for August will average normal to slightly above normal but most maximum temperatures will be 80s to near 90 in the coming week or two.

The latest NOAA/Climate Prediction Center 2-4 week and monthly outlooks can be found at: https://www.cpc.ncep.noaa.gov/

For the latest on the expanding dry areas in Ohio visit The Drought Monitor at:

Northeast Ohio Agriculture
We expect to see the dry areas expand this week across the corn and soybean belt including Ohio.

**A Great Day for Hay!**

OSU Extension Trumbull County will be hosting a hay making workshop on August 24, 2019 at Von-Son Farms, 6374 Youngstown-Kingsville Rd, Farmdale, OH 44417. We’ll be talking about all the steps in the process to make quality hay from growing, mowing, baling, wrapping, and storing the final product. The program will kick off at 11AM with Clif Little, OSU Extension Guernsey County, as he discusses what it means to make *quality* hay, not just *okay* hay. We’ll follow that with presentations, demonstrations, and discussions on weed control, equipment settings, and soil fertility. We’ll wrap up the day with demonstrations from Kuhn’s MFG and their bale accumulators, and equipment demos from Bortnick Tractor.

The is a free event, but pre-registration is requested to reserve a meal ticket. To pre-register call the OSU Extension Trumbull County office at 330-638-6783. The Trumbull County Holstein Club will be sponsoring lunch, so be sure to come hungry! We will be outside in hay fields so please dress appropriately, and if it’s raining, we’ll move to the equipment shed so the event will go on rain or shine! If you have questions please email Lee Beers at beers.66@osu.edu.

**Ohio: Where Has All the Waterhemp Come From?**

*BY MARK LOUX, OHIO STATE UNIVERSITY EXTENSION WEED SPECIALIST*

Source: [https://agfaxweedsolutions.com/2019/05/08/ohio-where-has-all-the-waterhemp-come-from/](https://agfaxweedsolutions.com/2019/05/08/ohio-where-has-all-the-waterhemp-come-from/)

Weed populations are constantly shifting, in response to the pressure from our cultural and herbicide use practices, and how good our management of weeds is (or isn’t). Two weeks ago in CORN, we wrote about the apparent decline in marestail in parts of the state, although in subsequent communication we heard fairly clearly that not everyone’s populations had declined yet.
And there is bad news – waterhemp is spreading at a rapid rate, and it’s a considerably more challenging pest than marestail for several reasons. The question really is – why has waterhemp taken over the past several years? And not Palmer amaranth which we were more worried about?

The difference may be is the initial source of the infestations as much as anything. We did not know of any Palmer in the state prior to 2011 when we became aware of an infestation near Portsmouth. We think of Palmer as still coming almost exclusively from distinctly new introductions, deriving from outside the state. There are several areas where it’s being moved by farming operations from one field to another, but primarily it’s new infestations via one of the following: purchase of used harvesting equipment that came from outside Ohio; contamination of seed used for establishment of wildlife, CREP, and similar areas (possibly some cover crop seed also); feed containing cotton byproducts that were brought in from the South, or hay brought in from farther west (e.g. Kansas).

Palmer amaranth is actually a relative success story for all of us here in Ohio. While we have had some introductions, it really has not gained much of a foothold, and is not moving around. The growers experiencing those introductions have taken the threat seriously and worked to stop Palmer in its tracks, with the help of their local community in some cases.

In contrast, we have always had some waterhemp in the state, although it was initially concentrated mostly in west central Ohio. We got word about it in other parts of the state occasionally prior to 2010, but it did not seem to get out of hand. Our thinking is that when we reintroduced residual herbicides into soybean herbicide programs to help control marestail, this also helped keep waterhemp in check for a while. The end result was that it just took longer for waterhemp in Ohio to develop the multiple herbicide resistance that has been present in waterhemp farther west for a while.

However at this point our limited sampling indicates that, in the areas waterhemp has inhabited the longest, much of it is resistant to ALS inhibitors (site 2), glyphosate, and PPO inhibitors (site 14). We expect this to occur in other areas as well, and with
continued selection, resistance to other sites of action will occur as well. Waterhemp populations in Illinois and Missouri can have resistance to most of the following sites of action – 2, 4, 5, 9, 14, 27 – and resistance to site 15 herbicides is also developing.

Back to the original question about why waterhemp is expanding rapidly now, resistance is certainly part of it. Although it may have taken longer for multiple resistance to develop here in Ohio, it’s impact is being felt now and there are fields where lack of control is resulting in waterhemp survival and seed production. And we had enough waterhemp to begin with that this is survival is now happening independently at around the state.

So while we may have some introductions of waterhemp from outside Ohio still, we have enough Ohio-born waterhemp populations going to seed at enough locations to cause an increased threat. Put another way, increased amounts of waterhemp seed are now moving around within Ohio via all of the methods that seed usually move – equipment, animals, water, UFO traffic, etc.

And waterhemp produces a LOT of seed. Up to a million or more seeds per plant, depending upon plant size and date of emergence. When a few plants start going to seed in a field because they were resistant to the herbicides used, or because they emerged after all controls had been applied, or just because it’s a tough weed to completely control, the impact can be substantial.

The first year of a major waterhemp or Palmer infestation is often going to lead to a second with similar problems, based on the time it takes a grower to understand the control measures needed. Some examples of this are shown in the figures below – comparing “pigweeds” (waterhemp and Palmer), marestail, and giant ragweed. The effect of adding a year of corn, or getting inadequate control in soybeans, or an increasing frequency of resistance are shown in successive figures.

Once control in soybeans drops (not uncommon), the pigweed seed production skyrockets – showing the importance of a zero-tolerance for pigweed escapes.
Drought and Heat Stress

One of the corn production scenarios agronomists least like is an exceptionally wet spring followed by a hotter and drier than normal July and August. The spring of 2019 was one the wettest on records throughout much of the state and now, as the dry weather that started in July persists, such a scenario seems to be a possibility in many Ohio corn fields. A combination of warm temperatures and inadequate rainfall is beginning to stress corn fields across Ohio. What’s exacerbating this problem are the marginal roots evident in some corn fields. Several factors, including poor planting conditions, surface/sidewall compaction and/or excessively wet soil conditions in June have inhibited good root development in many fields. With the onset of drier, warmer conditions in July, these small, shallow root systems have been unable to extract water deeper in the soil profile. Cooler weather and the possibility of storms later in the week may ease drought stress, which is important because many late planted corn fields (planted throughout June) are near or entering the pollination period, the stage of development most susceptible to drought. Other fields past pollination are vulnerable to kernel abortion, which drought conditions increase.

Corn is at many different stages of development because of the wide range in planting dates. To estimate the impact of dry hot weather on corn yield potential, let us review the effects of moisture deficits on corn growth and development from the late vegetative stages, prior to pollination, to the dent stage of kernel development. Yield losses to moisture stress can be directly related to the number of days that the crop shows stress symptoms during different growth periods. The following summarizes findings of past Iowa work that shows the potential impact of water stress on yield potential.

Vegetative Stages: According to the most recent NASS report for the week ending August 4, 53% of Ohio’s corn had silked (compared to 87% for the five year average). Some of the corn planted in mid to late June or later is still vegetative. During the later vegetative stages, when kernel numbers per ear are determined, plants become more sensitive to stress. According to the Iowa research, four days of severe stress (i.e. corn wilted for four consecutive days) at the 12th-14th leaf stage has the potential of reducing yields by 5 to 10 percent. Kernel row numbers
on the ear are determined by the 12th collared leaf stage and the potential number of kernels per row is complete about one week before silking.

Tassel Emergence: As the tip of the tassel begins to emerge from the whorl, the upper stalk internodes rapidly elongate and the ears begin to expand. Silks from the base of the ears are also rapidly elongating. Four days of moisture stress at this stage has the potential to reduce yields 10 to 25%.

Silk Emergence to Pollen Shed: At this stage, leaves and tassels are fully emerged and the cobs and silks are growing rapidly. This is the most critical period in terms of moisture use by the plant. Four days of severe moisture stress at this stage has the potential to reduce yields 40 to 50%.

Blister through Dent Stage of Kernel Development: About 12 to 36 days after silking, the cobs, husks and shanks are fully developed and the kernels are increasing in dry weight. Moisture stress will reduce kernel fill from the ear tip down. Four days of drought at the blister stage has the potential of reducing yields 30 to 40%, and at dough stage, 20 to 30%.

Where early season conditions contributed to corn stands with uneven emergence and development, yield losses may be higher depending on various factors such as the length of emergence delays and the percentage and distribution of later emerging plants. Where there is considerable variability in plant size, smaller, stunted plants will be at a competitive disadvantage with larger plants for nutrients, water and sunlight.

'Planting green' cover-crop strategy may help farmers deal with wet springs

By Jeff Mulhollem
UNIVERSITY PARK, Pa. — Allowing cover crops to grow two weeks longer in the spring and planting corn and soybean crops into them before termination is a strategy that may help no-till farmers deal with wet springs, according to Penn State researchers.

The approach — known as planting green — could help no-till farmers counter a range of problems they must deal with during wet springs like the ones that have occurred this year and last year. These problems include soil erosion, nutrient losses, soils holding too much moisture and causing a delay in the planting of main crops, and main-crop damage from slugs.

"With climate change bringing the Northeast more extreme precipitation events and an increase in total precipitation, no-till farmers especially need a way of dealing with wet springs," said Heather Karsten, associate professor of crop production ecology, whose research group in the College of Agricultural Sciences conducted a three-year study of planting green. "We wanted to see if farmers could get more out of their cover crops by letting them grow longer in the spring."
As cover crops continue to grow, they draw moisture from the soil, creating desired
drier conditions in wet springs for planting corn and soybeans. With planting green,
after those main crops are planted into the
cover crops, the cover
crops are typically
terminated by farmers
with an herbicide. The
decomposing cover crop
residues then preserve
soil moisture for the corn
and soybean crops
through the growing
season.

The study took place at
five sites over three
years — on three
cooperating
Pennsylvania farms that
plant no-till in Centre, Clinton and Lancaster counties; at Penn State’s Russell E.
Larson Agricultural Research Center in Centre County; and at the
University’s Southeast Agricultural Research and Extension Center in Lancaster
County.
At each location, researchers compared the results of planting green to the traditional
practice of terminating cover crops 10 days to two weeks before planting the main
crops of corn and soybeans.

Cover crops included in the study were primarily rye and triticale, as well as a mixture
of triticale, Austrian winter pea, hairy vetch and radish in one location.

Findings of the research, recently published online in Agronomy Journal, were mixed,
according to study leader Heidi Reed, a doctoral student in agronomy when the
research was conducted who is now an educator with Penn State Extension,
specializing in field and forage crops.
Reed noted that planting green appeared to benefit soybean crops more than corn.

Planting green increased cover crop biomass by 94 percent in corn and by 94 to 181
percent in soybean.
However, because planting green results in more cover crop residues acting as mulch on the surface, it also cooled soils from 1.3 to 4.3 degrees Fahrenheit at planting.

At several of the sites during the study years, main-crop plant populations were reduced when planted green, possibly due to the cooler temperatures slowing crop emergence and nutrient cycling, and/or from cover crop residue interference with the planter. In corn, in a few cases, crop damage by slugs was also increased when corn was planted green.

No-till farmers struggle with slugs damaging corn and soybean seeds and seedlings because no-till doesn’t disturb the soil and kill slugs or bury their eggs the way tillage does.

"No-till with cover crop residues also provides habitat for some crop pests and keeps the soil moist — so no-till cover crop systems tend to be great slug habitat," Karsten said.

"We had hoped that letting cover crops grow longer in the spring would supply alternative forage for the slugs, as well as habitat for slug predators such as beetles — and these factors would reduce slug damage of the main crop seedlings. But we did not see a consistent reduction in slug damage on main crops as we expected."
When researchers compared crop-yield stability between the two cover crop termination times across the multiple locations and years, corn yield was less stable and reduced by planting green in high-yielding environments; however, soybean yield was not influenced by planting green.

"We concluded that corn was more vulnerable to yield losses from conditions created by planting green than soybeans," Reed said. "Since soybean yield was stable across study locations, and not affected by cover crop termination date, we suggest that growers who want to extend cover crop benefits and avoid the risk of crop-yield reduction from planting green should consider trying it first with soybean."

Also involved in the research were William Curran, professor emeritus of plant science; John Tooker, professor of entomology; and Sjoerd Duiker, professor of soil management and applied soil physics.

Northeast Sustainable Agriculture Research and Education and the U.S. Department of Agriculture's National Institute of Food and Agriculture supported this research.
**First Hemp Planted at ODA**


With Governor Mike DeWine signing Senate Bill 57 into law, the Ohio Department of Agriculture is directed to plant hemp for research purposes. Director Pelanda took part in planting the first hemp plants on the department's campus. The 100 hemp plants came to Ohio thanks to Acela, a Kentucky company who brought its equipment and expertise.

"Our team traveled the nation visiting states such as Kentucky, Colorado, Wisconsin, and North Dakota to learn about what these states are doing," said Director Pelanda. "We learned that there's an art to planting hemp."

In addition to ODA, universities will now have an opportunity to cultivate and process hemp for research purposes. Interested universities can [click here to apply](https://agri.ohio.gov/wps/portal/gov/oda/divisions/administration/news-and-events/first-hemp-planted).

To learn more about Ohio's new program, and to sign up for updates on growing or processing hemp, make sure to visit our [hemp page](https://agri.ohio.gov/wps/portal/gov/oda/divisions/administration/news-and-events/first-hemp-planted).
# Extended Forecast from NOAA, Weather.gov

## Cortland, OH

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Upcoming Events:

Making Quality Hay Workshop
August 24, 2019

Lee Beers
Trumbull County Extension Office
520 West Main Street
Cortland, OH 44410
330-638-6783
beers.66@osu.edu
trumbull.osu.edu

Andrew Holden
Ashtabula County Extension Office
39 Wall Street
Jefferson, OH 44047
440-576-9008
holden.155@osu.edu
ashtabula.osu.edu

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information: http://go.osu.edu/cfaesdiversity.
“A Great Day For Hay”
NE Ohio Quality Forage Workshop

August 24, 2019 - 11:00A.M. – 3:00P.M.

Difficult growing seasons in 2018 and 2019 have led to a shortage of quality forages throughout most of the Midwest. This workshop will help you tune your equipment, and prepare your fields to make quality forages even in short weather windows. We’ll be talking about dry hay, baleage, and silage, for a complete schedule please view the back of this flyer. Lunch is sponsored by the Trumbull County Holstein Club, and thank you to our sponsors for making this event free! Lunch will be provided, but reservations are required by August 20, 2019 to reserve your lunch ticket.

To register for the Quality Forage Workshop on August 24, 2019 please complete the form below and mail to OSU Extension Trumbull County, 520 West Main St, Cortland, OH 44410. You can also register by phone by calling 330-638-6783. For more information please email Lee Beers at beers.66@osu.edu.

Name:______________________________
Address:________________________________________________
City and State:_________________________ Zip Code:_______________
Phone:_________________________ Email:_____________________
Number of Attendees:____________________

Workshop Sponsors

Von-Sun Farms
6374 Youngstown-Kingsville Rd
Farndale, OH 44417
trumbull.osu.edu
330-638-6783

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