Hello Northeast Ohio Counties!

As harvest gets into full swing this fall be sure to give your operation a daily safety check. Are your fire extinguishers full? Are your employees or family members properly trained on safe practices? This harvest is important, but so is next year’s and every year after that. We want to make sure we are around to participate!

If you received a PAT letter this week from me, please note that the dates on the front of the flyer are correct, the dates on the back near the map are incorrect! A correct flyer is at the end of the newsletter today.

Soybean harvest is rolling throughout the region. I haven’t heard any horror stories on yield yet, so it’s shaping up to be an average, or slightly below average year.

Stay safe!

Lee Beers  
Trumbull County Extension Educator

Andrew Holden  
Ashtabula County Extension Educator
DRY FALL PROVIDES OPPORTUNITY TO REMEDIATE SOIL COMPACTION

By Sjoerd Willem Duiker

Source: [https://extension.psu.edu/dry-fall-provides-opportunity-to-remEDIATE-soil-compaction](https://extension.psu.edu/dry-fall-provides-opportunity-to-remEDIATE-soil-compaction)

Soil compaction affects soil physical, chemical and biological properties. It leads to increased bulk density, reduced porosity, increased penetration resistance, and reduced water infiltration and percolation. Reduced root growth in compacted soil leads to greater susceptibility to drought and can cause phosphorus and potassium deficiencies. Greater runoff can cause increased soil erosion and nutrient losses. Increased nitrogen losses are possible due to denitrification in soils that sit wet for too long. Ammonia volatilization of applied manure and urea is possible because the nitrogen does not soak into the soil as quickly. Soil biological activity is also inhibited. Last year was probably one of the worst years I have seen in Pennsylvania for soil compaction followed by a wet spring. It is very possible, therefore, that you still have remnants of compaction in your fields from field operations in 2018 and in Spring 2019.

Before you get enthusiastic about tillage, make sure to diagnose if you have a compaction problem first. To identify soil compaction use soil and crop observations. The soil compaction tester, or penetrometer is one means of compaction detection, but the absolute numbers on the gauge are meaningless since soil conditions are too dry. Nonetheless, this probe can help you detect if you have a compacted layer and at what depth that ends. You would detect that by pushing the probe in the ground, and if there is a distinct layer of compaction, the resistance to push the probe in the ground would suddenly decrease when you are...
through the layer. Determine at what depth that is so you can run a subsoiler just below that to remediate this compaction. But don’t rely on the penetrometer alone. Also, take a shovel and dig out some crop roots. If you see distinct thin layers or a massive structure and roots that grow horizontal instead of vertical you have another indicator of compaction. If roots are clearly restricted at a certain depth this may call for action. Try to determine if compaction is limited to certain areas of the field – it is common that only headrows need to be treated while the rest of the field may be left untouched.

There are different types of subsoilers. With the recognized benefits of surface residue preservation, modern subsoilers do not turn soil over. They have narrow shanks that are not parabolic and have attachments that help to keep residue in place. Some have large winged points that heave the soil and cause much fracturing of the soil, even between shanks. Others have narrow tips that are meant to only create a vertical slot for deep root penetration and water percolation while doing less fracturing between the shanks. Paratill subsoilers have bent-leg shanks. The shanks come down straight, then curve sideways on a 45 degree angle, whereas the tip is again positioned downwards. Research at the Soil Dynamics Lab in Alabama has shown that paratill shanks do maximum fracturing below the surface, take less power per shank than straight shanks, and do minimum surface residue disturbance.

Contemporary subsoiling is meant to be a one-pass operation so that crops can be planted immediately after subsoiling without secondary tillage. The choice of attachment is therefore important because it determines surface residue reduction to a large degree. Soil tends to ‘blow out’ behind the shanks (especially when run at higher speeds) so attachments are available to push soil back to create a suitable seed bed. To achieve soil conservation goals, more than 30% residue cover should be present after subsoiling and planting, so attachments should not cover residue but leave it on top. Kick-back mechanisms are another necessity on subsoilers. If not present, shear bolts will have to be replaced on a regular basis in our rocky soils, making subsoiling an arduous task. Next comes the depth to which the shanks should be set. The subsoiler should be set approximately 1 inch below a compacted layer (if present). A tractor that can pull the subsoiler needs to be available. Depending on soil conditions, you should count on at least 40-50 HP per shank.

Once subsoiling has been completed, it becomes necessary to have a plan in place to manage post-subsoiling traffic and build soil structure. The benefits of subsoiling are easily lost by re-compaction with heavy equipment. In fact, the situation will be worse than before subsoiling, because the subsoiled field is more susceptible to rutting. Therefore, use flotation tires on all equipment and reduce tire pressure as much as possible to benefit from a large footprint. Do not exceed axle loads of ten
tons and limit repeated traffic to select areas of the field that can then be treated if needed. After subsoiling, plant cover crops to increase root mass in the surface and subsoil and rotate crops with different root architectures, such as tap-rooted and fibrous-rooted crops.

**Stalk Quality Concerns**

By: Peter Thomison, Pierce Paul


2019 may be an especially challenging year for corn stalk quality in Ohio. Stress conditions increase the potential for stalk rot that often leads to stalk lodging (Fig. 1). This year persistent rains through June caused unprecedented planting delays. Saturated soils resulted in shallow root systems. Corn plantings in wet soils often resulted in surface and in-furrow compaction further restricting root growth. Since July, limited rainfall in much of the state has stressed corn and marginal root systems have predisposed corn to greater water stress.

*Fig. 1. Stalk Lodging: Breakage of stalks below the ear*

Corn stalk rot, and consequently, lodging, are the results of several different but interrelated factors. The actual disease, stalk rot, is caused by one or more of several fungi capable of colonizing and disintegrating of the inner tissues of the stalk (Fig. 2). The most common members of the stalk rot complex are Gibberella zeae, Colletotrichum graminicola, Stenocarpella maydis and members of the genus Fusarium.
The extent to which these fungi infect and cause stalk rot depends on the health of the plant. In general, severely stressed plants are more greatly affected by stalk rot than stress-free plants. When corn is subjected to stress (due to weather, esp. drought, foliar diseases or insects) during grain fill, photosynthetic activity is reduced. As a result, the carbohydrate levels available for the developing ear are insufficient. The corn plant responds to this situation by removing carbohydrates from the leaves, stalk, and roots to the developing ear. While this "cannibalization" process ensures a supply of carbohydrates for the developing ear, the removal of carbohydrates results in premature death of pith cells in the stalk and root tissues, which predisposes plants to root and stalk infection by fungi.

The stalk rot fungi typically survive in corn residue on the soil surface and invade the base of the corn stalk either directly or through wounds made by corn borers, hail, or mechanical injury. Occasionally, fungal invasion occurs at nodes above ground or behind the leaf sheath. The plant tissue is usually resistant to fungal colonization up to silking, after which the fungus spreads from the roots to the stalks. When diseased stalks are split, the pith is usually discolored and shows signs of disintegration. As the pith disintegrates, it separates from the rind and the stalk becomes a hollow tube-like structure. Destruction of the internal stalk tissue by fungi predisposes the plant to lodging.

The presence of stalk rots in corn may not always result in stalk lodging, especially if the affected crop is harvested promptly. It is not uncommon to walk corn fields where nearly every plant is upright yet nearly every plant is also showing stalk rot symptoms! Many hybrids have excellent rind strength, which contributes to plant standability even when the internal plant tissue has rotted or started to rot. However, strong rinds will not prevent lodging if harvest is delayed and the crop is subjected to weathering, e.g. strong winds and heavy rains.

Nothing can be done about stalk rots at this stage; however, growers can minimize yield and quality losses associated with lodging by harvesting fields with stalk rot.
problems as early as possible. Scout fields early for visual symptoms of stalk rot and use the "squeeze test" to assess the potential for lodging. Since stalk rots affect stalk integrity, one or more of the inner nodes can easily be compressed when the stalk is squeezed between the thumb and the forefinger. The "push" test is another way to predict lodging. Push the stalks at the ear level, 6 to 8 inches from the vertical. If the stalk breaks between the ear and the lowest node, stalk rot is usually present. To minimize stalk rot damage, harvest promptly after physiological maturity. Harvest delays will increase the risk of stalk lodging and grain yield losses and slow down the harvest operation. Since the level of stalk rot varies from field to field and hybrids vary in their stalk strength and susceptibility to stalk rot, each field should be scouted separately.

Some of the same stress conditions promoting stalk rots may also be affecting the integrity of corn ear shanks. Corn ears usually remain erect on plants prior to physiological maturity (black layer). Ear "drooping" (Fig. 3) occurs when shanks have collapsed or crimped. In such ears, the milklke is still evident (Fig. 4). This year drooping ears are evident in many fields, which have experienced late season drought stress. According to Dr. Bob Nielsen at Purdue University, this crimping of the shank (Fig. 5) suggests a loss of turgidity in the ear shank due to stress, possibly combined with some cannibalization of the ear shank similar to what occurs when the carbohydrates of the main stalk are cannibalized in response to severe stress (https://extension.entm.purdue.edu/newsletters/pestandcrop/article/do-you...). If droopy ears have not yet reached physiological maturity, collapsed ear shanks may cause kernels to black layer prematurely, which reduces grain yield.
Agricultural & Natural Resources Income Tax Issues Webinar
By: Barry Ward, Director, OSU Income Tax Schools

Tax practitioners, farmers and farmland owners are encouraged to connect to the Agricultural and Natural Resources Income Tax Issues Webinar on Dec. 16 from 9 a.m. to 3 p.m. The event is sponsored by Ohio State University Extension and participants can attend the webinar at host locations throughout Ohio or connect at home or office.

The webinar focuses on issues specific to farm tax returns related to agriculture and natural resources, and will highlight timely topics and key regulations of the Tax Cuts and Jobs Act.

The program is an intermediate-level course for tax preparers whose clients include farmers and rural landowners. Farmers who prepare and file their own taxes will also benefit from the webinar.

Topics in the Ag Tax Issues Workbook that is provided to all participants include:

- Tax planning for farmers
- Proposed §199A Cooperative Regulations
- §199A and farm rentals
- Form 4797 issues
- Form 4562 depreciation and expensing issues
- Disaster-related tax issues
- Farming C corporations electing S corporation status
- Getting out of the farming business
- Allocating purchase price to depreciable items
- Discounted sales and leases
- Current H2A labor issues
Northeast Ohio Agriculture  OHIO STATE UNIVERSITY EXTENSION
Ashtabula and Trumbull Counties

• Taxation of contract feeding arrangements
• Industrial hemp considerations
• Timber tax issues
• Conservation easements
• Case study and forms update

The cost for the one-day school is $150, and applications have been made for the following continuing education credits:
• Accountancy Board of Ohio, CPAs (6 hours)
• Office of Professional Responsibility, IRS (6 hours)
• Supreme Court of Ohio, Attorneys (5 hours)

Registration includes the Agricultural Tax Issues Workbook. The deadline to register is Dec. 6 to ensure participants will receive the workbook in the mail before the workshop. The live webinar, which will also feature a real-time Q-and-A, can be viewed at several host locations statewide and will include lunch. Participants also have the option to view the webinar from home if unable to attend a host location. For those who choose not to attend at a host location, a web address for the webinar will be sent in advance of the Dec. 16 presentation.

**Host locations include:**
Auglaize County, OSU Extension Office, 208 S. Blackhoof St., Wapakoneta
Clermont County, OSU Extension Office, 1000 Locust St., Owensville
Putnam County, OSU Extension Office, 1206 E. Second St., Ottawa
Wayne County, Wayne County Administration Building, 428 West Liberty St., Wooster
Wyandot County, Elks Lodge, 320 E. Wyandot Ave., Upper Sandusky

More information on the workshop, including how to register, can be found at go.osu.edu/agissuesreg
Contact Barry Ward at 614-688-3959, ward.8@osu.edu or Julie Strawser at 614-292-2433, strawser.35@osu.edu with questions.

**More Diseases and Lower Yields Forecasted for Corn and Soybeans**
By Alayna DeMartini

COLUMBUS, Ohio—The late start to the planting season stunted growth in many corn and soybean fields across Ohio, and yields for both crops are expected to be the state’s smallest since 2008.
Last spring’s unrelenting rain caused shallow roots to develop in both soybean and corn plants because the roots did not have to reach far down into the soil for moisture, say crop experts with The Ohio State University College of Food, Agricultural, and Environmental Sciences (CFAES). Planting in wet soils also led to soil compaction in which particles of soil became pressed together, reducing space between them and limiting the flow of water. Then summer brought little rain in much of the state, further hindering the plants’ ability to absorb water.

“The issues with corn this year, I think, are pretty widespread,” said Peter Thomison, a corn field specialist with CFAES. Ohio’s corn yield is forecasted to be down 34% from last year’s yield; and its soybean yield, down 31%. The projected yields on both crops are expected to be the lowest since 2008, according to the U.S. Department of Agriculture.

Corn in some Ohio fields is at risk of fungal rot, which can cause stalks to break off below the ears, leading to harvest losses, Thomison said.

To reduce potential losses, corn growers should prioritize harvesting fields with stalk rot because delaying harvest increases the risk of stalks breaking off, he said. Corn and soybean plants in southern Ohio, south of Interstate 70, suffered higher disease rates than those in northern Ohio, said Harold Watters, an agronomy field specialist with CFAES. For corn, the most common diseases this year are northern corn leaf blight and gray leaf spot; for soybeans, frogeye leaf spot, he said.

In some parts of the state, such as in portions of Union County, the lack of rain this summer will cut yields by as much as half, said Watters.

“2019 will test our bank accounts and our patience,” Watters said. “For many, this year may bring in just about half the income they had last year. That means delaying purchases, reducing personal spending, and asking the bank for more loans.”

The late start on planting corn and soybeans will mean that both crops could take longer to dry sufficiently in fields before they’re harvested, said Jason Hartschuh, an Ohio State University Extension educator in Crawford County. OSU Extension is CFAES’ statewide outreach arm.
“You’re going to see more soybeans harvested in November than normal. There will be some that are green as grass upon the first frost,” he said.

Drying crops with mechanical dryers not only adds time and expense, but the process comes with some risks, Hartschuh said. Soybeans that get too hot can shatter. Also, being high in oil content, soybeans stand a risk of igniting and starting a fire, he said. So farmers have to weigh those risks, he said.

In talking to farmers in northwest Ohio, the region hardest hit by the spring rain that delayed or prevented planting, Hartschuh tries to put this year’s crop issues in perspective.

“Remember this is one year. You always have next year to look forward to.”

For information on predicting the drying down process for corn, visit go.osu.edu/drydown.

For more information on the USDA crop yield projections, visit go.osu.edu/commodityforecast.

**Biennial and Perennial Weed Control is Best in the Fall**

By Dwight Lingenfelter, William S. Curran


Fall is an excellent time to manage biennial and perennial weeds. In particular, biennials such as common burdock, wild carrot, and bull, musk, and plumeless thistles are much easier to kill while they are in the rosette stage of growth and prior to surviving a winter. Once they start growth in the spring, they rapidly develop with the goal of reproducing and it becomes more difficult to control them.
As you have heard many times before, late summer and fall is the best time to control most perennials with a systemic herbicide because herbicides are moved into the root systems allowing better control. In general, the application window runs from early September through October, depending on where you are in the state and what weeds you are targeting. Applications to perennial species like horsenettle, smooth groundcherry, and woody species like multiflora rose should be on the early side of this window, while cool-season perennials like Canada thistle, quackgrass, and dandelion can be effectively controlled after several light frosts. With both biennial and perennials species, adequate leaf tissue must be present and it should be reasonably healthy to absorb the herbicide. For grass pastures, check Table 6-11 in the 2019 Mid-Atlantic Weed Management Guide for specific herbicide performance by weed species and a current product label for use recommendations and restrictions. Also be sure to consult a current product label for use recommendations and restrictions.

The most common herbicides used for broad-spectrum control of many weeds in the fall is glyphosate for grasses and broadleaves and 2,4-D or dicamba (Banvel, Clarity, etc.) for broadleaves. Other systemic products such as triclopyr (e.g., Crossbow, Candor, Crossroad, Remedy Ultra) or metsulfuron can be options as well. (However, be cautious of crop rotational restrictions with triclopyr and metsulfuron.) A combination of these products may be the best solution for a mixture of different perennial weeds. For most perennials including hemp dogbane, horsenettle, common milkweed, pokeweed, hedge bindweed, multiflora rose, poison ivy, and wild blackberry, make applications from September 1 through October 15 or before a hard frost. In general, applications by October 1 may be more effective. In northern areas of Pennsylvania, consider making the application before October 1. An additional two week application window can exist for Canada thistle and quackgrass, because of their cool-season habit of growth.

Favorable air temperatures should be a consideration immediately before, during, and after application. In general, the warmer the better, with daytime high temperatures in the mid-50s at a minimum. Cold nights and cool, cloudy days will reduce and slow the effectiveness of the applications. The more active the weeds are growing, the better the herbicide performance.
On another note
Fall is the best time to kill declining sod stands (i.e., pure stand alfalfa or mixtures). Although glyphosate is better at controlling alfalfa in the fall than the spring, an additional herbicide application (e.g. 2,4-D/dicamba) or tillage will be required to completely control the alfalfa/mixture. Unless, you plan to get one last spring cutting, now is the time to control that old hay field; don’t wait until spring when it’s more difficult to get an effective burndown kill prior to planting.

Managing Corn Harvest this Fall with Variable Corn Conditions
By: Jason Hartschuh, CCA, Elizabeth Hawkins, James Morris, Will Hamman
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2019-34/managing-corn-harvest-fall-variable-corn-conditions

Thanks to the weather we had this year, corn is variable across fields and in some areas we will be harvesting corn at higher moistures than normal. Stalk quality may also be variable by field and amount of stress the plant was under, see the article Stalk Quality Concerns in this weeks CORN Newsletter. This variability and high moisture may require us to look harder at combine settings to keep the valuable grain going into the bin. Each ¾ pound ear per 1/100 of an acre equals 1 bushel of loss per acre. This is one ear per 6, 30 inch rows in 29 feet of length. A pre harvest loss assessment will help with determining if your combine is set properly. Initial settings for different combines can be found in the operator’s manual but here are a few adjustments that can be used to help set all machines. Thanks to the weather we had this year, corn is variable across fields and in some areas we will be harvesting corn at higher moistures than normal. Stalk quality may also be variable by field and amount of stress the plant was under, see the article Stalk Quality Concerns in this weeks CORN Newsletter. This variability and high moisture may require us to look harder at combine settings to keep the valuable grain going into the bin. Each ¾ pound ear per 1/100 of an acre equals 1 bushel of loss per acre. This is one ear per 6, 30 inch rows in 29 feet of length. A pre harvest loss assessment will help with determining if your combine is set properly. Initial settings for different combines can be found in the operator’s manual but here are a few adjustments that can be used to help set all machines.

Corn Head
Setting the combine starts at the header with an average of 66% of all machine harvest loss in corn occurring here. The major adjustments on the header are deck plate width and gathering chain speed. Setting deck plates in variable field conditions can be challenging, hydraulic adjust deck plates help a lot but if they are not automatic adjust you will have to keep up with changing conditions throughout the field. Under normal conditions deck plates should be set to 1 ¼ inches in the front and 1/8 inch wider at the

Northeast Ohio Agriculture

Ohio State University Extension
Ashtabula and Trumbull Counties
back, 1 3/8 inches. While this is a starting point, a better method is to use actual stalks of corn and set the deck plates 1/16 of an inch wider at the front than the third node width of a corn stalk. If you check the best and the worst corn in the field you should be able to get an idea of how to vary deck plates on the go, possibly make marks on the indicator gauge to know where you want to be in each area. The basic goal is to keep deck plates narrow enough that we avoid butt shelling and ears slipping between the plates into the stock roll but still manage to be wide enough that most of the stalk and leaves get pulled though. If stalk lodging is present, increase deck plate taper, more open at the top will decrease fodder entering the combine. The other major setting is matching gathering chain and stalk roll speed to combine ground speed, which can be a challenge if you cannot vary header speed from the combine cab. The threshing system works best when full so we speed up in lower yielding areas but if the gathering chains/stalk rolls don’t change speed our header loss will increase. This leads to another balancing act of increasing speed for harvest efficiency and seeing increased grain loss. If ground speed is 4 mph gathering chains should be running at 55 rpm. With the ratio staying constant across all ground speeds. Chain lugs should be opposite each other. With variable field conditions, making sure your rubber ear savers are present and flexible will retain whole ears from being lost.

**Threshing**
If the header worked properly there will not be a great deal of fodder in the threshing system, increased fodder leads to higher threshing losses. The first consideration in threshing settings is cob integrity, which is often compromised in stressed and high moisture corn. When setting concaves the goal is to not break cobs into more than 2 pieces crosswise and not break them length wise at all. The initial concave clearance on most machines is 3mm over cob diameter. Cobs should be coming out the back of the machine intact but when you break them in half, there should be signs of compression. Rotor or cylinder speed should be set using your book and only sped up if concave clearance is set and ears are still not threshed. Increasing rotor speed can increase threshing quality without breaking cobs, better than tightening concave settings. In wet corn, damaged grain is more often caused by high rotor speed than narrow concave settings. When harvesting high moisture corn, technically anything over 22%, according to most manufacturers, different concaves can help with threshing. Changing the large wire concaves to round bar, either straight or fish bone helps maintain cob integrity and grain quality in wet corn. Extremely wet corn, over 30% moisture, will need round bar concaves to maintain threshing grain quality. Wet corn can be damaged much more easily during threshing.

**Cleaning shoe**
The last settings are in the cleaning shoe, fan speed and sieve opening. In corn, especially wet corn, most if not all of the separation and cleaning should take place on the top sieve. For dry corn, the lower sieve should be closed a little tighter than the top sieve. In wet corn, many manufacturers recommend opening the bottom sieve all the
way so that corn easily moves into the clean grain elevator and does not over load the
tailings auger. All the separation is then taking place on the top sieve. A common
starting opening is 5/8 inch, then open until the first cob appears in the grain tank and
shut one notch. A challenge this fall will be with kernel size. Even wet kernels may be
smaller than average this year causing you to need a top sieve opening to be less than
5/8 inch. Kernel size will have increased variability, ears with many aborted kernels will
have much large kernels than those on normal ears. Fan speed should be increased
until all red chaff is gone from the grain tank then slowed down 30-50 rpms to keep
grain from being blown out the back. This may actually be at lower rpms this year than
most years due to low test weight which makes each kernel lighter than normal and
more likely to blow out of the machine. Often fan speed settings are opposite of logic,
increasing fan speed often decreases losses because chaff floats more allowing grain to
fall through the sieves better.

Checking harvest loss and combine settings
When assessing combine settings there are four areas of loss to consider. The first is
preharvest lost which is one ¾ pound ear per 1/100 of an acre which is one ear in 30
inch rows per 29 feet in 6 rows or 21.8 feet in 8 rows. The next source of loss is header
loss, then threshing and sieve loss. When counting individual kernels, 2 kernels per
square foot equally distributed equals one bushel pre acre. In order to determine which
part of the combine to adjust you need to calculate loss from each area. To check
header loss stop the combine and back up the length of your combine. Then for 30 inch
rows count the number of kernels in front of the combine from center of row to center of
row for 4 feet of length which equals 10 square feet and divide by 20 to get bushels per
acre. Each row of your header should be checked, since only one may be out of
adjustment, record each row separately. Also check for additional ears that may have
been lost by the header and not pre harvest, remember one ¾ pound ear per 1/100 of
an acre equals a bushel. Record header loss to subtract from separator and cylinder
loss. Preform the same kernel count behind the machine as you did in front subtract
each row individually from header loss calculate separation loss. Watch for any cobs
that still have corn on them this is threshing loss count these separate. A study
conducted in Iowa found the best set combines have a total loss, pre and post-harvest
loss, of 1.5 bushel per acre. Use the table below to calculate losses, remember kernels
per 10 sq ft divided buy 20 equal bushels per acre.

<table>
<thead>
<tr>
<th>Row number</th>
<th>Corn head and Separation loss (Total loss)</th>
<th>Threshing loss (kernels still on cob)</th>
<th>Corn Head Kernel Loss</th>
<th>Separation Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no/10 sq ft</td>
<td>Bu/A</td>
<td>no/10 sq ft</td>
<td>Bu/A</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
</tbody>
</table>
Setting Harvest Loss/Tattletale Monitors
Once your machine is set to expected harvest losses, adjust your loss monitors in order to use these monitors in the field. Harvest lost monitors work by sensing grain impact on the sensors, grain size and sensitivity can be adjusted to calibrate these loss monitors. Larger grain hits more area on the sensor increasing loss values. Larger harder grain also hits with more force. Usually you adjust grain size and then sensitivity. Good luck with harvest this fall.

Is a late soybean harvest in your future?
By: James Morris, Will Hamman, Jason Hartschuh, CCA, Elizabeth Hawkins
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2019-34/late-soybean-harvest-your-future

The variability of the 2019 cropping year is continuing into harvest. With a broad range of planting dates this spring, many soybean producers will be faced with variable harvest conditions. Additionally, the hot and dry conditions this late summer into early fall has sped up the senescence and dry down of many soybean fields. While seed quality is currently very good, a few weeks of wet weather can degrade quality quickly. Be sure you are ready when the soybeans are.

When harvesting soybeans, harvest loss can be a real concern. The ideal time to harvest soybeans is when the soybean seed reaches 12-15% moisture. This will allow
for optimal threshing and reduced harvest loss. Harvest loss can be very simply calculated by getting out of the combine and counting the soybean seeds on the ground. By randomly selecting a 1-foot by 1-foot area in a harvested part of the field, a producer can estimate harvest loss. Counting 4 soybean seeds per square foot is equal to 1 bushel/acre of loss. Due to the mechanical nature of a combine it is nearly impossible to gather every soybean seed in the field. An acceptable level of loss is 3% of yield or less, which is equivalent to 1-2 bushels/acre. If harvest conditions and combine adjustments are not optimal, harvest loss can reach 10% of yield and that can become very costly to the producer.

It is important for the combine operator to be checking harvest loss as well as the quality of the grain in the combine grain tank. Harvest loss can occur in three areas: 1) pre-harvest, 2) header and 3) combine. One should check these three areas within different locations in a field. Checking behind the combine represents total harvest loss, but one must check pre-harvest loss before combining an area, as well as just behind the header after harvested (header loss). Combine loss equals the total harvest loss minus the pre-harvest loss and header loss. Checking all three areas determines if and what combine settings must be adjusted, especially header loss.

It is recommended to review the owner's manual and/or consult your local combine dealer for help on proper combine settings specific to the crop and harvest conditions. Fine tuning adjustments from these settings will help optimize the effectiveness of the combine. Adjustments should be based on harvest conditions and grain samples from the tank, looking for cracked or damaged soybeans seeds as well as the amount of pod material or unthreshed pods in the sample, see Table 1 below for acceptable levels.

80% of harvest loss occurs at contact with the header.

The following are a few tips to help reduce or minimize harvest loss:

- A floating, flexible cutterbar and automatic header height control can improve the ability to maintain the header low and level to the ground during harvest.
- Keep the cutter bar as low as possible for short soybeans and those that are dry. This point is important in areas with low plant populations and where more pods are on the lower portion of the plant, nearest the ground.
- Take time and slow the combine down. Slowing up 0.5 to 1.0 mph in areas where harvest loss might be risky.
- Shorter soybeans require smaller clearances between the reel, cutter bar, auger and the feed conveyor chain, to ensure stems are feeding through the platform and into the feeder house.
- Check knives, guards, ledger plates and wear plates, and keep spares handy.
• Ensure the sickle is sharp. Dull sickles tend to push stems over rather than cut them cleanly.
• Make sure to properly adjust guards and header to proper engagement angle as outlined in the operator’s manual.
• Check that stems are being cleanly cut across the header. If not, check for dull blades, improperly set header angle, other incorrect header settings, or reduce your ground speed.
• Keep an eye on reel speed and adjust to match soybean conditions and ground speed within the field. The rule of thumb is to keep reel speed ~25% faster than ground speed.
• Make sure the feeder house relative to the header is at the proper adjustment to keep material feeding as efficient as possible.
• Importantly, make sure chains and bearings are properly lubricated and serviced on their stated time intervals. Belts should be tight and checked routinely.

Another risk of harvest this fall is harvesting soybeans that were killed by a frost before reaching full maturity or natural senescence. If this occurs, producers can expect a higher than normal moisture at harvest. This may require combine settings to be adjusted to minimize harvest losses. Reducing the concave clearance as well as increasing rotor or cylinder speed for more aggressive threshing may be needed for wet, tough soybeans.

Soybeans are recommended to be harvested between 12-15% moisture for optimum weight and minimal field loss. When soybeans are at 18% moisture or above, they can easily be crushed, so it’s important to handle them with care to avoid any further losses. Soybeans that have not reached complete physiological maturity can cause issues as increased amounts of pods can enter the dryer. If beans are not properly cleaned before entering the bin, the excess pods and weed seed can result in decreased air flow and circulation and lead to increased insect population and mold growth. This can also increase the risk of a fire and the high oil content of soybeans makes a fire of this type tough to extinguish. Clean out the dryer frequently and keep a close watch when you suspect debris is entering the dryer. In cases like last year, if soybeans are severely damaged while still in the field, it is best to market them as soon as possible.

We may find ourselves having to dry some of our later planted stands. Due to the late harvest last year, this was a struggle for us and many others. Regardless of how much fuel was burned, we couldn’t get the moisture to drop. Ken Hellevang, an Agricultural Engineer for North Dakota State University Extension states that this happens due to “the moisture holding capacity of air being reduced at lower air temperatures. As average air temperatures approach 35°F, natural air drying becomes inefficient and not economical. Adding heat would cause the beans on the bottom of the bin to be dried to a lower moisture content and it would increase drying speed only slightly. Cool the soybeans to between 20°F and 30°F for winter storage and complete drying in the
spring. Hellevang recommends starting drying in the spring when outdoor temperatures are averaging about 40°F."

It is also important to ensure good ventilation when drying during cold temperatures. Check vents and exhausts for ice or frost to avoid damage to the roof. Leave the access door open to relieve pressure when operating the fan at temperatures near or below freezing. Over drying can also be an issue. It’s important to not heat beans over 120 degrees Fahrenheit as high temperatures can cause damage to seed coats and lead to increased risk of the soybeans splitting. Hellevang also mentions that one study found temperatures of 130 degrees Fahrenheit caused 50-90% of seed coats to be cracked, increasing the amount of split beans to 20-70%. Table 1. outlines the grades and requirements for soybeans. If soybeans beans are already molded or discolored, over heating would only add more problems to the situation. As Table 1 shows, the limit of split beans is 10% for US No. 1 soybeans and 20% for US No.2 soybeans. Most molds and discolorations will grade as total damage and as shown below, only 2% is tolerated for US No. 1 soybeans and 3% for US No. 2 soybeans.

Harvested has already started for many producers across the state but it seems that several of us still have a few fields that were planted later than normal. As we begin to lose time for in-field drying, bin drying may be our next option. Bin drying is possible but must be done with care for our own safety and for grain quality. For storage, a normal soybean crop should be dried to 13% for a 6-month storage period, and 12% for 12 months of storage. For lower quality soybeans, experts suggest drying grain 1 or 2 points below that required for a normal crop. More information can be found at the following links.

Sources:
https://cropwatch.unl.edu/2018/ndsu-offers-soybean-drying-advice
Extended Forecast from NOAA, Weather.gov

Cortland, OH

Jefferson, OH

Northeast Ohio Agriculture
Upcoming Events

October 17, 2019
ITOH Peonies – Trumbull County

October 22, 2019
Annual Fall 4-H Kickoff – Trumbull County

November 7, 2019
Earlybird PAT – Lake County
Trumbull County 4-H Presents

6th Annual Fall 4-H Kickoff
Tuesday, October 22, 2019
6:00-7:30 PM
TCTC Cafeteria
528 Educational Highway, Warren

4-H Grows Here!
Activities ✿ Handouts ✿ Free Food ✿ Meet Our Clubs

How can you join 4-H in 2019-2020?
Join us for a county-wide 4-H club open house to kickoff a new 4-H season! Find your fit in one of our 30+ clubs! Ages 5-18.

Questions? Contact 4-H Educator, Ashlee Dietz at dietz.96@osu.edu or 330-638-6783.
Gardeners’ delight,,,,The original 10 acres of Kridler Gardens started as a botanical garden in 1965, when owner Barrie Kridler moved back to Homeworth after a 20-year residence in Texas. Sixty-five additional acres were added to the Homeworth operation in 1990.

Thousands of tree, shrubs and perennials have been incorporated into the grounds in order to showcase their landscape value. Thirteen greenhouses complete the operation including: 500 varieties of hosta, rare trees, shrubs, perennials and garden-related items.

Itoh Peonies (i.e. Intersectional Peonies) are an intentional mix of two amazing plants. Borrowing hardiness of traditional garden peonies, Itoh upright growing style, deeply-cut foliage, and prolific blooms of beloved tree peonies compliment their tailored shape. Itoh’s produce enormous flowers from many buds. There are often 50 blooms per plant in one season. Come learn how these Peonies can compliment your garden.

Complete the below information and send with payment to OSU Extension Trumbull County, 520 West Main Street, Cortland, OH 44410. Please make checks payable to OSU Extension.

Name: ____________________________________________________________
Phone: ___________________________ Email: ___________________________
Number Attending: __________X $20/person = _______________ Total Enclosed $ ___________
2020 Northeast Ohio Private Pesticide Applicator Re-Certification & Fertilizer Application Re-Certification Sessions

Private Pesticide Applicator Re-certification:
Does your Private Pesticide Applicator’s License expire on March 31, 2020? If so, OSU Extension in Northeast Ohio has planned four pesticide re-certification sessions for producers. Each of these sessions will offer 3 credits for pesticide re-certification for CORE and All Categories (1-7). Private Pesticide Applicators are encouraged to choose the session which best fits their schedule. **Cost: $35/Person**

Fertilizer Applicator Re-Certification:
Does your Private or Commercial Fertilizer Applicators Certification expire soon? A one-hour session will be held after the pesticide session for those who need to renew their Fertilizer Application Certification. **Cost: $10/Person**

Program Dates:
**All Private Pesticide are from 1:00pm to 4:00pm & All Fertilizer Applicator from 4:30pm to 5:30pm.**

- **Friday, January 10, 2020** at the Trumbull Co. Extension office in Cortland, Ohio. 330-638-6783
  • To Register for this session make check payable to OSU Extension and mail to: Trumbull County OSU Extension, 520 West Main Street, Suite 1, Cortland, Ohio 44410

- **Friday, February 7, 2020** at the Geauga Co. Extension office in Burton, Ohio. 440-834-4656
  • To Register for this session make check payable to OSU Extension and mail to: Geauga County OSU Extension, P.O. Box 387, Burton, OH 44021

- **Wednesday, March 4, 2020** at the Ashtabula Co. Extension office in Jefferson, Ohio. 440-576-9008
  • To Register for this session make check payable to OSU Extension and mail to: Ashtabula County OSU Extension, 39 Wall St., Jefferson, OH 44047

The registration fee is $35/per person for the private pesticide applicator re-certification. The registration fee is $10/per person for the fertilizer re-certification session. **Pre-registration is required 7 days prior to the session date.** An additional late registration fee of $25 per person will be added for any registration received after the registration deadline listed below.

Name_________________________ Pesticide Applicator Number_________________________
Email address_________________________ Phone Number _______________________
County_________________________ Categories Needed for Re-certification_________________________

**Session I will be attending (check one):**
- ___January 10, 2020 at the Trumbull County Extension office.
- ___February 7, 2020 at the Geauga County Extension office.
- ___March 4, 2020 at the Ashtabula County Extension office.

**Registration due by:**
- January 3
- February 26

**Fee Required (check all that apply):**
- ___Private Pesticide Applicator Re-Certification ($35 pre-registration)
- ___Commercial Fertilizer Applicator Certification ($10 pre-registration)
- ___Late Registration Fee ($25-if applicable)

**Total Fee Due $ ___________**
Trumbull County
January 10, 2019
Trumbull County
Extension Office
520 West Main Street,
Cortland, Ohio 44410
330-638-6783

Geauga County
February 7, 2019
Geauga County
Extension Office
14269 Claridon-Troy Road,
Burton, Ohio 44021
440-834-4656

Ashtabula County
March 4, 2019
Ashtabula County
Extension Office
39 Wall Street,
Jefferson, OH 44047
440-576-9008

Pested.osu.edu

The Ohio State University
College of Food, Agricultural, and Environmental Sciences