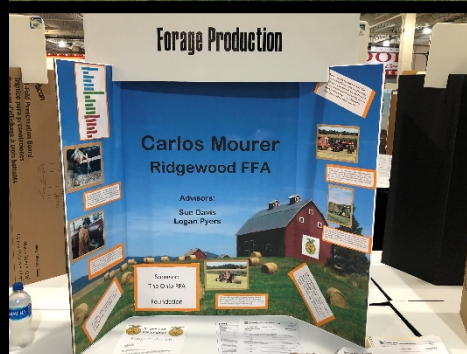


COSHOCTON COUNTY AGRICULTURE & NATURAL RESOURCES**May 8, 2019 Issue**

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Cressleaf Groundsel in Wheat & Hay
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How Much Rest Does Pasture Need
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Needs Assessment

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Hello, Coshocton County. It has been nice to see the drier weather this week; however this may change as we move into tomorrow and Friday. Let's hope the rain decides to skirt around us. It has been great to see area farmers being able to get back into some fields. However, I do realize there are many others who are still waiting for their fields to dry up enough and many pastures are a big mess. This makes the forecast for the next two days concerning.

With delayed planting due to all the rain and saturated soils, I am publishing a special issue of this newsletter (usually I send every other week). However, our Agronomic Crops Team has published some articles this week which are helping to provide answers to many of the questions being asked recently. Our beef team is also helping to address all the messy pastures and what to do with them.

I had the chance last week to serve as a judge for the Ohio State Proficiency Awards. Congratulations to our area FFA youth who represented Coshocton County so well in Columbus!

I would encourage you to complete the Agriculture Needs Assessment if you have not already had the chance to as my goal is to have all the data collection wrapped up by Memorial Day. Don't miss this chance to shape the direction of Extension programming in Agriculture & Natural Resources. This survey can be completed on-line at go.osu.edu/coshoctonag or by using the attached mail-in version.

Sincerely,

David Marrison

Coshocton County OSU Extension ANR Educator



THE OHIO STATE UNIVERSITY

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AND ENVIRONMENTAL SCIENCES

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Recommendations for Late Planted Soybeans

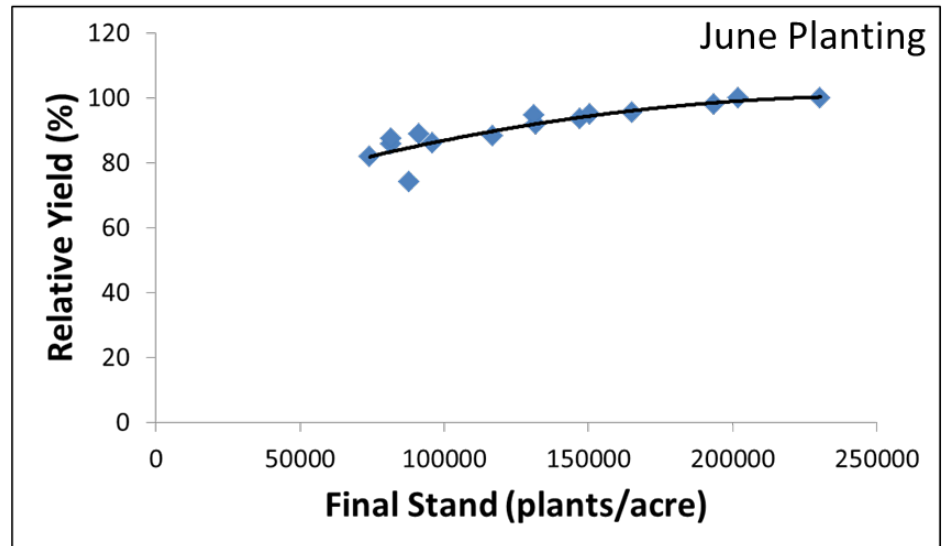
By: [Laura Lindsey](#)

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2019-12/recommendations-late-planted-soybeans>

Persistent wet weather is likely to push soybean planting into late May-early June in many areas of the state. Late planting reduces the cultural practice options for row spacing, seeding rate, and relative maturity.

Row spacing: The row spacing for June planting should be 7.5 to 15-inches, if possible. Row width should be narrow enough for the soybean canopy to completely cover the interrow space by the time the soybeans begin to flower. The later in the growing season soybeans are planted, the greater the yield increase due to narrow rows.

Seeding rate: Higher seeding rates are recommended for June plantings. Final (harvest) population for soybeans planted in June should be 130,000 to 150,000 plants/acre. (For May planting dates, a final stand of 100,000 to 120,000 plants/acre is generally adequate.)



Data from AgCrops Team, 2004-2014

Relative maturity. For June planting dates, plant the latest maturing variety that will reach physiological maturity before the first killing frost. This is to allow the plants to grow vegetatively as long as possible to produce nodes where pods can form before vegetative growth is slowed due to flowering and pod formation. The recommended relative maturity ranges are shown in the table below.

	Planting Date	Suitable Relative Maturity
Northern Ohio	June 1-15	3.2-3.8
	June 15-30	3.1-3.5
	July 1-10	3.0-3.3
Central Ohio	June 1-15	3.4-4.0
	June 15-30	3.3-3.7
	July 1-10	3.2-3.5
Southern Ohio	June 1-15	3.6-4.2
	June 15-30	3.5-3.9
	July 1-10	3.4-3.7

Will Planting Delays Require Switching Corn Hybrid Maturities?

By: Dr. Peter Thomison

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2019-12/will-planting-delays-require-switching-corn-hybrid-maturities>

According to the USDA/NASS, for the week ending May 5, only 2% of Ohio's projected corn acreage was planted - compared to 20% last year and 27% for the five-year average. Persistent rains and saturated soil conditions have delayed corn planting. The weather forecast this week indicates the likelihood of more rain so it is probable that many soggy fields may not be drying out soon.

Given this outlook, is there a need to switch from full season to shorter season hybrids? Probably not. In most situations, full season hybrids will perform satisfactorily (i.e. will achieve physiological maturity or "black layer" before a killing frost) even when planted as late as May 25, if not later, in some regions of the state.

Results of studies evaluating hybrid response to delayed planting dates indicate that hybrids of varying maturity can "adjust" their growth and development in response to a shortened growing season. A hybrid planted in late May will mature at a faster thermal rate (i.e. require fewer heat units) than the same hybrid planted in late April or early May).



In Ohio State and Purdue University studies, we have observed decreases in required heat units from planting to kernel black layer that average about 6.8 growing degree days (GDDs) per day of delayed planting. Therefore, a hybrid rated at 2800 GDDs with normal planting dates (i.e. late April or early May) may require slightly less than 2600 GDDs when planted in late May or early June, i.e. a 30-day delay in planting may result in a hybrid maturing in 204 fewer GDDs (30 days multiplied by 6.8 GDDs per day). There are other factors concerning hybrid maturity, however, that need to be considered. Although a full season hybrid may still have a yield advantage over shorter season hybrids planted in late May, it could have significantly higher grain moisture at maturity than earlier maturing hybrids if it dries down slowly. Moreover, there are many short-to mid-season hybrids with excellent yield potential. Therefore, if you think you may end up planting in late May or early June, consider the dry down characteristics of your various hybrids. In recent years, we've seen a range of drying conditions. In years with hot, dry conditions in September, some mid- to- full season hybrids had grain moisture levels at harvest similar to those of short season hybrids because of rapid dry down rates. However, in other years, cool, wet conditions after maturity slowed dry down and major differences in grain moisture at harvest were evident between early and full season hybrids.

Late planting dates (roughly after May 25) increase the possibility of damage from European corn borer (ECB) and western bean cutworm and warrant selection of Bt hybrids (if suitable maturities are available) that effectively target these insects. In past OSU studies, Bt hybrids planted after the first week of June consistently outyielded non-Bt counterparts even at low to moderate levels of ECB. For more information on selecting hybrid maturities for late planting, consult Nielsen, R.L. 2019. Hybrid Maturity Decisions for Delayed Planting. Corny News Network, Purdue Univ.

<http://www.kingcorn.org/news/timeless/HybridMaturityDelayedPlant.html> [URL accessed May 2019]

Delayed Planting Effects on Corn Yield: A “Historical” Perspective

By: Dr. Peter Thomison

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2019-12/delayed-planting-effects-corn-yield-%E2%80%9Chistorical%E2%80%9D-perspective>

According to the USDA/NASS, for the week ending May 5, only 2% of Ohio’s projected corn acreage was planted - compared to 20% last year and 27% for the five-year average. Persistent rains and saturated soil conditions have delayed corn planting. The weather forecast this week indicates the likelihood of more rain, so it is probable that many soggy fields may not dry out soon.

Long-term research by universities and seed companies across the Corn Belt gives us a pretty good idea of planting date effects on relative yield potential. The recommended time for planting corn in northern Ohio is April 15 to May 10 and in southern Ohio, April 10 to May 10. In the central Corn Belt, estimated yield loss per day with delayed planting varies from about 0.3% per day early in May to about 1% per day by the end of May (Nielsen, 2019). These yield losses can be attributed to a number of factors including a shorter growing season, greater disease and insect pressure and higher risk of hot, dry conditions during pollination.

Given these planting date effects, do yield losses associated with late plantings translate into lower statewide yields? Not necessarily. Let’s consider some previous growing seasons that were characterized by a “late start” and what impact this had on crop production. For the purposes of this discussion, we will consider “late start” years as those in which 40% or more of the corn acreage was not planted by May 20. Since 1980, there have been significant planting delays associated with wet spring weather in eleven years – 1981, 1983, 1989, 1995, 1996, 2002, 2008, 2009, 2011, 2014 and 2016.



Table 1 shows the percentage of corn acreage planted by May 20 and May 30, the 50% planting date (the date by which 50% of the corn acreage was planted), yield, the state average yield for the previous five years, and the departure from the yield trend in each of those years. Of these eleven years, the greatest delays in crop planting occurred in 2011 when only 19% of the corn acreage was planted by May 30. In five of the eleven years (1981, 1983, 1996, 2002, and 2008) average state yields were markedly lower than the state average yield of the previous five years (In six of the eleven years, average yields were five bushels per acre or more below the yield trend line for Ohio). In one of these years, 2002, the average corn yield dropped to 89 bushels per acre (nearly comparable to the record low of 86 bushels per acre for the major drought year of 1988). However, in six of the eleven years, yields were similar or higher than the statewide average yield of the previous five years, and in one of these years, 2014, a record high corn yield, 176 per acre, was achieved.

In 2017, 73% of the corn crop was planted by May 20 (which does not categorize 2017 as having a “late start”). However, field agronomists and county ag extension educators estimated that as much as 40% or more of the corn planted in late April of 2017 was replanted in parts of Ohio due to excessive soil moisture, freezing temperatures and frosts, fungal seed decay and seedling rots, and soil crusting. (NASS does not report replanted corn.) Nevertheless, the yield in 2017 was a record 177 bushels per acre, 16 bushels above the yield trend.

Table 1. Performance of Ohio's "Late" Planted Corn Crop – Yield
% of Crop Planted by

Year	May 20	May 30	50% Planting Date	Yield (Bu/A)	Avg. Yield of Previous 5 Years	Departure from Yield Trend (Bu/A)
1981	30	55	May 26	96	108	-10
1983	45	65	May 22	80	109	-29
1989	22	40	June 4	118	116	0
1995	60	77	May 19	121	122	-6
1996	10	54	June 1	111	122	-17
2002	22	58	May 28	89	138	-48
2008	50	66	May 20	131	153	-14
2009	42	95	May 22	171	149	24
2011	10	19	June 5	153	153	2
2014	50	85	May 20	176	156	20
2016	50	84	May 20	159	155	0

Data Source: National Agricultural Statistics Service USDA/NASS (<http://www.nass.usda.gov/>)

This comparison of statewide average corn yields from past years (Figure 1) indicates that lower grain yields are not a certainty with late plantings. While delayed planting may cause yield loss relative to early planting, planting date is just one of many factors that influence corn yield. Figure 1 shows grain yields associated with dates by which 50% of the corn acreage was planted in Ohio from 1980 to 2018 and it does not suggest a strong relationship between planting date and yield. There are other factors that are of greater importance than planting date in determining grain yield. Weather conditions (rainfall and temperature) in July and August are probably the most important yield determining factors. Favorable weather conditions subsequent to planting may result in late planted crops producing above average yields as was case in 2009 and 2014. However, if late planted crops experience severe moisture stress during

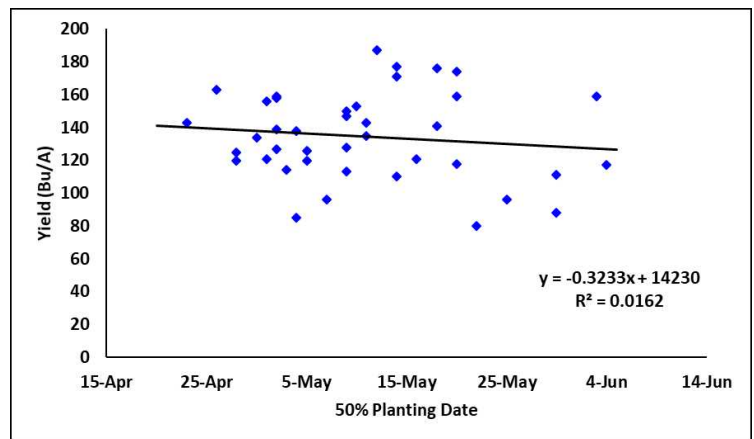


Figure 1. Corn yields associated with 50% planting dates, Ohio, 1980-2018.

pollination and grain fill, then crop yields may be significantly lower than average, with 2002 being the most notable example.

Data Source: National Agricultural Statistics Service USDA/NASS (<http://www.nass.usda.gov/>)
References

Nielsen, R.L. 2019. The Planting Date Conundrum for Corn. Corny News Network, Purdue Univ. [online] <https://www.agry.purdue.edu/ext/corn/news/timeless/PltDateCornYld.html> [URL accessed May 2, 2019].

Getting Corn Off to a Good Start- Planting Depth Can Make A Difference

By: [K. Nemerut](#), [Alexander Lindsey](#), [Peter Thomison](#)

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2019-12/getting-corn-good-start-planting-depth-can-make-difference>

Planting depth recommendations for Ohio are 1.5 to 2 inches deep to ensure adequate moisture uptake and seed-soil contact. Deeper planting may be recommended as the season progresses and soils become warmer and drier, however planting shallower than 1.5 inches is generally not recommended at any planting date or in any soil type. According to some field agronomists, shallow plantings increase stress and result in less developed roots, smaller stalk diameters, smaller ears and reduced yields. In a 2011-2012 Ohio evaluation of planting depth, grain yields were about 14% greater for the 1.5-inch and 3-inch planting depths than the 0.5-inch planting depth in 2011, and 40% greater in 2012. The lower yields of the shallow planting were associated with reduced final stands and 6 to 7 times as many “runt” plants as the other two planting depths.



Despite potential risks, many growers continue to plant at depths less than 1.5 inches. The rationale for this is typically that the seed will emerge more rapidly due to warmer soil temperatures closer to the surface. This is an important consideration as corn growers across the Corn Belt are planting earlier so they can complete planting before yield potential begins to decrease after the first week of May. Some studies have documented faster emergence rates with shallower planting depths, but the comparisons have often included deeper planting depths than the recommended ranges and results are highly influenced by temperature and rainfall in the given season. Improving our understanding of corn response to planting depth across different soil types and conditions may enable more effective use of planting technologies that allow variable planting depths during the planting operation. However, research on the effects of soil temperature and moisture flux in the seed furrow at different planting depths in relation to seed emergence is limited.

In 2017 and 2018, we conducted studies in two OSU research farm fields at South Charleston, each with different soil types – one a Strawn-Crosby complex with a silt loam texture (2.0% organic matter), and the second a Kokomo loam (3.8% organic matter) to study the impact of varying planting depth (1, 2, or 3 inches) on emergence rates and grain yield. In each field, soil moisture and soil temperature sensors were installed in each plot, which continuously recorded average temperature and soil moisture every twenty minutes until the end of the emergence window.

Emergence was most uniform with 2 inch planting or deeper. Deeper planting depths slightly delayed the date of first emergence compared to the shallowest planting depth. This was partly due to greater temperature fluctuation in shallow planting depths resulting in faster accumulation of soil GDDs driving faster emergence. Shallow planting was the most subject to moisture content of the soil causing an

extended emergence window in 2018 (5-6 days to reach >95% emergence) compared to the deeper planting depths (3-4 days to reach >95% emergence).

A three-day emergence period (72 hrs from first plant emerged) did not limit yield. However, after three days, emerging plants exhibited 8-15% lower yields and greater variability in yield. Increasing planting depth was correlated to yield increases. Deeper planting was associated with more yield per plant (3-5% yield increase from 1 to 3 inches). Yield uniformity also improved with increasing depth, and was most optimum at 2 or 3 inches for the lower organic matter soil and most optimum at 2 inches for higher organic matter soil.

Key take away points:

- Soil GDD accumulation drives early emergence.
- Uniform emergence was highly dependent on soil moisture content.
- Emergence of all plants within three days is critical to maintain yield.
- Yield per plant tends to increase with planting depth.

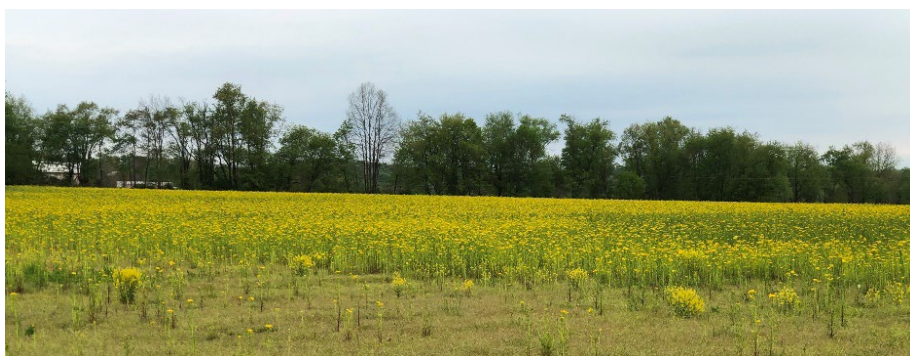
Cressleaf Groundsel in Wheat & Hay

By: Mark Loux & Jeff Stachler

Source: <https://agcrops.osu.edu/newsletter/corn-newsletter/2018-14/cressleaf-groundsel-wheat-and-hay>

Originally published in 2016

It's definitely a big year for cressleaf groundsel (*Senecio glabellus*), the yellow-flowered weed that can be seen about everywhere right now. While it is most often found in no-till corn and soybean fields that have not yet been treated with burndown herbicides, there seems to be an above-average number of wheat and hayfields and pastures with substantial populations.



Cressleaf groundsel can be identified by its hollow and grooved stem with a purplish color, and yellow sunflower-type flowers. It is a winter annual that emerges in late summer into fall, and can infest late-summer seedings of forages and hay, and fall seedings of wheat. It can be controlled with herbicides in most crops, ideally in the fall or early spring when plants are small and most susceptible to herbicides.

At this time of the year, plants are flowering and will be going to seed, thus ending their life cycle. Applying herbicides to hay fields at this time probably won't do much to reduce the risk of toxicity to animals (and it's too late to apply any herbicides to wheat). Plants that have flowered are more difficult to control, and will still be there even if killed by herbicides. Major management goals at this time are mowing infestations soon enough to prevent seed production, and deciding what the risk of



toxicity in hay or straw is based on the level of infestation. Cressleaf groundsel should not be present in hay fields following the first cutting. However, it is advisable to scout fields in late fall for the presence of newly emerged plants, and treat with herbicides if necessary.

Cressleaf groundsel is poisonous to cattle, horses, goats, sheep, and humans due to the presence of pyrrolizidine alkaloids (PAs). Symptoms include weight loss, unthriftiness, poor hair coat, anorexia, behavioral changes, sunscald, aimless walking, diarrhea, jaundice, liver damage, and possibly death. All parts of the plant are toxic. Drying or ensiling the plants during the hay or straw making process does not reduce the toxicity of cressleaf groundsel. Historically, no confirmed cases of poisoning by *S. glabellus* have been reported by the Ohio Department of Agriculture's Animal Disease Diagnostic Laboratory, although liver lesions suggestive of PA poisoning have been observed on rare occasions.

Although the presence of the occasional plant in a hay or wheat field is probably not cause for concern, producers are advised to avoid harvesting areas of the field that have high concentrations of the plants. Or bale and discard hay or straw from those areas of the field, if this is more desirable than leaving the plant residue in the field.

This is not a new problem, and we have a fact sheet available on cressleaf groundsel at the OSU Weed Management website – <http://u.osu.edu/osuweeds>. Hover over “weeds”, and then click on “other” to get to it. This article was originally published in issue 2016-13.

EPA Takes Next Steps in Review Process of Glyphosate

On April 30, 2019, the U.S. Environmental Protection Agency (EPA) is taking an important step in the agency's review of glyphosate. As part of this action, EPA continues to find that there are no risks to public health when glyphosate is used in accordance with its current label and that glyphosate is not a carcinogen. The agency's scientific findings on human health risk are consistent with the conclusions of science reviews by many other countries and other federal agencies. While the agency did not identify public health risks in the 2017 human health risk assessment, the 2017 ecological assessment did identify ecological risks. To address these risks, EPA is proposing management measures to help farmers target pesticide sprays on the intended pest, protect pollinators, and reduce the problem of weeds becoming resistant to glyphosate.

“EPA has found no risks to public health from the current registered uses of glyphosate,” said EPA Administrator Andrew Wheeler. “Today's proposed action includes new management measures that will help farmers use glyphosate in the most effective and efficient way possible, including pollinator protections. We look forward to input from farmers and other stakeholders to ensure that the draft management measures are workable, realistic, and effective.”

“If we are going to feed 10 billion people by 2050, we are going to need all the tools at our disposal, which includes the use the glyphosate,” U.S. Secretary of Agriculture Sonny Perdue said. “USDA applauds EPA's proposed registration decision as it is science-based and consistent with the findings of other regulatory authorities that glyphosate does not pose a carcinogenic hazard to humans.”

Glyphosate is the most widely used herbicide in U.S. agriculture and has been studied for decades. Glyphosate is used on more than 100 food crops, including glyphosate-resistant corn, soybean, cotton, canola and sugar beet. Non-agricultural uses include residential areas, aquatic areas, forests, rights of way, ornamentals and turf.

Once the Federal Register notice publishes, the public will be able to submit comments on EPA's proposed decision at www.regulations.gov in docket # EPA-HQ-OPP-2009-0361 at <https://www.regulations.gov/docket?D=EPA-HQ-OPP-2009-0361> Public comments will be due 60 days after the date of publication in Federal Register. EPA's responses to the comments received on the draft ecological and human health risk assessments and the benefits assessment will be in the docket. Find more information about glyphosate, including today's proposed interim decision and supporting documents at: <https://www.epa.gov/ingredients-used-pesticide-products/glyphosate>

Healing the Mess: Early Season Pasture Management

By: [Chris Penrose](#), OSU Extension Educator, Agriculture and Natural Resources, Morgan County (originally published in the [Ohio Cattleman](#), Expo issue)

Source: <http://u.osu.edu/beef/2019/05/01/healing-the-mess-early-season-pasture-management/>

For those with pastured livestock, this past winter is one we would like to forget, but damage done is preventing that from occurring. Many farmers talked about the loss of livestock due to the wet weather and mud. To make matters worse, more hay had to be fed to deal with the additional stress on animals from the muddy conditions. The result was animals in a lower body condition and fields in a mess from livestock, feeding hay in the fields, and equipment trying to get hay to livestock.



This exhibits what seemed to be the rule rather than the exception last winter. Photo: Landefeld

Damage to fields was worse than most can remember. What can we do to fix the problem? We can start off with these two options: doing nothing or working the ground and re-seeding. Doing nothing may not seem to be the best option but if the area was not damaged too bad, it may heal itself. I noticed in late March some areas where I had bale rings, grass was starting to grow where the bale was located. Where the cattle stood, it was bare and not rutted too much. In a situation like that, you may be able to take a “wait and see” approach. Some grazers have fed in a concentrated area with the understanding that that part of the field will be out of production for the year and will be back in production the next year. In either one of these scenarios, monitor closely for undesirable weed growth and mow or treat as needed.

If the area needs to be re-seeded, you have options on how to repair the ground and what to plant. In an area that is not in too bad of shape, on a good year, one may be able to get out in March and level up the ground and possibly frost seed but it is too late for that this year. Once the ground is leveled, no-till is a good option. If you choose to work the ground, the better prepared the seed bed is, the greater the chances are of seed germination. The best option is to have a firm seed bed with good seed to soil contact. Any other lack of ground preparation reduces chances of germination. One option that I have seen work with some success is to level the ground with a loader or a blade and when you are about finished, back blade it and leave a little loose soil on the surface then broadcast the seed. The key to success with this option is to apply the seed immediately after back blading and before a rain or a dew where the soil will crust over. The addition of some mulch and fertilizer will help.

The next question is what to seed. Do you plant an annual or a perennial? Do you focus more on the needs of the animals or the needs of the ground? If you feed in the same location every year and want a rapid establishment, an annual grass may be an option. I tend to lean more towards planting a perennial with the idea that maybe I will not have to re-seed every year. One perennial grass that works well is Kentucky 31 (endophyte infected) fescue. The endophyte in the fescue allows it to be a more durable grass that can withstand more damage than other grasses. However, the endophyte in the grass can cause health issues for livestock. The good news is there are newer “novel endophyte” fescue varieties that have the persistence of infected fescue but none of the health issues with livestock.

When choosing what to plant, I really subscribe to the recommendation that Dr. Mark Sulc (OSU Forage Specialist) uses: first, pick a primary grass, then a primary legume. If desired, pick a secondary grass then a secondary legume. There are also pasture mixes available at seed dealers and feed stores that may fit your needs as well.

If you had a chance to frost seed areas, especially clover, that were damaged during the winter and they are starting to grow, you may consider a light grazing of the pre-existing grass to allow for more sunlight and less

competition for the new growth. You will lose some new seedlings from the animal movements but if done right, the reduced competition will provide more growth of the new plants.

Another key to a successful stand is to wait to graze or mow. When to graze depends on stand vigor and weather conditions. Watch for weed competition. In spring planted fields, it is typically better to mow before you graze. If you graze first, make sure the ground is firm and keep animals in for no more than a week (less will be better). Keep in mind that grasses tend to establish slower than alfalfa.

Are there things we can do to reduce damage to fields in upcoming years? I think one of the least expensive and time saving things we can do is to have our animals graze as much as possible. Stockpiled fields of grass will reduce the amount of hay we need to make and to feed. If you only had to feed for three months, would that reduce the potential damage to your fields and reduce that amount of hay that needs to be made? How about if you could cut it down to 60 days? Would having some square bales of hay available to feed if the ground gets too wet to support a tractor? If you could place some round bales out in the field in the fall or when the ground is frozen in the winter and use electric fence to ration out the bales, would that reduce mud issues?

Finally, when all else fails, I am convinced that a heavy use pad is the way to go. I have seen several of these that are designed so a bale can be taken from the barn, to the feeding area on the pad, and never go into the field or on the pad. The livestock are out of the mud and damage is reduced. There is a cost involved and manure to haul, but in situations like we experienced this year, it may be money well spent.

How Much Rest Does Your Pasture Need?

By: Victor Shelton, NRCS State Agronomist/Grazing Specialist

Source: <http://u.osu.edu/beef/2019/05/08/how-much-rest-does-your-pasture-need/#more-6833>

I took the time to walk through most of my pastures a few days ago. I recommend doing this fairly often to keep a mental forage inventory. It is best to record the findings. Some use fancy electronic data sheets, some track on paper charts, some just have notes in their pocket datebook or smart phone. I use a combination. I like the paper charts for long term planning, but for a quick assessment, I like a white board.

I have a white board, you know, one of those new-fangled chalk boards that you use erasable markers on. I took 1/8-inch black tape and used it to outline the boundaries of all the fields. If I get present yield estimates taken, I put those numbers on the board with the date collected. But I use the board more for tracking grazing patterns and, more importantly, rest.

Animal groups are color coordinated and enter and exit dates are marked on the board. If animals are strip grazed across the field, then an arrow is included to show the move. I can now look at the board and quickly see how long it has been since the field was last grazed and/or how many days it has been rested.



More residual left and more rest; more roots, more production and animal performance.

Rest is very important; really important! If a pasture is continuously grazed, how much rest does the pasture get? None if the animals are never removed. If you divide the pasture up into four permanent paddocks and rotate through them, seventy-five percent of the paddocks are at least getting some rest. Is it ideal, no, but it is still better than no rest. If we increase the number of paddocks to say, twelve and rotate through them, then ninety-four percent of the paddocks are getting some rest while the six-percent portion is being grazed.

How much rest is really needed or ideal? Early in the growing season when forages are growing fast, it can be pretty short, but normally never less than 14 days. As forage growth starts to slow down a little, then rest should be at least 30 days. When summer heat and drier conditions kick in, cool season grasses then benefit from longer rests, quite often 45 and up to 60 days. To keep it simple, just remember when forages are growing fast, move animals fast (no running, a gentle walk from pasture to pasture is sufficient), and when forages are growing slower, move animals slower.

After grazing is initiated in the spring, I generally recommend continuing to graze around the system until the first paddock is ready to graze again. You can then move back to that paddock and start over. The paddocks that you skip can then be stockpiled for summer grazing or cut for hay. If forage growth starts slowing down quicker than expected, say from lack of rain, then you can always jump back to the paddocks you skipped. If you plan ahead, especially if you have been tracking moves for a few years, you can estimate what field(s) you may want to skip this year in the first rotation. If you have fields that could benefit from longer rests due to being used hard the previous year or overwinter, or one(s) that could benefit from some extra carbon, then this is a chance to provide some extra rest and recovery.

I've said this before, but I'll say it again. It is best to not start the grazing season in the same field every year. Those first fields often get grazed before ideal conditions. This short time abuse, done year after year, can increase problem weeds and reduce diversity of forages, especially desired forages.

Forages can't rest while being bitten off by ruminants. They only rest when they are allowed to regrow in peace! I often talk about stop grazing heights. It takes grass to grow grass! We need to move the animals to maintain an effective solar panel. Only green, growing leaves carry out photosynthesis! Most tall cool season forages, such as orchardgrass and tall fescue, need at least four inches of live leaf matter left for collecting solar energy for rebuilding roots, reserves, and then regrowth.

The grazing or harvest event of forage removal has a direct correlating effect on root growth. Research shows that we can remove up to fifty percent of the forage plant with little or no impact on root growth. If we removed more than that fifty percent, then root growth is drastically slowed down. Once we remove seventy percent or more of the plant, which is approaching hay removal levels, root growth comes to a screeching halt. It will now take a longer rest period. There is approximately equivalent live growth above and below ground. When we remove plant leaf matter, roots respond similarly because they are supported by those leaves. Therefore, there is dieback of roots when not enough leaf matter is left for maintenance.

The old adage, or rule of thumb, of "take half and leave half" is actually not a bad rule as long as the starting point is enough! More importantly, when we allow animals to graze too close, we slow down regrowth, require longer recovery, and reduce year around production. For the highest

production, most tall cool season forages do the best when grazing is initiated at eight to twelve inches and ended at four to six inches as the stop grazing height. Stop grazing height, or residual height, is not the tallest forage left behind after a grazing event, but the shortest! The shortest forages should be at least four inches tall. Animal intake is also influenced by the amount of desirable forage present, especially height. Intake can be reduced when a full bite is not possible.

Longer rests periods and more live residual left behind mean more roots. More roots support quicker regrowth of grazable material and increase drought tolerance. The more growth there is above ground means there are more live roots below ground. As longer, deeper roots move downward through the soil profile, they bring moisture and nutrients upward. Shallow root systems have no drought tolerance. It certainly doesn't appear



The rule of thumb: "take half and leave half"

right now like the lack of moisture could possibly be a problem, but we are always only about sixty days from a drought. Drought management should always be a part of our contingency plan.

Forages need rest. Rest influences forage yield, persistence and, therefore, animal performance. No or little rest results in lower forage yields and poor persistence of desirable species due to depleted root reserves and roots. On average, most forages benefit from at least thirty days of rest between grazing events. How productive would you be if you worked 24/7 with no rest? Enjoy the new grazing season and keep on grazing!

Pre-Breeding Nutrition Considerations for Cows that Have Struggled This Winter

By: Katy Lippolis, Iowa State Extension Cow-calf Specialist

Source: <http://u.osu.edu/beef/2019/05/08/pre-breeding-nutrition-considerations-for-cows-that-have-struggled-this-winter/#more-6804>

While spring may finally be here, harsh weather conditions over the winter, and cold and wet spring storms have taken a toll on late gestation and early lactation cows. Some have depleted body stores to make up for the cold weather, so making sure those cows bounce back prior to breeding is crucial to maintaining pregnancy rates.

There are many considerations and management strategies we can utilize to accomplish this.

- Monitor body condition through calving into the pre-breeding phase. Cows that are of low body condition or decrease in condition below moderate after calving will require nutritional intervention prior to breeding in order for them to cycle and become pregnant.
- Cold, wet and muddy conditions will increase requirements of all cows. Make sure to supplement accordingly to ensure cows do not lose condition during this time.
- Separate low body condition cows and young/old cows from mature and high body condition cows so cows that require additional supplementation receive it.
- Get nutrient analyses done on all forage sources to determine the quality of rations offered to cows. Especially when forage resources are tight, this can help make sure we are not over-supplementing fat cows or under-supplementing thin cows.

While the cost to improve body condition scores of cows that have lost weight over the winter and support the requirements of young cows may be frustrating after the past winter we've had, the cost is greatly offset by their ability to produce another calf that is born early in the season and has more time to grow prior to weaning. Getting cows to breed early in the season is crucial to maintaining a tight calving window for next year, weaning heavier calves this year, and improving overall profitability that comes with higher pregnancy rates.

Beef - A Few Final Thoughts

By: [John F. Grimes](#), OSU Extension Beef Coordinator, retired

Source: <http://u.osu.edu/beef/2019/05/01/a-few-final-thoughts/#more-6814>

I have had the pleasure of writing articles regularly since 2011 for this publication and the Ohio Cattleman magazine. Over the years, I have written about several wide-ranging beef management topics and timely industry issues including a few "editorials" along the way. I hope you have found them worth the time it took you to read them and gained some useful information along the way. Since I retired yesterday from over 33 years of employment with OSU Extension, I want to thank you for allowing me to work with you through many OSU Extension and Ohio Cattlemen's Association programs over the years.

I have tried to think of an appropriate way to wrap up this column. I really could not think of a single topic that I thought would make a fitting conclusion. Rather than focusing on a single topic, I thought I would touch on a few of the subjects that I admit that I am passionate about relating to beef industry. I believe each of these topics have seen many changes throughout my Extension career. Many advancements have been made in each area but I believe there are still improvements to be gained. These are a few of my parting thoughts.

Shorten the Calving Season

Regardless of whether you use a natural service sire or artificial insemination in your breeding program, there is little justification for a lengthy breeding season. A 60-day breeding season is an ideal goal to shoot for and I would recommend nothing longer than 90 days. If you are currently involved in a longer breeding season, there are valid economic and management reasons to make a change. It requires a little discipline, some rigid culling, and a willingness to use technology and other resources available.

Nearly every management decision associated with the cowherd is simplified with a shorter calving season. Herd health, nutritional, and reproductive management are much easier when all cows are in a similar stage of production. Restricting the breeding season to 60 to 90 days will produce a more uniform calf crop that enhances marketing opportunities. It is easier to match up your forage supply with the nutritional demands of your herd when all animals are in a similar production cycle. Vaccination programs are more effective when animals in the breeding herd are in a similar reproductive status.

Purchasing a Herd Sire is Serious Business

Ohio currently has nearly 300,000 beef cows. Hundreds of bulls are required to help make the next calf crop possible. Over the years, many tools have become available to help the producer make an educated decision when choosing your next herd sire. Establish the production goals for your herd and select a sire that compliments the needs of your cowherd. Use EPDs, actual performance data, and Selection Indexes to identify outstanding sire prospects. Never buy a bull without a Breeding Soundness Examination.

Select the appropriate age and size that matches the number of cows to be bred. A time-honored rule-of-thumb is to place about the same number of cows or heifers with a young bull as his age is in months. Putting too many cows with too young of a bull is a recipe for open cows. A bull that can increase the number of live calves born, add growth, and increase the maternal strength of a herd through daughters retained should be viewed as a sound investment. A low-cost bull that may not excel in traits of importance may be purchased just to get cows bred and does little to add to the profitability of the herd. This bull is little more than a “cow settler.”

Forage Production and Storage

Harvested feeds are the single largest expense in any beef cow-calf production budget that I can find. Typically, the most important component in this category are harvested forages. The producer can improve their bottom line significantly by improving forage quality and yields from every acre of grazed or harvested forages. Yields are certainly an important factor for improving the bottom line. However, the timely harvest of grasses and legumes at the early bloom stage can improve forage quality and ultimately improve animal performance. There is also plenty of room for improvement in the areas of storage and feeding practices. We simply waste too much of the forage that we produce.

Replacement Females for the Cowherd

Several surveys have indicated that the typical beef cowherd in Ohio averages approximately 17 cows in size. The average replacement rate for females in a given cowherd is roughly 15%-20% annually. If heifers are being retained as replacements for the herd, this can quickly become a significant management problem for the producer. It is extremely difficult to manage replacement heifers with mature cows and hope that they will become properly developed additions to the herd.

I believe that heifers should be managed separately from the mature females from weaning until they wean their first calf. If this is not possible, the producer should consider purchasing bred heifers or young bred cows as a viable alternative raising their replacements from within their herd.

Feeder Calf Production

Feeder calves are the most commonly merchandised product by Ohio's beef industry. A few producers retain ownership of their calves by feeding them to harvest themselves or through a custom feeder. However, the vast majority of calves produced in Ohio herds are sold at weaning or shortly thereafter. A wide range of marketing strategies may be in play. Some will choose to wean calves from the cow and sell them at a weekly

auction market that same day. Others may implement a vaccination program prior to weaning, wean the calves and background them for a period of 45-60 days. Various weaning and marketing strategies occur between these two extremes.

Feeder calf marketing is undergoing significant changes across the country. The market is currently sending a clear message that buyers are demanding more for their purchasing dollars. Significant discounts are occurring in the market place for feeder calves that are not weaned 45-60 days, castrated & healed, dehorned, and given two rounds of a modified live vaccine for the shipping fever complex. End-product users are requiring their suppliers to be Beef Quality Assurance certified and this will in turn be pushed down to the producer level. Exports to China and other countries are going to require age and source verification. These are growing realities for cow-calf producers if they want access to as many markets as possible.

The “Big Picture”

Now more than ever, producers must treat their beef enterprise as a business and implement management strategies to keep them profitable for the foreseeable future. Regardless if you are involved in cow-calf, stocker, or feedlot enterprises, you must consider all proven and potential practices and technologies to remain competitive in this business. Look around and you can see how rapidly things are changing. Input costs and market prices are more volatile than ever, the consumer increasingly wants to know how their food is produced and expect more choices and quality options, and we continually evolve into more of a global economy where the impacts of imports and exports resonate on the farm.

Now more than ever, it is important to become a member of your local, state, and national cattle organizations. We cannot expect people outside of our industry to promote our product and fight for the issues that are near and dear to us. It is our duty to the beef industry to understand the issues that threaten our livelihood and speak out individually and through the strength in numbers that a cattlemen's organization can provide. Support your local, state, and national cattlemen's associations however possible.

There are many of you that are addressing several or all of these topics and achieving success within your operations. However, there is always room for improvement. I encourage you to take a critical look at your own operations and determine where you can make practical changes that can influence your bottom line. It has been a pleasure for me to work with you over these years and I hope I have made a difference for some of you. Best of luck in the future!

Master Gardener Plant Sale

The annual Master Gardener Volunteers Plant Sale, the group's major fund raiser, will be held June 1, 2019, in the Rotary Pavilion at the Coshocton County Fairgrounds. Demonstrations will start at 8:30 am and the sale will run from 9:00 am until noon or the plants are gone, whichever comes first. It is a good idea to arrive early for the best selection as the plants sell quickly. There are NO EARLY SALES of plants before 9 a.m. The plant sale will offer some of the nicest plants from the gardens of the MGVs and their friends. You may find assorted tree seedlings, vegetable plants, annuals, many perennials, herbs, house plants and garden related accessories. The plants are reasonably- priced and many are ready to plant directly into your garden. All plants are labeled with their common and proper names, growing conditions, and size. Please bring your gardening questions and ask any of the Master Gardener Volunteers.... we LOVE to talk about plants, bugs and anything garden related!

Coshocton County Ag & NR Needs Assessment- Your Input is Needed!

OSU Extension is conducting a formal Agriculture & Natural Resources Extension Educator for Coshocton. Farmers, landowners, and others involved in the agricultural industry are being asked to complete this 2-page survey. This survey will be used to help develop the framework of future Ag Extension programming here in Coshocton County. **Would you consider completing this survey?** (if you have already, thanks—no need to respond again) An on-line version of the survey can be accessed at go.osu.edu/coshoctonag. **Survey respondents will also have the opportunity to register to win a donated \$100 VISA gift card by completing the survey.**



CRESSLEAF GROUNDSEL



Authors: Dr. Mark M. Loux, OSU Weed Science Extension Specialist, Dr. William P. Shulaw, OSU Extension Veterinarian, Beef/Sheep, and Mr. Jeff M. Stachler, OSU Extension Weed Science Program Specialist

Recently, county agents and others have been asking questions about a yellow-flowered weed called cressleaf groundsel, *Senecio glabellus*, and its potential toxicity to livestock. It is weed species relatively new to Ohio, having been recorded in OSU herbarium samples from only four counties prior to 1990. Since that time cressleaf groundsel has spread to other parts of Ohio. Cressleaf groundsel appears to have entered Ohio from the south, where it is more prevalent, but it has now been reported as far east as Coshocton and Perry Counties and as far north as Hancock and Putnam Counties. Cressleaf groundsel is currently included in Ohio's Noxious Weed List due to its poisonous characteristics.

BIOLOGY/IDENTIFICATION

Cressleaf groundsel is a member of the Aster/Composite family. It goes by many other names, including butterweed, yellowtop, golden ragwort, and yellow ragwort. It has a winter annual life cycle, meaning that it emerges in the fall and flowers in the spring (after the 10th of May). Cressleaf groundsel reproduces only from seeds. Each plant produces many (probably 100's of thousands) seeds that are readily moved by wind currents. It grows well in many different environments including saturated soils.

As a seedling in the fall, cressleaf groundsel appears very similar to yellow rocket, having rounded-tipped leaves with no lobes at first. Lobes become apparent as the later leaves emerge. Lobes of cressleaf groundsel leaves have an opposite orientation, compared to the smaller size and alternate orientation of yellow rocket leaves. The lobes have serrated to toothed margins. Cressleaf groundsel leaves and stems are usually quite purple in color. The stems of cressleaf groundsel are hollow and grooved, and the entire plant is hairless. The flowers are similar to those of other species in the Aster family, having ray (outside) and disk (center) petals. Both petals are bright yellow in color, and the ray petals being 0.33 to 0.75 inches in length. Individual flowers are grouped together in clusters, and there are usually several branches of flowers.



rosette in early spring



individual flowers in a cluster

TOXICITY

Nearly all species of *Senecio* are considered potentially toxic plants because they contain compounds called pyrrolizidine alkaloids (PAs). These are metabolized in the liver to other compounds that are toxic, primarily to the liver cells. *Senecio glabellus* is considered nearly as toxic as some of the more troublesome plants in this genus, but fortunately, it does not appear to be very palatable to grazing livestock. The PAs are found in the plant throughout the growing season but appear to be at their highest levels when the plant is in the bud to flower stage. The flowering portions of the plant and the youngest tissues generally contain the highest concentrations. PAs are not destroyed by the hay-making and curing process. Ensiling of forages may reduce the concentration of PAs, but will not entirely eliminate them. Sheep are considered more resistant to the effects of PAs than cattle and horses, and have been used in some areas to control the plant. However, sheep are susceptible to poisoning if they consume sufficient amounts.

Under typical grazing conditions in Ohio, it is unlikely that animals will consume significant quantities of the *S. glabellus* because of the availability of higher quality, more palatable forages. Poisoning could result under unusual conditions, such as drought, where good quality forage is not available. Hay containing significant amounts of the plant may pose a greater risk. Poisoning usually occurs as a result of consumption of the plants over several days to several months. Because the effect on the liver is cumulative, signs of poisoning can occur weeks to months after consumption of the plant ceases. The signs are directly attributable to liver degeneration and failure. Affected animals usually show depression and loss of appetite initially, and progress to neurological signs with head pressing, aimless walking, incoordination, and rectal straining. At post mortem examination, the liver will usually be shrunken and fibrotic with grayish blue to yellowish discoloration. Treatment is only symptomatic and not usually successful once signs appear.

Historically, no confirmed cases of poisoning by *S. glabellus* have been reported by the Ohio Department of Agriculture's Animal Disease Diagnostic Laboratory, although liver lesions suggestive of PA poisoning have been observed on rare occasions. However, the plant appears to be expanding in its distribution in Ohio and, in some cases, its concentration in fields. Although the presence of the occasional plant in a hay field is probably not cause for concern, producers are advised to avoid harvesting areas of the field that have high concentrations of the plants. Subsequent cuttings during that growing season may be safe, although the plant may be present again in the fall.

CONTROL

The goals of a cressleaf groundsel management program should be to minimize its occurrence in areas where it could poison livestock, and prevent seed production to reduce future infestations. This can be accomplished through mowing in the spring, where size of the field or groundsel patches allows. To minimize the risk to grazing livestock or reduce the amount of groundsel in hay, mow often enough to prevent the plant from becoming more than several inches tall. This strategy can also minimize seed production, although small groundsel can still flower and produce seed. Delaying the mowing until the plant is in the bud to flower stage will most effectively prevent seed production, but may not minimize the risk of poisoning. The groundsel is not likely to regrow after the first cutting of hay in the spring, but a goal of control strategies should be to prevent it from contaminating the first cutting.

Cressleaf groundsel is most easily controlled with herbicides in the late fall or early spring. Most of the plants will have emerged by late October, and will be small enough in fall or early spring to be controlled with 2,4-D or other low-cost treatments. Plants become considerably more difficult to control once they have started to grow in the spring and are more than several inches in diameter. Control of groundsel in pastures and hayfields directly reduces the risk of livestock poisoning. Cressleaf groundsel should also be controlled by the flower stage in roadsides and fallow areas, and neighboring corn, soybean, and wheat fields. Movement of seed from mature groundsel plants in these areas can be a source of new infestations in nearby pasture and hayfields.

CONTROL IN GRASS PASTURES

Apply 2,4-D (1 qt/A) in late October or early November. Low-volatile ester formulations can be more effective than amine formulations, but the latter are less likely to volatilize and injure nearby sensitive broadleaf vegetation. This treatment can also be effective in spring if applied in late March or early April when the rosettes of groundsel are less than several inches in diameter. Larger plants are more tolerant of 2,4-D, and effective control will require a mixture of dicamba (e.g. Banvel, Clarity, Sterling) and 2,4-D. Desirable legumes in the pasture will be injured or killed by any of these treatments. Some examples of 2,4-D products available at agrichemical outlets and farm supply stores:

Amine

Weedar 64

2,4-D Amine

Amine 400 2,4-D Weedkiller

Ester

Weedone LV4, LV6, or 650

2,4-D LV4 or LV6

LV 400 2,4-D Weedkiller

Hi-Dep Broadleaf Herbicide

CONTROL IN ALFALFA OR GRASS/ALFALFA HAYFIELDS

Herbicide options are less numerous and more costly than in grass pastures, and many herbicides effective on cressleaf groundsel can injure legumes. In alfalfa fields, the most effective treatments are:

- Sencor 75DF (1.3 lbs/A) or Velpar (2 to 3 qts/A) applied in late February when alfalfa is still dormant. These herbicides can be applied to established alfalfa only (more than one year old). Sencor can be used in fields that have established grasses in addition to the alfalfa. Do not use Velpar in fields with desirable grasses or fields that will be rotated to another crop within the next two years.
- Pursuit (2.16 oz/A) may suppress groundsel when applied in late fall or early spring. Fall applications are likely to be most effective. Plants should still be in the rosette stage and less than 3 inches tall at the time of application. In the spring, apply during periods of relatively warm weather – daytime temperatures above 60 degrees F and nighttime temperatures above 50 degrees F. Include the appropriate spray adjuvants per the herbicide label. Pursuit can be used in seedling or established alfalfa, but alfalfa seedlings must have at least two trifoliate leaves at the time of application. Do not use this treatment where desirable grasses are present.
- Glyphosate (Roundup Ultra Max, Touchdown, etc) can be applied as a spot treatment in the spring in any legume or legume/grass hay field. This treatment will injure or kill all vegetation in the treated area, and should be used only when all other control measures have failed.

CONTROL IN NO-TILLAGE CORN AND SOYBEANS

Apply 2,4-D ester (1 qt/A) in late October or early November. This treatment can also be effective in late March or early April when applied to small plants not more than several inches in diameter. Control of larger plants will require a mixture of 2,4-D with glyphosate (26 oz/A of Roundup UltraMax or 32 oz/A of other glyphosate formulations) or Canopy XL. The rate of most 2,4-D ester products should not exceed 1 pint per acre when applied within 30 days of soybean planting.

CONTROL IN WINTER WHEAT

Apply a mixture of 2,4-D plus either dicamba (Banvel, Sterling, etc) or Harmony Extra in early spring when groundsel rosettes are less than several inches in diameter. In no-tillage wheat consider an application of glyphosate before wheat emerges in the fall to reduce the population.



whole plant



stem leaf



hollow stem



grooved and purple-colored stem

The following is an **Agricultural & Natural Resources Needs Assessment** for OSU Extension in Coshocton County. The purpose of this survey is to gain insight into how our office can better serve the needs of the agricultural industry in Coshocton County. Completion of the survey is voluntary and all responses will remain anonymous. All data will be reported in aggregate.

I am a... ☐ Full-time Farmer ☐ Part-time Farmer ☐ Hobby Farmer ☐ Ag Industry Professional ☐ Other_____

My City or Township is: _____

I grow the following crops & livestock (please list acreage and numbers of animals raised each year)

CROPS

- ☐ Row Crops (corn, soybeans)_____acres
- ☐ Fruits/Vegetables_____acres
- ☐ Greenhouse/Nursery_____acres
- ☐ Hay/Forage/Pasture_____acres
- ☐ Timber_____acres
- ☐ Other_____(describe) & _____acres
- ☐ Do Not Raise Any Crops

LIVESTOCK

- ☐ Beef Cattle_____#
- ☐ Dairy Cattle_____#
- ☐ Equine_____#
- ☐ Poultry_____#
- ☐ Sheep/Goats_____#
- ☐ Swine_____#
- ☐ Other_____(describe) & _____#
- ☐ Do Not Raise Any Livestock

What types of Extension programs would be of interest to you? (Check all that apply).

Crop Management

- ☐ Row Crop (corn, soybeans, wheat)
- ☐ Fertilizer / Nutrient Mgmt
- ☐ Forage / Hay / Pasture
- ☐ Weed / Insect / Disease Mgmt
- ☐ Not Applicable or No Interest
- ☐ Other_____

Commercial Horticulture

- ☐ Grape Production
- ☐ Greenhouse / High Tunnel
- ☐ Tree Fruit Production
- ☐ Small Fruit / Bramble Production
- ☐ Vegetable Production
- ☐ Weed / Insect / Disease Management
- ☐ Not Applicable or No Interest
- ☐ Other_____

Consumer Horticulture

- ☐ Annual Flowers
- ☐ Bee Keeping / Pollinators
- ☐ Bramble / Small Fruit Production
- ☐ Community & School Gardens
- ☐ Composting / Soil Mgmt
- ☐ Greenhouse / High Tunnel
- ☐ Lawns
- ☐ Nuisance Wildlife
- ☐ Perennial Flowers
- ☐ Shrubs & Trees
- ☐ Tree Fruit Production
- ☐ Vegetable Gardens
- ☐ Not Applicable or No Interest
- ☐ Other_____

Farm Management

- ☐ Agritourism
- ☐ Budgeting
- ☐ Business Planning
- ☐ Direct Food & Ag Marketing
- ☐ Estate / Succession
- ☐ Insurance / Risk Management
- ☐ Leasing / Custom Rates
- ☐ Legal Issues

Farm Management (continued)

- ☐ Marketing / Outlook
- ☐ Record Keeping
- ☐ Tax Management
- ☐ Not Applicable or No Interest
- ☐ Other_____

Livestock Management

- ☐ Beef
- ☐ Dairy
- ☐ Equine
- ☐ Goats / Sheep
- ☐ Poultry
- ☐ Small Scale Livestock (backyard)
- ☐ Swine
- ☐ Not Applicable or No Interest
- ☐ Other_____

Natural Resources

- ☐ Aquaculture
- ☐ Oil & Gas
- ☐ Pond Management
- ☐ Water Quality
- ☐ Wildlife Management
- ☐ Woodland Management
- ☐ Not Applicable or No Interest
- ☐ Other_____

Specialized Programs

- ☐ Agronomy School
- ☐ Farm Safety
- ☐ Fertilizer Certification & Recertification
- ☐ Landowner/ Tenant Relationship
- ☐ Local Foods / Farm Markets
- ☐ Master Gardener Program
- ☐ New Technologies
- ☐ Ohio Certified Volunteer Naturalis Program
- ☐ Pesticide Certification & Recertification
- ☐ Regulatory Updates
- ☐ Small Farmer Education
- ☐ Tractor Safety Certification
- ☐ Women in Agriculture
- ☐ Other_____

When would be the best time during the day to attend a program? (Check all that apply).

- ☐ Morning ☐ Afternoon ☐ Evening ☐ Does not matter

What days of the week would you prefer to attend programs? (Check all that apply).

- ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday
☐ Friday ☐ Saturday ☐ Sunday ☐ Does not Matter

What are the best ways to distribute information to you? (Check all that apply).

- ☐ Direct Mailing ☐ E-Mail ☐ Facebook ☐ Instagram
☐ Newspaper ☐ Radio ☐ SnapChat ☐ Twitter
☐ Webpage ☐ Other _____

What do you value or enjoy about the current Coshocton County Extension **Agriculture** programs and services?

What specific programs, events, trainings and/or communications would **strengthen** OSU Extension's image and mission in our community?

Name one or more subject areas of **agriculture/natural resources** that you believe OSU Extension could better address. How could this be accomplished?

What are some **barriers** that may be keeping OSU Extension from being more effective?

Please provide any additional suggestions or comments below.

Please sign me up for the Coshocton County Ag email list _____

Yes, please enter my name into the drawing for a donated \$100 VISA Card

Name _____ Phone _____ Email _____

Please return survey to:

OSU Extension – Coshocton County
724 South 7th Street, Room 110, Coshocton, Ohio 43812

Coshocton.osu.edu
740-622-2265

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go.osu.edu/coshoctonag