

**COSHOCTON COUNTY AGRICULTURE & NATURAL RESOURCES****August 5, 2020 Issue**

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Pasture and Forage Weed Control

**Coshocton County Extension**  
724 South 7<sup>th</sup> Street, Room 110  
Coshocton, Ohio 43812  
Phone: 740-622-2265  
Fax: 740-622-2197  
Email: [marrison.2@osu.edu](mailto:marrison.2@osu.edu)  
Web: <http://coshocton.osu.edu>

Hello, Coshocton County! Welcome to August. This is the month that we count foggy mornings to start to guess how many snows we will get next winter.

We have had a lot of nice rain over the past two weeks and Coshocton County is one of only a handful of counties not on the drought watch list. A cooler week is in store this week but we should rebound to more normal August temperatures as we move into next week.

This week's newsletter highlights the Asian Longhorn tick (time to start watching for it) and a nice article by Clif Little on pasture and forage weed control. The weeds are noticeable now and this is a good guide on the troublesome weeds we see and when/how to control.

Hope you each have a great week. Stay well!

Sincerely,

***David Marrison***

Coshocton County OSU Extension ANR Educator



**THE OHIO STATE UNIVERSITY**

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

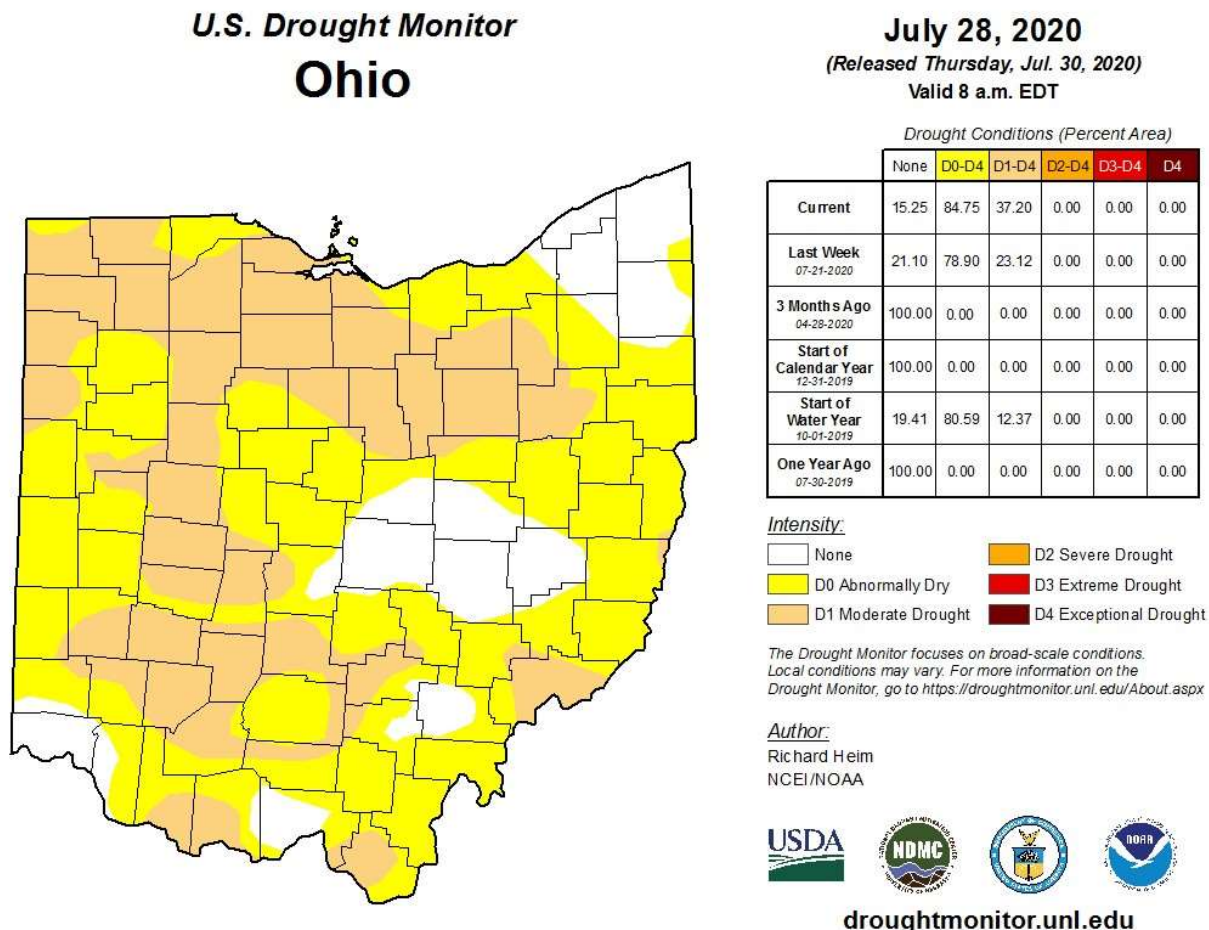
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## Coshocton County Fairing Better Than Most of State

By: Aaron Wilson

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2020-25/drought-conditions-expand-some-relief-ensues>

As of the Thursday July 30, 2020 release of the U.S. Drought Monitor, 37% of the state is covered by D1-moderate drought conditions (Figure 1). Hot and mostly dry conditions continued through much of June and July, with only scattered areas of heavy rain throughout the state. This has depleted soil moisture and lowered stream flows. If you are seeing drought impacts in your area, consider submitting a report to the [Drought Impact Reporter](#).

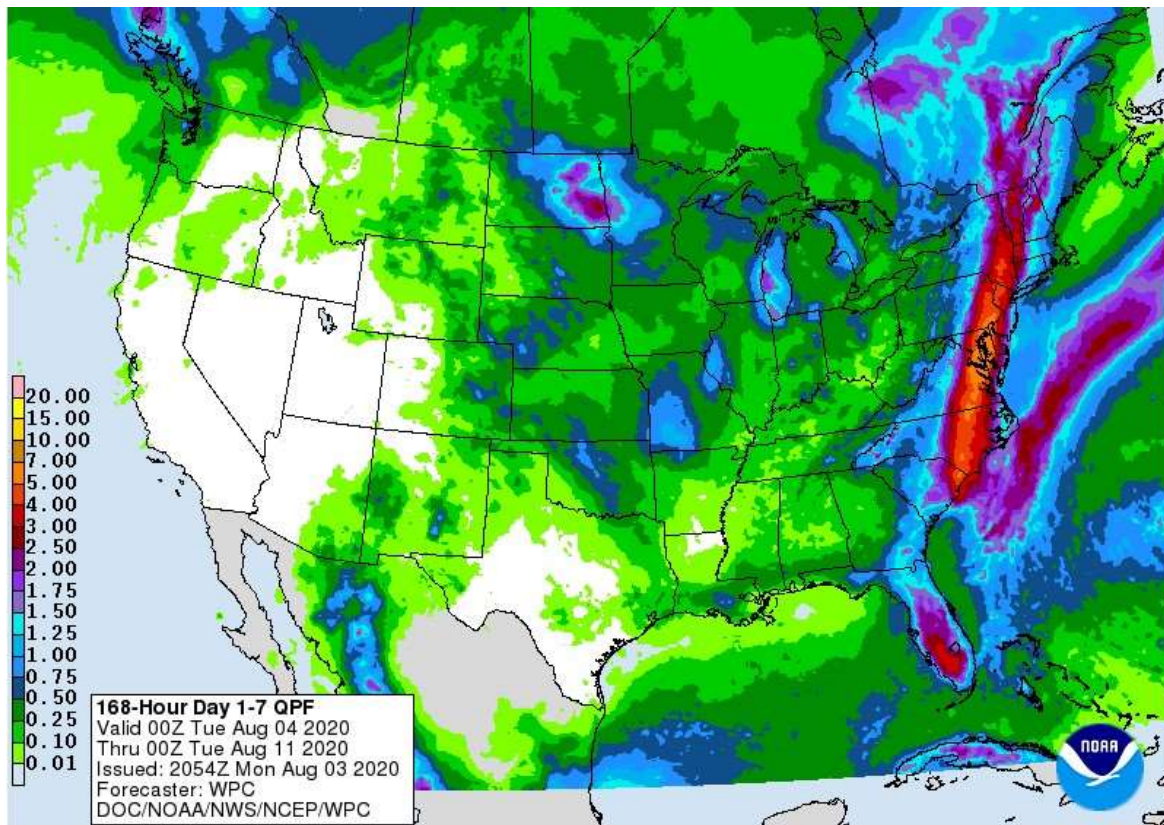


Drought Monitor for Ohio  
Figure 1: U.S. Drought Monitor for Ohio as reported on Thursday, July 30, 2020

Over the last two weeks, the frequency and coverage of showers and storms have increased. West central, north central, and areas near the Ohio River have picked up widespread 2-4" over the last 14 days, with some local amounts greater than 5". Coupled with cooler temperatures this past week, drought conditions have relaxed in these areas of Ohio. For more information on recent climate conditions and impacts, check out the latest [Hydro-Climate Assessment](#) from the [State Climate Office of Ohio](#).

Though we are dealing with a frontal boundary with showers and storms moving through the region through Tuesday, drier and less humid conditions are expected to set up for most of the week. Temperatures will be below average on Wednesday through Saturday, generally in the mid to upper 70s across northern Ohio and upper 70s to low 80s across the south. Overnight lows will likely drop into the 50s several nights this week. Showers and storms may return for Sunday and Monday, though we are only expecting light precipitation over the next 7 days (Figure 2).

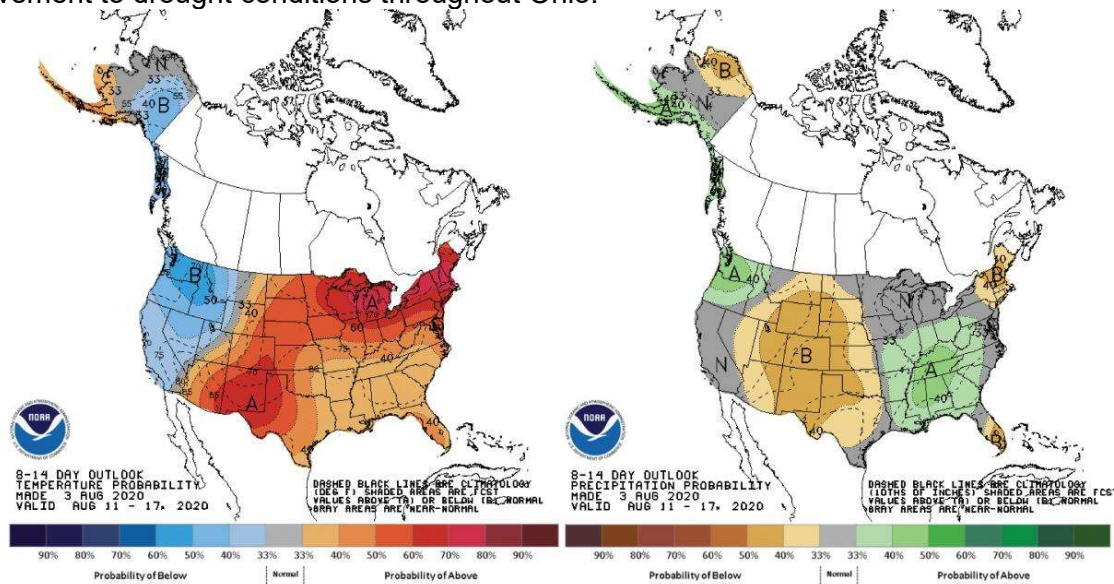




Forecast Precipitation

Figure 2: Forecast precipitation for the next 7 days. Valid from 8 pm Monday, August 3, 2020 through 8 pm Monday, August 10, 2020. Figure from Weather Prediction Center.

The latest [NOAA/NWS/Climate Prediction Center](#) outlook for the 8-14 day period (August 11 – 17) shows the heat returning, with increased confidence in above average temperatures and slightly elevated probability of above average precipitation (Figure 3). Normal highs during the period are in the low to mid-80s, normal lows in the low to mid-60s, with 0.80-0.90" of rainfall per week. The [16-Day Rainfall Outlook from NOAA/NWS/Ohio River Forecast Center](#) shows about average rainfall over the period. This is likely to bring some continued minor improvement to drought conditions throughout Ohio.



8-14 Day Weather Outlook

Figure 3: Climate Prediction Center 8-14 Day Outlook valid for August 11 to 17, 2020 for temperatures (left) and precipitation (right). Colors represent the probability of below, normal, or above normal conditions.

## ***Asian Longhorned Tick Confirmed in Gallia County***

On July 31, the Ohio Department of Agriculture (ODA) announced the United States Department of Agriculture's National Veterinary Services Laboratory in Ames, Iowa, has confirmed that an exotic tick, known as the Asian longhorned tick, has been found in Gallia County.

The tick was found on a stray dog originating from Gallia County, which was later transported to a shelter in Canal Winchester. The tick was identified on May 28 by The Ohio State University and sent to the federal lab for confirmation.

"Due to the nature of this pest, the female ticks can reproduce without a male, so it only takes one tick to create an established population in a new location," said ODA State Veterinarian Dr. Tony Forshey. "This pest is especially fatal to livestock, so producers should practice preventative measures and be on the lookout for this new threat."

The Asian longhorned tick is an exotic East Asian tick that is known as a serious pest to livestock. U.S. Department of Agriculture first confirmed the presence of this tick in the U.S. in New Jersey in 2017. Asian longhorned ticks are light brown in color and are very small, often smaller than a sesame seed. They are difficult to detect due to their size and quick movement. They are known to carry pathogens, which can cause disease in humans and livestock, and may also cause distress to the host from their feeding in large numbers. In the United States, the tick has been found in or near counties with large horse, cattle, and sheep populations. To protect against infestations, farmers should check their livestock for ticks regularly. If producers spot unusual looking ticks or large infestations, report this to your local veterinarian or ODA's Division of Animal Health at 614-728-6220.

Preventative measures such as keeping grass and weeds trimmed, in addition to clearing away brush on feedlots and pastures, can also help. ODA state veterinary officials will continue to work with the U.S. Department of Agriculture and other federal and industry partners to determine the extent and significance of this finding.

Livestock producers and owners should notify ODA's Division of Animal Health immediately at 614-728-6220 if they notice unusual ticks that have not been seen before or that occur in large numbers on an animal.

## ***Start Checking Your Livestock for the Asian Longhorned Tick***

By: Erika Lyon, OSU Extension Educator ANR, Jefferson and Harrison Counties

Source: <https://u.osu.edu/sheep/2020/07/28/start-checking-your-livestock-for-the-asian-longhorned-tick/>

You may have heard about a new(ish) tick to the U.S. The Centers for Disease Control recently published a news release on the spread of the Asian longhorned tick (*Haemaphysalis longicornis*), which is now found in eight states: Connecticut, New Jersey, Virginia, West Virginia, Maryland, North Carolina, New York, Pennsylvania, and Arkansas, and it is right next door to Ohio.

Researchers suspect this tick has been in New Jersey since 2013 even though it was first confirmed on sheep in the U.S. over a year ago. Much about this tick is unknown — it is the first new tick found in the U.S. in roughly 80 years. Unfortunately, since this tick has yet to be studied in its new environments, much is unknown about its ability to transmit disease and how well these populations are able to survive the winter.



Image Source: Farm and Dairy)

What we do know is that this tick has a three-host life cycle. Hosts currently identified in the U.S. include cattle, horses, sheep, goats, white-tailed deer, opossums, raccoons, and dogs, although it has been found on birds

and smaller mammals in other parts of the world.

Egg laying is dependent on temperature, humidity, and access to hosts, although this stage usually occurs late in the spring into early summer. Longhorned ticks have a preference for areas with high humidity near the ground and tall grass — conditions you will often find in your pastures and hay fields. Eggs are laid in the soil, not on the host.

Larvae, which are newly hatched ticks with six legs, will “quest” for hosts from vegetation — that is, they will climb up a plant, extend their front legs, and wait until an unsuspecting host wanders by. Once they burrow their mouthparts into their host, these ticks will feed for a few days before departing and then molt into the next life stage where they will overwinter (nymphs).

Nymphs, which by this stage have eight legs, will molt into the eight-legged adult ticks after a second blood meal in the spring. Adults need to feed on a third host for 1-2 weeks before they can lay eggs. In some parts of the world, the adult stage can coincide with the immature stages, depending on the duration of winter.

#### Reproduce without mating

Something else that makes this tick unique among other ticks in the U.S. — females can reproduce without mating in a process known as parthenogenesis. This is the primary mode, if not the only mode, of reproduction in U.S. populations. Females can lay ~2,500 eggs over the course of a few weeks. Because of its ability to produce many individuals within a single generation, thousands of ticks can aggregate on livestock, wildlife, pets, and in the environment.

Cows in other parts of the world have been known to die from blood loss due to the number of these parasites feeding on them. Aside from anemia, ticks can cause weight loss, reduce milk production and wool quality, and transmit disease. The longhorned tick is native to Asia and was brought into Australia (via cattle) and New Zealand (where it is known as the NZ cattle tick) in the 1800's.

This species has been identified on animals entering the U.S. before, but it is thought that not until the last few years did populations of the tick become well- established. Other ticks belonging to the *Haemaphysalis* genus, such as the rabbit tick and bird tick, are native to North America but often have a specific host.

#### Checking livestock

It can be tricky to tease these species apart by appearance alone, but ticks in this genus found on livestock are likely to be the longhorned tick. This tick, much like the black legged (deer) tick, is small, making it easy to miss in a search. In livestock, check ears, brisket, neck, shoulders, flanks, groin, anus, and other areas where ticks can easily hide.

We also know that in other parts of the world, this tick has been associated with the following diseases: anaplasmosis, babesiosis, Japanese spotted fever, ehrlichiosis, Powassan virus, and theileriosis in humans and/or livestock. Many of the pathogens that cause these diseases have been found in other tick species already present in the U.S., but it is unknown if this tick can vector native strains.

#### How to control

Prevention goes a long way for control. Make sure to regularly check your livestock and yourself for ticks. Mow or graze areas with tall grasses, keep weeds under control, and maintain field edges by removing woody debris.

Fence off a distance of about 10 feet from wood-edge habitats, as this is where ticks are more likely to attach themselves to livestock. Products are available to treat perimeters in some cases where ticks are present, but some of these require applications be made by a licensed applicator. Treat clothing with permethrin or use repellent products containing ingredients such as DEET.

For some livestock, options may include treatments with permethrin products that can protect individual livestock from ticks. However, it is important to keep in mind that these ticks will spend very little time on animals and most of the time in the soil or on vegetation, limiting the ability of topical acaricides to reduce tick populations overall.

Always read and follow the label on any pesticide product, and consult a veterinarian for specific recommendations for animals.

#### Collecting for ID

To collect ticks for identification, use tweezers or tissue paper to grasp ticks gently and slowly pull until the tick releases. Do not jerk or twist as this may leave behind the tick's mouthparts in the skin. Avoid removal with hot matches, alcohol, and other substances that will cause ticks to regurgitate back into the wound and increase the risk of disease transmission. Use an antiseptic to clean wounds after tick removal, and place ticks in 70% ethyl alcohol.

You can send specimens for identification to the C. Wayne Ellett Plant & Pest Diagnostic Clinic at Ohio State University, 8995 E. Main Street, Bldg. 23, Reynoldsburg, OH 43068. Visit [ppdc.osu.edu](http://ppdc.osu.edu) for more information on how to submit samples.

### ***ODA Asks Ohioans to Send in Unsolicited Seeds***

After increasing reports of Ohio citizens receiving packages of unsolicited seeds in the mail, the Ohio Department of Agriculture (ODA) is again urging the public to report and submit any unsolicited seed packets to ODA. In partnership with the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine Office, ODA is working to investigate the number of seed packets sent to Ohio, what type of seeds they are, and where they were mailed from.

The USDA-APHIS and ODA are asking Ohioans who have received these unsolicited packages not to open, plant, or throw them away. Instead, citizens should report receiving seeds [here](#) and then submit the packages to USDA using one of the following methods:

If possible, place the materials including the seeds, original packaging material and your contact information in a resealable plastic bag and mail them to USDA-APHIS at the following address:

Attn: USDA -SITC  
8995 East Main Street, Building 23  
Reynoldsburg, OH 43068

-or-

Place the materials including the seeds, original packaging material and your contact information in a resealable plastic bag and drop them off at your county's OSU Extension Office during business hours. You can find the nearest extension office here: <https://extension.osu.edu/lao>. Please note that extension facilities may have COVID-19 specific signage detailing procedures such as wearing a facial covering that must be followed.

Unsolicited seeds could be invasive species, contain noxious weeds, could introduce diseases to local plants, or could be harmful to livestock. Invasive species and noxious weeds can displace native plants and increase costs of food production. All foreign seeds shipped to the United States should have a phytosanitary certificate which guarantees the seeds meet important requirements. We will have the latest information regarding this investigation [on our website](#).



## ***New OSU Extension Field Specialist for Beef Cattle***

Garth Ruff has been selected as the new field specialist, beef cattle for Ohio State University Extension in the College of Food, Agricultural, and Environmental Sciences (CFAES) at The Ohio State University, per Jackie Kirby Wilkins, interim director of OSU Extension. This full-time appointment is effective September 1, 2020.

"We are extremely pleased to be partnering with our CFAES Department of Animal Sciences to jointly fund this important position, which will work in tandem with our research faculty and our commodity and industry partners, as well as producers and community stakeholders to translate and apply the newest university knowledge to meet the timely and most critical issues facing the beef industry in Ohio," said Wilkins.

"The College of Food, Agricultural, and Environmental Sciences is committed to our land-grant mission, including serving Ohioans. OSU Extension is critical in connecting us with producers, consumers, industry, and youth. Garth Ruff will bring expertise and experience to this important leadership role, and will ensure we continue to strengthen and support our partnerships. We look forward to the many contributions Garth will make in this role," said Cathann A. Kress, vice president for Agricultural Administration and dean, CFAES.



"My goal is to help Ohio's beef industry to grow, while focusing on profitability and improving herd efficiency at the farm level and engaging consumers," said Ruff. To accomplish these goals, Ruff will develop relationships with producers, industry partners, and CFAES specialists, while coordinating efforts with county-based OSU Extension faculty and staff.

"My primary focus will be producer-driven education, research, and on-farm implementation of management practices that improve the bottom line of the beef cattle enterprise," said Ruff. "Engaging consumers and youth to provide beef education is also key to growing the industry, and that can best be accomplished by identifying and collaborating with both internal and external partners. I'm looking forward to engaging and serving Ohio's beef producers and hope to make a positive impact on Ohio's beef industry."

"Garth's work will continue to build and strengthen numerous connections between the CFAES Department of Animal Sciences and Extension across Ohio. His strong background in consumer needs and a desire to add an economic piece to this work will truly enhance the impact of this position for the beef industry on behalf of the college and Extension," said Sam Custer, interim assistant director for agriculture and natural resources, OSU Extension.

Ruff has served as the Extension educator for agriculture and natural resources in Henry County since May 2017. Ruff has specialized in livestock production and marketing, farm management, and meat science. His current Extension research and teaching efforts include direct marketing of animal products, forage and field crop trials, and the OSU Extension Grill Smart program (a course looking at the science of great grilling).

Prior to joining OSU Extension, Ruff was a student in the Department of Animal Sciences at Ohio State, earning a BS in 2015 and MS in 2017. In addition, Ruff was appointed to the Ohio Beef Council in January 2019. A native of Morgan County, Ruff continues to be active in the family livestock and forage operation. Ruff joins several other OSU Extension field specialists, who each have a particular subject matter focus and provide overall leadership for a comprehensive teaching and applied research program to address statewide issues. The field specialists work to expand existing partnerships, develop new relationships, and foster collaborations across the state, including with campus researchers, to complement what local Extension educators are doing.

## ***Pasture & Forage Weed Control***

By: Clif Little, OSU Extension  
740-489-5300 or little.16@osu.edu

Prior to spraying for weed it may be helpful do some investigation into what contributed to weed establishment. If hay and pasture management doesn't change we will likely end up in the same situation later.

It is important to remember that each herbicide varies in terms of target weed response. In other words, herbicides vary in ability to kill specific weeds and always refer to product labels prior to use. Always wear the personal protective equipment recommended on the product label. Be aware of product restrictions and recommendations relating to the environment, sensitive crops, and bees. To properly apply herbicides it is important to calibrate the sprayer and utilize the correct nozzle. When a label permits utilizing surfactants may improve the effectiveness of herbicide application. Be aware of water quality issues that may affect herbicide performance and spray product soon after mixing since solution pH may change reducing formulation effectiveness.

**Discussion of herbicides in this publication is strictly for educational purposes and no endorsement implied. Besides the herbicides discussed in this publication there are other's not mentioned. Please do your own research when selecting and applying herbicides.**

Other useful tools are University pasture and hay weed response tables that rate overall product response to various weeds. In addition, weed response can vary based on stage of plant growth and timing of herbicide application. Prior to selecting an herbicide be sure to review the restrictions relating to; replanting, hay harvest, slaughter withhold, milk discard, grazing, manure usage, and selling the hay, etc. Residual activity of herbicides can vary greatly restricting the use of the forage. Herbicide active ingredients such as: picloram, aminopyralid, and clopyralid, belong to a class of herbicides known as "pyridines". Products containing these active ingredients include; Milestone, GrazonNext HL, Chaparral, and Surmount (Restricted Use). These products have long residual activity and should only be used on sites where manure or hay will remain on-farm, other restriction apply. The life-span of these products can vary from several months to a year or more. Please refer to the product label for specific information related to residual activity. Legumes within a pasture or grass hay field may be damaged as a result of a broadleaf herbicide application.

- Annuals are best controlled during the seedling and early vegetative stages. As Annuals mature tissues harden and the plant becomes less responsive to herbicides.
- Biennials are best controlled during the seedling and rosette stage with most broadleaf herbicides. When biennials bolt control can be significantly reduced.
- Perennials are best controlled during the early-bud stage (the 2 weeks before flowering), Sugar direction is moving toward root structures; there is adequate leaf area to take in herbicide and the plants are at their lowest energy level. Remember the brush hog and grazing can be tools be utilized to set back plant maturity and consequently may improve weed response to herbicides. Fall can be a good time to control problem weeds in pastures and hayfields. However, during extremely dry weather or periods of slowed plant growth, effectiveness of herbicide applications may be reduced.

Summer annuals such as: horseweed, common ragweed, giant ragweed, lambs quarter, yellow foxtail and velvetleaf can be partially controlled through regular clipping or mowing. If herbicide applications are used, control is best when annuals are actively growing in the spring or fall. Problem biennials such as: bull thistle, musk thistle, burdock and poison hemlock will respond to herbicide treatments similar to annuals.

Perennials are best controlled when weeds are in the bud to bloom stage. Woody brush found along fence rows and in pastures is best controlled when actively growing and fully leafed. Specific information for tough to kill perennials can be found in OSU Agronomy Fact sheet 306 and the OSU Weed Control Guild, Bulletin 789. Ohio Farm Custom Rates 2018, posts an average spraying - pull type / Acre charge of \$7.50/A, with a range of min. charge of \$3.50/A and a max. of \$17/A, <https://farmoffice.osu.edu/farm-management-tools/custom-rates-and-machinery-costs> .



Problem weeds of local importance:

**Groundcherry perennial**



**Horsenettle (rhizomatous perennial)**



Multiple products are effective on Horsenettle, Groundcherry & nightshade when sprayed at high rates, including: 2,4-D+ dicamba, Cimarron Plus, GrazonNext HL, Chaparral, and Surmount. Source: Virginia Cooperative Extension, Hay and Pasture Herbicide Guide & OSU Weed Control Guide.

**Example option:**

Per acre, 2.1 pints GrazonNext HL plus 8 oz non-ionic surfactant

Per gallon of water (spot treatment), 13 mL (1/2 oz) GrazonNext HL plus 9.5 mL (1/3 oz) non-ionic surfactant

**Johnsongrass is a warm-season perennial with a stout stem and aggressive rhizomes.**



On Fescue pasture/hay, Outrider with a non-ionic surfactant or in mixed grass pasture, Glyphosate applied with a Weed Wiper is effective for Johnsongrass control. To the right-weed wiper (Guernsey & Noble SWCD have this machine for rent).

Apply to actively growing Johnsongrass that is at least 18 to 24 inches tall and up to the heading stage. Weeds to be treated should not be mowed or grazed for two weeks before or after application. Source: Pasture Weed Control in Arkansas MP522



**Hemp Dogbane**

Hemp Dogbane is a perennial similar to milkweed with a milky sap. It has a reddish stem and somewhat thick leaves, often seen in mid to late summer. Can be toxic wet or dry in hay. Apply herbicide at early bud stage – Surmount, Remedy Ultra + 2,4-D and non-ionic surfactant or Crossbow and surfactant. Source: Virginia Cooperative Extension, Hay and Pasture Herbicide Guide & OSU Weed Control Guide.

**Example option for Hemp Dogbane:**

Per acre, 1 pint Remedy Ultra, 3 pints 2, 4-D ester, 8 oz non-ionic surfactant



Per gallon of water (spot treatment) 6.25 mL (1/4 oz) Remedy Ultra, 19 mL (2/3 oz) 2,4-D ester, 9.5 mL (1/3 oz) non-ionic surfactant. This can be applied with a weed wiper after first cutting.

## Spotted Knapweed



Spotted knapweed is the most aggressive perennial weed to impact hay and pasture fields in Ohio. The best knapweed control program is early detection and eradication. Avoid spreading this weed seed on farm machinery. Don't purchase hay containing knapweeds and utilize only certified seed when planting. Manage hayfields and pastures to promote dense grass growth and this will help to reduce knapweed invasion.

Cost are 2019 approximates (prices will vary), and do not include sprayer and labor costs. Missouri herbicide response for Knapweed (P-Poor, F-fair, G-good, E-excellent).

### Example options:

GrazonNext HL, 2 pt/A, (G-E)	~\$16.80/A
Milestone, 5 to 7 fl. oz/A, (G-E)	~\$14.84-\$21/A
Clopyralid 3, 2/3 to 1 pt/A, (G-E)	~\$17-\$23/A
Brash/Weedmaster, 1-2 pt/A (F-G)	~\$6-12/A
Tordon 22K/Picloram 22K (restricted-use) 1 pt/A, (G)	~8/A
Crossbow/Crossroad 4 pt/A (P-F)	~\$33.50/A

Always follow the label precautions relating to streams and ponds. In areas close to water consider the use of an aquatic herbicide such as Renovate 3 and or 2,4-D products, follow all label guidelines.

## Ironweed

Ironweed warm-season perennial plant that develops a purple/ blue flower: Wingstem (perennial with yellow flower), and ironweed are similar species. In university testing, good results were obtained with numerous herbicides including: Crossbow, 2,4-D + dicamba, Surmount. Another example product use would be: Per acre, GrazonNext HL(2.1 pt/A plus 8 oz non-ionic surfactant). The least expensive option will most likely be 2,4-D + dicamba but the best would be Surmount or GrazonNext HL.



## Spiny amaranth

Spiny amaranth is a summer annual weed. University testing has shown multiple herbicides to be effective on plants in the 6-20" range including dicamba, Cimarron Plus, Chaparral, Surmount, and GrazonNext HL. Applying 2,4-D alone is generally not effective.



### Example options:

Per acre 0.3 oz Cimarron Plus 8 oz non-ionic surfactant OR  
Per acre 2.5 pints 2,4-D ester plus 8 oz dicamba and 8 oz non-ionic surfactant  
Per gallon of water (spot treatment) 16 mL (1/2 oz) 2,4-D ester and 3 mL (1/10 oz) dicamba and 9.5 mL (1/3 oz) non-ionic surfactant



#### Other Problem Weeds:

**Cocklebur** is a summer annual. Target the plant during the seedling stage. Crossbow, 2,4-D alone or with dicamba provides effective control.

Example options:

Per acre 2.5 pints 2,4-D ester plus 8 oz dicamba plus 8 oz non-ionic surfactant

Per gallon of water (spot treatment) 6.25 mL (¼ oz) Remedy Ultra,  
12.5 mL (½ oz) 2,4-D ester plus 9.5 mL (1/3) oz non-ionic surfactant.

OR 19 mL ( 19 mL (3/4 oz) Crossbow plus 9.5 mL (1/3 oz) non-ionic surfactant.

**Canada thistle** a perennial with rhizomes.

Example options:

Per acre 2.1 pints GrazonNext HL plus 1 pint 2,4-D ester plus 8 oz non-ionic surfactant

OR 3 oz/A Chaparral plus 8 oz non-ionic surfactant

Per gallon of water (spot treatment)

Per gallon of water (spot treatment) 6.25 mL (1/4 oz) Remedy Ultra plus 2, 4-D ester 19 mL (2/3 oz) 2,4-D ester plus 9.5 mL (1/3 oz) non-ionic surfactant

**Brush such as, Autumn olive and Multiflora rose in pasture.**

Per gallon of water (spot treatment) 13 mL (1/2 oz) GrazonNext HL plus 6.25 mL (1/4 oz) Remedy Ultra plus 9.5 mL (1/3 oz) non-ionic surfactant

OR

9.5 mL (1/3 oz) Remedy Ultra plus 19 mL (2/3 oz) 2,4-D ester plus 9.5 mL (1/3 oz) non-ionic surfactant

Prices below were obtained utilizing <https://www.domyown.com> and <https://www.keystonepestsolutions.com> Jan 2019.

Trade Name (Common name)	Herbicide Cost (Approximate)	Rate per Acre	Approximated Cost per Acre for chemical
2,4-D amine	\$ 131/2.5gal.	1 - 4 pt.	\$ 4.50-18
2,4-D Lo-V ester	\$ 39/gal.	1 - 4 pt.	\$ 5-20
Weedmaster/Brash (dicamba) + 2,4-D amine	\$ 111/2.5 gal.	1-5 pt.	\$ 6-28
Picloram 22K	\$ 160/2.5 gal.	1-2 pt	\$ 8-16
Cimarron Plus / Chisum (metsulfuron + hlorsulfuron)	\$ 100/10oz.	0.25-1.25 oz.	\$ 2.50-12.50
Crossbow/Crossroad (triclopyr + 2,4-D)	\$ 67/gal.	2-4 qt.	\$ 33.50-67
GrazonNext HL (aminopyralid + 2,4-D)	\$ 120/2 gal.	1.5-2.1 pt. 24-34 oz	\$ 11.25-16
Milestone (aminopyralid)	\$95/qt.	4-7 oz.	\$ 11.50-20
Clopyralid 3 and others.	\$180/gal.	0.75 - 1 1/3 pt.	\$ 16.90-23
Remedy Ultra (triclopyr)	\$ 80/ gal.	2-4 pt.	\$ 20-40