FARMLAND VALUES & CASH RENTAL RATES...in Ohio is the topic of this OSU Extension article: https://farmoffice.osu.edu/news/farmland-values-and-cash-rental-rates-ohio-%E2%80%93-will-strong-markets-continue. Farmland prices have strengthened in recent months and there are a number of key fundamentals that will likely continue to support land values in the near term. High crop prices and margins along with last year’s COVID-19 related government payments and continued low interest rates have all contributed to stronger land markets. Higher production costs and recent minor decreases in crop prices may decrease profit margins this next year and take some strength out of the market but farmland will likely continue to see increases in value through the end of this year and into the next year. Similar factors have impacted cash rental markets in Ohio and will likely continue to pressure rental rates higher in the near term.

Recent data from the United States Department of Agriculture National Ag Statistics Service (NASS) August Land Values 2021 Summary shows Ohio Farm Real Estate increasing 3.9% from 2020 to an average of $6,600 per acre in 2021. Ohio Cropland (bare cropland) showed an increase of 5.3% from 2020 to 2021. Average Cropland value is $6,800 per acre in 2021 according to this survey. Pastureland value in Ohio increased 2.1% to $3,440 per acre in 2021. Average cash rents in Ohio increased 2.6% in 2021 to $160 per acre according to this survey. The National Ag Statistics Service (NASS) also summarizes average cash rental rates by county available through Ohio NASS: www.nass.usda.gov/Statistics_by_State/Ohio/Publications/County_Estimates/2021/OH_2021_cashrent_CE.pdf

According to the Western Ohio Cropland Values and Cash Rents Survey, cropland values in western Ohio are expected to increase in 2021 by 3.8 to 5.3 percent from 2020 to 2021 depending on the region and land class. Cash rents are expected to increase from 3.6 to 3.9 percent depending on the region and land class. For the complete survey research summary go to: https://farmoffice.osu.edu/farm-management-tools/farm-management-publications/cash-rents

This survey and the results are reflective of the thoughts of survey participants in early 2021. Recent farmland sales would lead us to believe that farmland value has likely increased more than the 3.8 to 5.3 percent that the summary indicates for 2021. Continued high crop prices along with relatively strong predicted yields throughout much of Ohio have lent more strength to farmland markets in Ohio.

Others survey results in the eastern Corn Belt may be useful in gauging the magnitude of Ohio farmland value change thus far in 2021. The Federal Reserve Bank of Chicago (7th Fed District) surveys ag lenders in their districts each quarter. (The 7th Fed District includes parts of Michigan, Indiana, Illinois, Wisconsin, and all of Iowa.) Their survey in July showed the value of good farmland in their district had increased by 14 percent from July 1, 2020 to July 1, 2021. The mid-year survey conducted by the Illinois Society of Professional Farm
Managers and Rural Appraisers of their members revealed an increase of 20% in farmland values from the beginning of 2021. While Ohio is not Illinois nor does Ohio sit in the 7th Fed District, these surveys may give some guidance on the level of change in farmland values in Ohio in 2021.

**OHIO’S RECREATIONAL USER LAW...**is summarized in this OSU Extension Ag Law Bulletin ([https://farmoffice.osu.edu/sites/aglaw/files/site-library/RecreationalUserStatuteJuly2019.pdf](https://farmoffice.osu.edu/sites/aglaw/files/site-library/RecreationalUserStatuteJuly2019.pdf)). Hunting season has begun, and Ohio’s deer gun season is only a few weeks away. If you have questions about allowing hunters, I encourage you to review the bulletin.

**USDA DAIRY OUTLOOK...**was released mid-October and a summary is available on the OSU Extension Ohio Ag Manager website at: [https://u.osu.edu/ohioagmanager/2021/10/21/usda-october-dairy-outlook-report/](https://u.osu.edu/ohioagmanager/2021/10/21/usda-october-dairy-outlook-report/). The price forecasts (as of mid-October) for the remainder of 2021 and 2022 are provided below.

Based on declining milk cow numbers, increased feed costs, and higher culling rates, USDA-ERS has revised to 9.475 million the average number of head of dairy cows for 2021, 10,000 less than the forecast from the previous month.

Reduced milk production is expected for the final two quarters of 2021. Average milk production per cow is reduced by 50 pounds per cow from the previous month and is projected to be 23,960 pounds per year. Total milk production for 2021 is forecast at 227 billion pounds, 0.8 billion pounds below the July forecast.

### 2021 Dairy Forecast

<table>
<thead>
<tr>
<th>Class</th>
<th>2021 Forecast Price</th>
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<tbody>
<tr>
<td>III</td>
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<tr>
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<tr>
<td>All Milk</td>
<td>$18.45/cwt.</td>
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</table>

### 2022 Dairy Forecast

It is expected that milk cow numbers will continue their decline into the first quarter of 2022. As a result, USDA-ERS is projecting 9.45 million head, a reduction of 30,000 from the previous month’s forecast. Milk production per cow has been lowered by 25 pounds from the previous month’s estimate to 24,350 pounds per cow.

<table>
<thead>
<tr>
<th>Class</th>
<th>2022 Forecast Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>$17.10/cwt.</td>
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<tr>
<td>IV</td>
<td>$17.15/cwt.</td>
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<tr>
<td>All Milk</td>
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BENCHMARKING CROP MACHINERY COST & INVESTMENT...is discussed in this University of Illinois Farmdoc newsletter: https://farmdocdaily.illinois.edu/wp-content/uploads/2021/10/fdd291021.pdf.

Crop machinery cost per acre is computed by summing depreciation, interest, property taxes, insurance, leasing, repairs, fuel and lubricants, and custom hire and rental expense; and dividing the resulting figure by crop acres or harvested acres. Interest should include both cash interest paid and an opportunity charge on machinery and equipment that is owned. In regions where double-cropping predominates, using harvested acres is preferable.

Crop machinery investment per acre is computed by dividing total crop machinery investment (i.e., investment in tractors, combines, and other machinery) by crop acres or harvested acres. Again, in regions where double-cropping is prevalent, using harvested acres gives a more accurate depiction of machinery investment.

Machinery investment per acre typically declines with farm size. Thus, it is important for farms to compare machinery investment per acre with similarly sized farms and to examine the trend in this benchmark for a particular farm. A farm with relatively high machinery investment per acre needs to determine whether this high value is a problem. If the farm faces serious labor or timeliness constraints, this benchmark may be relatively high. However, if this benchmark is high due to the purchase of assets used to mitigate income tax obligations or for some other reason, the farm needs to think about their long-term strategy with respect to purchasing machinery and equipment.

Using the Center for Farm Financial Management’s FINBIN database, Figure 1 illustrates the trend in machinery cost per acre from 2011 to 2020 for crop farms. The chart illustrates crop machinery cost for corn, soybeans, and the average for the two crops. Discussion will focus on the average for the two crops. Crop machinery cost peaked in 2013, reached a low in 2016, and has been increasing ever since. In 2020, the average machinery cost per acre for the two crops was $115.
To obtain some feel for how variable machinery cost is between farms, we compared the average machinery cost per acre for corn farms from 2016 to 2020 with the averages for corn farms in the low 20 percent group with respect to net return per acre and for corn farms in the high 20 percent group with respect to net return per acre. The five-year average crop machinery cost per acre for corn was $134. The low profit group had an average machinery cost per acre of $165 or 23.2 percent higher than the average machinery cost. In contrast, the high profit group had an average crop machinery cost of $120 per acre or 10.1 percent lower than the average machinery cost.

Figure 2 presents crop machinery investment per acre for farms with data included in the FINBIN database. Unlike the crop machinery cost computations which focused on corn and soybean production, the crop machinery investment computations incorporated into Figure 2 were for all farms categorized as crop farms. Crop machinery investment peaked in 2014 at $578 per acre, and then declined to $521 and $522 in 2019 and 2020, respectively. Why did average machinery investment per acre decline? We don’t have a specific answer to this question. However, the fact that capital purchases were relatively strong from 2007 to 2013, and then declined as net farm income weakened, is an important factor explaining the trend in crop machinery investment per acre. The crop machinery investment per acre for the case farm is relatively low compared to the FINBIN average for 2020 of $522 per acre.

![Figure 2. Crop Machinery Investment per Acre](image)

Potential variability in crop machinery investment per acre was examined by comparing average machinery investment per acre to averages for farms in the low and high 20 percent groups in terms of net farm income. Again, data from 2016 to 2020 were utilized. The five-year average crop machinery investment per acre was $540. Farms in the low 20 percent group had an average machinery investment per acre of $626 or 15.9 percent higher than the average machinery investment. In contrast, farms in the high 20 percent profit group had an average machinery investment per acre of $490 or 9.3 percent lower than the average machinery investment. In addition to examining machinery investment per acre for the two profit groups, we examined
machinery investment benchmarks for crop farms. Farms in the 30th percentile, meaning that 30 percent of the farms had values higher than this group, had an average machinery investment per acre of $828, while farms in the 70th percentile had an average machinery investment per acre of $288. When interpreting the average for the 70th percentile, a word of caution is in order. Farms with very low crop machinery investment values tend to have older machinery that is largely depreciated out. Whether these farms can continue operating with this machinery for several more years is an open question.

FEEDER PRICE “STICKER SHOCK”…is discussed in this OSU Extension Beef newsletter: https://u.osu.edu/beef/2021/11/03/dont-let-feed-price-sticker-shock-paralyze-your-management/#more-11688. We all know that feed prices are higher this fall than they were this time last year. But what we need to remind ourselves is that the biology of our cows has not changed since last year, meaning that we still need to provide balanced nutrition for desired outcomes. So how do we overcome “Feed Price Sticker Shock” and avoid management paralysis? Management recommendations as described by Kevin Laurent, University of Kentucky, are highlighted below. Please read the entire article for more details.

Inventory your feed resources and test your hay/forage. With current feed prices, if there was ever a time to test your hay it is this year.

Maintain body condition and supplement cows if needed. Make sure cows are in body condition score 5-6 by calving time. This means no visible backbone, hooks/hip bones or middle ribs. Supplementing hay this fall and winter and having cows in proper condition at calving will result in stronger calves at birth and higher quality colostrum.

Don’t try and make it on hay alone. Obviously if your hay is good enough to maintain body condition you can just feed hay. But we know most of the time our hay is not sufficient to get this done.

Don’t abandon preconditioning and backgrounding programs. Currently price spreads between unweaned bawling calves and weaned value added calves has narrowed dramatically. Average prices for the week of 10/17/21-10/23/21 for medium and large 1-2 525-575 lb steers were $154.11 – $146.35, whereas 675 to 825 value added steers ranged from $153.13 – $151.58. With this value of gain, preconditioning and backgrounding budgets still look favorable even in the face of higher feed costs. Remember, calves need to gain to make these programs work.

Finally, try and stay positive. There is lots of negativity out there so try and filter the negative and concentrate on the good. Its times like these that challenge us to do a little better and rethink some of our habits and practices. Market dynamics are good so let’s negotiate our way through these high input times so we can be there to reap the benefits of better prices and times.

SOYBEAN CYST NEMATODE (SCN)...can cause significant yield loss in soybeans. Funding from the Ohio Soybean Council allows OSU Extension to offer two free samples to monitor SCN levels. If you are interested in this project, please contact me to arrange a time to collect samples from two fields.
PASTURE, RANGELAND, & FORAGE (PRF)...is a management tool beef producers may want to consider. Cattlemen and hay producers have an opportunity to enroll in an area-based insurance program that protects them against yield losses caused by low precipitation. This management tool is designed to give the policy holder the ability to help cover the replacement feed costs when a loss of forage for grazing or harvested for hay occurs because of the lack of rainfall. Area-based means that indemnity payments will not be based upon individual producer’s experience, rather, payments will be based upon a grid deviation from historically normal rainfall. A producer will have to make several choices including the coverage level of forage production they wish to insure, the rainfall index (months of precipitation), the productivity level of the field or fields they wish to enroll and the number of acres they wish to insure.

Additional information is available in the link provided above. If you are interested in enrolling, speak with a crop insurance agent. Deadline to enroll is December 1, 2021.
AFTER THE WARMEST OCTOBER ON RECORD... recent temperatures have brought the growing season to an end. Dr. Aaron Wilson, OSU Extension Meteorologist, provides a forecast in this OSU Extension C.O.R.N. newsletter: [https://agcrops.osu.edu/newsletter/corn-newsletter/2021-38/weather-update-seasonal-rollercoaster](https://agcrops.osu.edu/newsletter/corn-newsletter/2021-38/weather-update-seasonal-rollercoaster). A summary is provided below:

A strong cold front will approach the region on Thursday, bringing widespread rain showers and gusty winds. High temperatures will reach the 60s across Ohio for Tuesday through Thursday, 50s on Friday, then upper 30s to mid-40s over the upcoming weekend. There could be a few rain and/or snow showers across the north this weekend as well. The [Weather Prediction Center](https://wpc.ncep.noaa.gov) is currently predicting 0.25-0.50” of precipitation over the next 7 days, with slightly greater amounts for the far northeast and southeast portions of the state.

[Precipitation forecast from the Weather Prediction Center for 7a Monday Nov 8 – 7a Monday Nov 15.](https://wpc.ncep.noaa.gov)
OHIO GRAIN FARMER SYMPOSIUM...will be held December 1 in Plain City. This event offers farmers throughout the state the chance to hear about the latest agricultural issues and trends impacting their operations surrounded by fellow farmers and industry experts. Registration deadline is November 19. An agenda and registration details can be found here: https://docs.google.com/document/d/12TPmw3_wf7uCt1iT2lf0xauCwt2Us27UQwtnuru0w/edit.

RECRUITING AND HIRING FARM EMPLOYEES...is discussed in this OSU Extension Ag Law Blog: https://farmoffice.osu.edu/blog/thu-11042021-627pm/help-wanted-recruiting-during-labor-shortage. There are many items employers must be aware of when recruiting and hiring employees. Highlights from this article include:

**Walking the fine line of job descriptions.** One of the first things an employer should do when beginning the recruitment process is to define the job qualifications in order to identify the minimum qualifications an employer is willing to accept in a new employee. However, some care should be taken in this step. If an employer has unrealistic expectations, it may make it difficult to fill the position. Then, out of frustration or urgency, an employer will fill the position with someone that does not meet the stated minimum qualifications. This creates a problem if an employer ends up hiring an employee that does not meet the minimum qualifications after previously rejecting other applicants with similar qualifications. Those rejected applicants may have a lawsuit for employment discrimination. On the other hand, if an employer’s written expectations are too low, an employer may have a difficult time defending its decision to reject an individual who met the stated minimum qualifications while the employer searched for someone who met what the employer was really looking for. An employer needs to be consistent and stick to its stated qualifications when making employment decisions or risk opening itself up to employment discrimination lawsuits.

**Defining the essential functions of the job is essential.** Creating a comprehensive and detailed job description and a list of job qualifications helps employers narrow its applicant pool and provides a basis to make certain employment decisions. It also helps employers define the essential functions of a job which helps employers stay compliant with Ohio and federal employment laws. For example, The American with Disabilities Act (“ADA”) makes it clear that an employer does not need to employ someone who cannot perform the essential functions of the job. This does not mean that every function performed by an employee is “essential.” The Equal Employment Opportunity Commission (“EEOC”) makes it clear that marginal functions of the job are not “essential.” Some of the factors that help determine what functions are essential include:

- The employer’s judgment as to which functions are essential;
- Written job descriptions prepared before advertising or interviewing applicants;
- The amount of time spent on the job performing the function; and
- The consequences of not requiring the employee to perform the function.

**Job Applications.** Most employers understand it is unlawful to discriminate against employees or potential employees based on race, religion, sex, national origin, age, or disability. On job applications, however, employers need to be...
careful when asking what may seem like innocent questions that relate to things like age, religion, national origin, marital status, children, criminal history, U.S. citizenship, medical history, or disability. Asking these types of questions may lead to a finding that an employer engaged in a discriminatory practice. For example, it is permissible to ask if an applicant is legally permitted to work in the United States; it is impermissible to ask where someone was born. It is permissible to ask if someone is able to perform the essential functions of the job; it is impermissible to ask if someone has any health issues that would prevent them from doing the job. These are just a couple examples of the types of questions an employer is allowed to ask on an application. Employers should consult with an attorney to make sure that all questions on an application are compliant with state and federal standards.

**Pre-employment drug and alcohol testing.** There are no laws that prohibit employers from testing its employees for drugs and alcohol. However, there are laws that regulate the timing of such tests. To help employers, the ADA separates testing into two categories, “pre-offer” testing and “post-offer” testing. In the pre-offer stage, an employer may test a potential employee for any illegal drug use but cannot test for alcohol. Illegal drug use is not protected under the law. However, employers need to be careful from automatically disregarding all employees that test positive for controlled substances. A person with chronic back pain may have a perfectly legal reason for having certain substances in their system, especially if they are under a strict pain management program. Once an employer learns of an employee’s legal justifications for certain controlled substances, an employer cannot use the information as basis to refuse employment, terminate, or discipline an employee. In the post-offer stage, employers are allowed to test for alcohol. Testing for alcohol is considered a medical examination, and employers are only allowed to subject their employees to medical examinations once an offer of an employment has been given. Regardless of which type of testing an employer seeks to use, employers must be consistent in the way they implement such testing. Testing must be done in a non-discriminatory manner, meaning an employer must make all employees take the same test or forgo any testing at all.

**Background Checks.** Ohio does not prohibit the use of background or credit checks on potential employees. There are, however, several regulations that relate to employers that use background or credit checks. First, background and credit checks are subject to the federal Fair Credit Reporting Act (“FCRA”) which requires employers to obtain written consent from the applicant, give the applicant notice of the employer’s intention to reject their application based on the results of the background check, and notify the applicant of any final decision to reject the applicant because of the background check. Additionally, employers need to be careful about how they handle prior arrests and convictions. If an employer does decide to reject an application based on any prior arrests or convictions, the employer needs to consider the nature of the job, the nature and severity of the offense, and how much time has passed since the offense. For example, if a farmer is looking to hire a general farm laborer, a conviction for driving under the influence from 10 years ago may not be sufficient grounds to reject an application. Unless the position requires the applicant to drive on a consistent basis, the offense may not really be related to the nature of the job. Furthermore, enough time may have passed that would make it discriminatory to reject an application for this type of offense.

**Interviewing.** Interviews are ripe for potential discrimination claims because they are less structured than applications and insert the “human element.” When conducting an interview, employers should stick to a script. A script will help an employer avoid potential discrimination lawsuits and gives the employer the ability to carefully select its interview questions. When asking questions, an employer is not liable for any information that an applicant willingly provides. For example, if the questions is “tell me about yourself” and an applicant provides information about a medical condition or their family, an employer cannot be found liable for any discriminatory practices. An employer cannot, however, use the information to make any employment decisions. If an applicant is providing too much information, it is best for the
employer to quickly move on to the next subject to avoid eliciting any other information that could be used against an employer in a discrimination lawsuit.

**Hiring.** When deciding to choose one applicant over another, employers need to have a fair and equal system in place. Employers need to be able to point to a specific procedure that demonstrates an employer’s nondiscriminatory reason for choosing on applicant over another. For example, if one applicant is more qualified than another for a job, it is easy to prove a nondiscriminatory purpose for hiring the more qualified candidate. If there are two equally qualified candidates, it is even more important to have a nondiscriminatory procedure in place when deciding between the two applicants. For example, an employer could have a policy in place that states if two equally qualified candidates apply for the same position, the candidate that applies first shall be given the job offer.

**New hire reporting.** All employers are required by the U.S. Customs and Immigration Services to verify the identity and employment eligibility of all employees by filing out Form I-9. Ohio employers are also required by the Ohio Department of Family and Job Services ("ODFJS") to report the hiring, rehiring, and return to work of paid employees. The new hire report must be completed within 20 days after the employee is hired or returned to work.

**Conclusion.** In these trying and difficult times, compliance with state and federal regulations may be the last thing on an employer’s mind. However, these laws are always in effect, regardless of circumstance. Complying with state and federal laws will only help employers defend any employment decisions and to avoid potential employment discrimination lawsuits.

**FED CATTLE MARKET DYNAMICS...** appear to be changing, according to Dr. Kenny Burdine, Extension Livestock Marketing Specialist, University of Kentucky. See this OSU Extension Beef newsletter: [https://u.osu.edu/beef/2021/11/10/fed-cattle-market-dynamics-appear-to-be-changing/#more-11751](https://u.osu.edu/beef/2021/11/10/fed-cattle-market-dynamics-appear-to-be-changing/#more-11751). Fall is always a critical time for calf markets as so many spring born calves are sold. However, it has been very interesting to watch fed cattle prices this fall as well. I generally pay close attention any time a market moves counter to its normal seasonal pattern and that has been the case for fed cattle prices this year. The 5 Market Weighted Average weekly price chart is shown below. Note that a normal trend (red line) is for slaughter cattle prices to make their peak in the spring and move steadily downward through summer and early fall. Yet in 2021, fed cattle prices have trended upward since spring and did not put in a fall bottom at all. The last few weeks have been especially encouraging as prices have risen by more than $6 per cwt since the first week of October.
Several factors are behind this and are worth discussion. While export levels decreased from August to September, they remained over 20% above 2020 levels and kept the US on pace to exceed the annual record set in 2018. Growth is being seen in most of our major export markets and this continues to be a market driver.

The combination of fewer cattle on feed and much higher feed prices is leading to decreases in the number of days those cattle are on feed. Notice in the chart below how sharply “days on feed” has dropped since May in the Kansas State Focus on Feedlots data – this is way beyond what is seasonally normal. The more current feedlots are, the more leverage they have as they sell fed cattle into the packing industry, which explains some of the recent price improvement in slaughter cattle markets.

Fundamentally, current fed cattle prices should have little direct impact on feeder cattle values since feeder cattle are several months away from harvest. But a strong fall fed cattle market certainly creates optimism for spring, and the expectation of spring fed cattle prices is impacting feeder cattle prices now. On Friday November 5, CME® Live Cattle futures for April 2022 settled right at $140 per cwt. This was roughly $8 per cwt higher than the December contract, which is the current CME® live cattle contract being traded. Even contracts for the summer months are trading above that December price. Put simply, it appears that dynamics have shifted such that fed cattle prices should be much stronger in 2022 and that is welcome news for feeder cattle markets.

**SOYBEAN CYST NEMATODE (SCN)**...can cause severe yield loss of soybeans. Soil sampling is used to detect the levels of SCN in a field. Generous funding from the Ohio Soybean Council provides an opportunity for growers to have two free soil samples analyzed for SCN. If you are interested in participating, please contact me to discuss field location and arrange a time for me to take the samples.

**PRIVATE PESTICIDE LICENSE & FERTILIZER CERTIFICATE RECERTIFICATION**...will be held on Monday, March 28, 2022, at Buckeye Career Center. An afternoon and evening session will be held to accommodate your schedule. A direct mailing will be sent to those due to recertify in 2022. Opportunities in other counties can be provided later this year.

**THANK YOU**...to the cooperating farms who participated in the OSU Extension eFields On-Farm Research Program this year. Projects included soil health, soybean seeding rates, corn seeding rates, and double-crop soybean evaluation. Project results will be released in print in early January. Additional information about the OSU Extension eFields program is available at: [https://digitalag.osu.edu/efields](https://digitalag.osu.edu/efields).
PRECISION U...sponsored by OSU Extension, will be held on January 5, 12, and 19, 2022. The first two sessions will be virtual. The final session will be held in-person. Be sure to put these dates on your calendar and make plans to participate.

WITH FERTILIZER PRICES RISING...can you afford to fertilize your hay fields? The question is addressed in this OSU Extension Beef newsletter: [https://u.osu.edu/beef/2021/11/17/can-i-afford-to-fertilize-my-hay/#more-11670](https://u.osu.edu/beef/2021/11/17/can-i-afford-to-fertilize-my-hay/#more-11670). You can’t afford not to apply fertilizer properly and strategically.

**Soil Testing**

First and foremost, now more than ever is the time to make sure we have up to date soil tests. We can’t manage what we haven’t measured and knowing the nutrient content of forage fields is critical to knowing which soil nutrients will offer the most return on investment.

Lime has gone up little if any, in price, in recent years. To optimize the efficiency of the fertility we do have, correcting soil pH should be high priority during times of expensive soil nutrients.

Don’t just spread manure on the most conveniently located field. Apply it where the soil test indicates it’s most needed. Not sure what the nutrient content of your manure is? Perhaps having your manure analyzed for nutrient content this year might be dollars well spent.

**Hay Type & Nitrogen**

What kind of hay are you growing . . . grass or legume? If it’s a field full of legume or field heavily mixed with legume, nitrogen is likely not needed at all. On the other hand, if the goal is to optimize the productivity of
stands that are predominantly grass, yields will be benefited by properly timing the application of a correct amount and source of nitrogen.

Strategically timing nitrogen might mean foregoing an early spring application since it’s not uncommon to grow more first cutting hay than we can make and harvest in a timely fashion. However, 50 units of nitrogen applied to a grass hay field immediately after first or second cutting can significantly boost yield of the subsequent cutting.

Applying nitrogen after a first cutting onto warm soils at times of high air temperatures increases the risk of volatilization of urea-based nitrogen sources. Use a stable source of nitrogen such as ammonium sulfate. If using urea and rainfall is not on the horizon, including a nitrogen stabilizer or urease inhibitor is likely warranted. If phosphorus is being applied at the same time, the nitrogen that comes along with a phosphorus source like 18-46-0 is stable and effective.

**P & K**
Perhaps the most difficult decision will be what to do about phosphorus and potash needs. Each ton of harvested hay removes with it 12 pounds of P2O5 phosphorus and 49 pounds of K2O potash. If soil nutrient levels of phosphorus and potash are at critical minimum levels, perhaps the only phosphorus and potash that needs to be applied this year are the amounts removed through harvest. If levels are at the minimum critical levels of 30 ppm for phosphorus when using the Mehlich-3 extraction method, and 120 ppm for potash on loam and clay soils, phosphorus and potash could wait to be replaced at the end of next growing season if you are of the opinion fertilizer prices may moderate before then.

If soil test results indicate phosphorus and potash levels are above the minimum critical level mentioned above for forages, it may be cost effective to skip a year of phosphorus and potash application. Regardless, now may not be the best time to proceed with an aggressive soil nutrient build up program.

And, if you do choose to replace all the phosphorus and potash removed by a hay crop, how much will that cost per ton of hay removed? Using crop removal rates suggested earlier and when assuming phosphorus and potash cost near 60 cents per pound, a ton of forage is removing from the field between $35 and $40 dollars’ worth of fertility. If it’s predominantly grass hay and you add 20 units of N per ton of hay produced, at today’s fertilizer prices you’ll add about $15 to that total.

**Summary**
If you value hay at $100 or more per ton and harvesting optimum yields of high-quality hay is essential to the success of your operation, fertilization, even despite very high soil nutrient cost becomes a no brainer. You can’t starve profit into a cow, or a hay field!
**CROP PROGRESS**...for the week ending November 14 is provided by the Ohio National Agricultural Statistics Service.

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<td>Days Suitable for Fieldwork</td>
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<td>Corn Harvested for Grain ...............</td>
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<td>Soybeans Harvested.....................</td>
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**Corn and Soybean Use in the U.S.**
The U.S. Department of Agriculture reports the yearly use of corn and soybeans produced in the U.S., with the World Agriculture Supply and Demand Estimates (WASDE) report updating projections for the current and previous year every month. Figure 1 shows both corn and soybean use, with all yearly corn and soybean values divided by the 1980 value of the respective crop. This procedure causes corn and soybean use values to be indexes with values of 1.00 in 1980. The projected 2021 values are 2.04 for corn and 2.43 for soybeans. Corn use in 2021 is 2.04 times that of the 1980 value. Soybean use is 2.43 times the 1980 value.

![Figure 1. Total Corn and Soybean Use in the U.S., 1980 to 2021](https://farmdocdaily.illinois.edu/wp-content/uploads/2021/11/fdd091121.pdf)

Causes of major growth in use differ for corn and soybeans. Corn use has increased due to the ethanol build, while soybean use has increased due to exports. The ethanol build for corn was more pronounced than growth in exports for soybeans, but the growth in corn use from expanding ethanol production has plateaued. Soybean’s exports have been more stable and could conceivably continue to grow into the near future. Growth in soybean exports comes primarily from demand for use as a livestock feed to produce meat as meat consumption rises in China and other developing countries.
These historical trends in use have the same pattern as acreage. Figure 4 shows planted corn and soybean acreage in the U.S. In Figure 4, index values are created by dividing yearly values by the respected crops 1980 value, similar to the construction of Figure 1. Growth in planted acres has paralleled those for use:

1. Relative to 1980, soybean acres exceeded corn acres from 1996 to 2004,
2. Corn and soybean acres were roughly equal from 2005 to 2012, and
3. Soybean acres have exceeded corn acres since 2012.

**Impacts of profitability**

Changes in corn and soybean use then have impacts on relative corn and soybeans profitability. Figure 5 contains the use indices shown in Figure 1 but adds corn-minus-soybean returns from 2000 to the present. These returns are not available before 2000. Corn-minus-soybean returns measure the relative profitability of corn and soybeans, with positive values indicating that corn is more profitable than soybeans and negative values showing that soybeans are more profitable than corn. These values come from Illinois Farm Business Farm Management (FBFM) for high-productivity farmland in central Illinois (see farmdoc daily, November 2, 2021).

There is a high degree of correlation between use indices and corn-minus-soybean returns. From 2002 through 2011, corn was more profitable than soybeans, and relative corn use was roughly equal to soybean use. Soybeans have been more profitable than corn from 2013 to 2019, and relative soybean use has exceeded corn use.
The need for more bushels in soybean use has been driving the relative profitability of corn and soybean. As the need for more soybeans has grown, the relative profitability of soybeans has increased so that acres are drawn into soybeans. This phenomenon has occurred across the Midwest, where corn and soybeans are the major crops.

Growth in the Longer-Run
At this point, exports seem the most likely avenue of growth for both corn and soybeans. Export demand growth will not only impact each crop’s export levels directly but will also impact other uses of corn and soybeans.

Take domestic livestock feed demand as an example. Livestock feed directly impacts the food and residual category of corn and the crush category of soybeans. U.S. feed consumption will provide meat for domestic consumption and for exports. Growth in domestic meat consumption has limited potential because the U.S. population is relatively stable, and per capita consumption of meat seems unlikely to grow significantly. Moreover, increases in livestock feeding efficiency could reduce corn and soybean use for meeting domestic consumption, and a continued switch from beef and pork to chicken could reduce corn and soybean use as poultry production is more feed efficient than beef or pork. As a result, corn and soybean use in meeting domestic meat consumption likely has limited growth possibilities. Export growth for US meat and livestock likely represents the most potential for increased corn and soybean use as feeds.

Biofuels present another possibility for growth. Maintaining current corn use levels in producing ethanol is likely achievable, but continued growth is not assured. There is potential for oil from soybean crush to be used in the production of biodiesel. A movement in this direction likely has positive impacts on soybean use.

Implications for Planting Decisions
Currently, corn is projected to be more profitable than soybean in 2022, counter to years from 2013 to 2019 when soybeans were more profitable than corn. Over the next five years, growth in soybeans and corn use will likely be driven by exports. In the past, exports have had a larger direct impact on soybean use relative to corn. Past trends do not have to continue in the future, but continuing growth in soybean exports seems reasonable. As a result, relatively more soybean acres will be needed in the future compared to corn acres.

These trends lead to two suggestions for farmers. First, farmers will have to continue to watch export demand to gain insights into likely changes in corn and soybean relative profitability. That examination needs to not only include soybean exports but also 1) corn exports and 2) meat and livestock exports. Second, export demand will likely continue to favor soybeans, and farmers need to consider adjusting rotations in the face of this reality.

BEEF QUALITY ASSURANCE (BQA)...certification and recertification for beef and dairy producers will be held:

- Date: Thursday, December 9, 2021
- Time: 7pm
- Location: Sugarcreek Stockyards. Pre-Registration is requested to have materials prepared. Please call: 330-339-2337
OBSERVING AN ATTITUDE OF GRATITUDE... is the title of an article by Christine Gelley, OSU Extension ANR Educator, Noble County. This article is from a recent OSU Extension Beef newsletter available here: https://u.osu.edu/beef/2021/11/10/observing-an-attitude-of-gratitude/#more-11742.

Everyone I talk to is waiting for a time when life will slow down, they can take a deep breath, and feel that feeling of accomplishment that the hard work has been worth the effort. That they’ve made it to where they want to be. If only we could feel a little of that feeling every day...

Come to think of it, what’s stopping us? Maybe observing a little more of an attitude of gratitude could help us through those days when the workload is too heavy, and the world is too hard. Taking a few minutes each day to appreciate the little things that blend into the canvas of the day may be just what we need.

A couple years ago just before Thanksgiving, my daughter brought home a “Gratitude Scavenger Hunt” paper from preschool. In 2019 and 2020 we did the scavenger hunt together on Thanksgiving Day. I found it again today and thought, “This could be done anywhere anytime. Why not in the pasture? That would be a good way to pause, take a deep breath, and soak up the moment.”

Let’s do it together and see if it works.

1. **Find something outside that you enjoy looking at.**
   Trees. I enjoy watching the leaves rustle in the wind and watching for wildlife that moves from the cover of the woodland to a grassy meadow.

2. **Find something that is useful for you.**
   My boots. Whatever the weather or the terrain, they wait by the door each morning ready for the day ahead.

3. **Find something that is your favorite color.**
   The purple blooms of fading flowers like ironweed or New England aster or the changing leaves of sumac or sweetgum in the tree line.

4. **Find something that makes you happy.**
   Animals grazing. Watching animals enjoy a buffet of fresh grass makes me feel content.

5. **Find something that makes you laugh.**
   My daughter. The way she talks to and cares for her animals is as comedic as it is endearing.

6. **Find something in the morning that you enjoy.**
   Dew drops or frost crystals clinging to blades of grass.

7. **Find a friend or a pet that you love spending time with.**
   Bandit and Brindle. My trusty couple of German Shepherd mutts.

8. **Find something that tastes good.**

9. **Find something that you love doing outside with friends.**
   Well, I am an Extension Educator, so I have to say a good pasture walk and talk checks the box.

10. **Find something that you are grateful for.**
    The land beneath my feet.

Usually, this column is bursting with advice on how to better manage your pasture or your livestock, but today it is about managing your mental and emotional stress. Physicians, philosophers, and priests all agree that the practice of expressing gratitude improves your physical and mental well-being. It doesn’t have to be done in a counselor’s office or
a pew. It can be done in the pasture. It can happen in the cab of a tractor, the seat of a side-by-side, the back of a four-wheeler, on a fence line, at the dinner table, or wherever you have a few seconds to pause.

Regularly taking time to be grateful for big and little things in your life can lead to increased optimism, motivation, satisfaction, self-esteem, and confidence while decreasing feelings of frustration, envy, and regret. Mutual appreciation and expression of gratitude leads to healthier relationships. Simply listing things you are thankful for before bed can help you achieve more restful sleep.

There are thousands of ways to express gratitude and there are 365 days in the year. Don’t wait for Thanksgiving to be thankful. Don’t stop being thankful when the table is cleared. Your livestock and crops probably won’t thank you for the gesture, but if you keep that attitude of gratitude all year long your body, your mind, and the people you love sure will.