TUSCARAWAS COUNTY AGRICULTURE & NATURAL RESOURCES

September 30, 2021

MINIMIZING CORN LOSS…at the combine is always important. This OSU Extension C.O.R.N. newsletter (https://agcrops.osu.edu/newsletter/corn-newsletter/2021-33/minimizing-corn-harvest-losses-combine) provides management recommendations. Harvesting at a bit higher moisture may also be economically beneficial.

FALL ARMYWORMS…might still be of concern. We did have some low temperatures last week—most areas had 40 to 60 straight hours of temperatures below 65°F (this was the temperature when mortality significantly impacted fall armyworm larvae). As adults are migratory (often flying with winds in the atmosphere), they may be more cold-tolerant than the larvae, so it may not be surprising to still see some moths. However, we do not yet know how the cold snap affected the larvae. Fields should continue to be scouted for the presence of fall armyworm larvae at least for this week and likely until we get a significant frost. Check alfalfa, forage, cover crops, winter wheat, and even turf for damage and small larvae. As we get closer to the winter, we want to protect against any further damage that could compromise winter survival and regrowth in the spring. (Source: OSU Extension C.O.R.N. newsletter: https://agcrops.osu.edu/newsletter/corn-newsletter/2021-33/don%E2%80%99t-let-your-guard-down-fall-armyworm-just-yet)

TICKS AND TICK-BORNE DISEASES…are a growing problem for people and animals in Ohio. The Ohio State University is surveying livestock producers and veterinarians about their knowledge of ticks and diseases. The survey is for any Ohio livestock producer over 18 years of age. Those who complete the survey will receive a $5.00 gift card to the business of their choosing. You may access the survey here: https://osu.az1.qualtrics.com/jfe/form/SV_9KXdJTr05f5BrBs. Should you have questions about the survey, please contact Dr. Pesapane in the OSU Department of Veterinary Preventive Medicine at pesapane.1@osu.edu or 614-292-7570.

ENTERPRISE BUDGETS…for 2022 have been released by OSU Extension and are available here: https://farmoffice.osu.edu/farm-management/enterprise-budgets. Each year, preliminary crop enterprise budgets are unveiled at the Farm Science Review which reveals our best estimates for costs and returns for the main row crops in Ohio for the upcoming year. With continued high crop prices projected for 2022 there is some optimism, however, higher costs will likely decrease profit margins to levels lower than 2021 margins.

Production costs for Ohio field crops are forecast to be higher compared to last year with higher fertilizer, seed, chemical, fuel, machinery and repair costs leading the way.

Variable costs for corn in Ohio for 2022 are projected to range from $477 to $583 per acre depending on land productivity. Variable costs for 2022 Ohio soybeans are projected to range from $266 to $302 per acre. Wheat variable expenses for 2022 are projected to range from $213 to $262 per acre.

These are increases over last year of 19%, 18%, and 25% for corn, soybeans and wheat, respectively.

If the current grain prices and costs endure through next year, profit margins will likely be positive although higher costs may create losses for some producers. Grain prices currently used as assumptions in the 2022 crop enterprise budgets are $4.80/bushel for corn, $12.20/bushel for soybeans and $6.90/bushel for wheat. Projected returns above variable costs (contribution margin) range from $226 to $472 per acre for corn and $288 to $529 per acre for soybeans. Projected returns above variable costs for wheat range from $191 to $344 per acre.

Return to Land is a measure calculated to assist in land rental and purchase decision making. The measure is calculated by starting with total receipts or revenue from the crop and subtracting all expenses except the land expense. Returns to Land for Ohio corn (Total receipts minus total costs except land cost) are projected to range from $54 to $283 per acre in 2022 depending on land production capabilities. Returns to land for Ohio soybeans are expected to range from $166 to $393 per acre depending on land production capabilities. Returns to land for wheat (not including straw or double-crop returns) are projected to range from $99 per acre to $242 per acre.

Total costs projected for trend line corn production in Ohio are estimated to be $919 per acre. This includes all variable costs as well as fixed costs (or overhead if you prefer) including machinery, labor, management and land costs. Fixed machinery costs of $78 per acre include depreciation and other overhead. A land charge of $207 per acre is based on data from the Western Ohio Cropland Values and Cash Rents Survey Summary. Labor and management costs combined are calculated at $82 per acre. Details of budget assumptions and numbers can be found in footnotes included in each budget.

Total costs projected for trend line soybean production in Ohio are estimated to be $619 per acre. (Fixed machinery costs: $62 per acre, land charge: $207 per acre, labor and management costs combined: $53 per acre.)

Total costs projected for trend line wheat production in Ohio are estimated to be $541 per acre. (Fixed machinery costs: $36 per acre, land charge: $207 per acre, labor and management costs combined: $48 per acre.)

Current budget analyses indicate favorable returns for soybeans compared to corn or wheat but crop price change, harvest yields and other factors through fall and into summer of next year may change this outcome. These projections are based on OSU Extension Ohio Crop Enterprise Budgets.

In addition to projected row crop budgets for 2022, there are newly updated forage budgets posted to our Farm Office site. These include Alfalfa Hay, Alfalfa Haylage and Corn Silage. Also recently updated are two Market Beef Budgets which include Market Beef Budget (Self-Fed) and Market Beef Budget (Bunk-Fed).
(Source: Barry Ward, Leader, Production Business Management, OSU Extension)

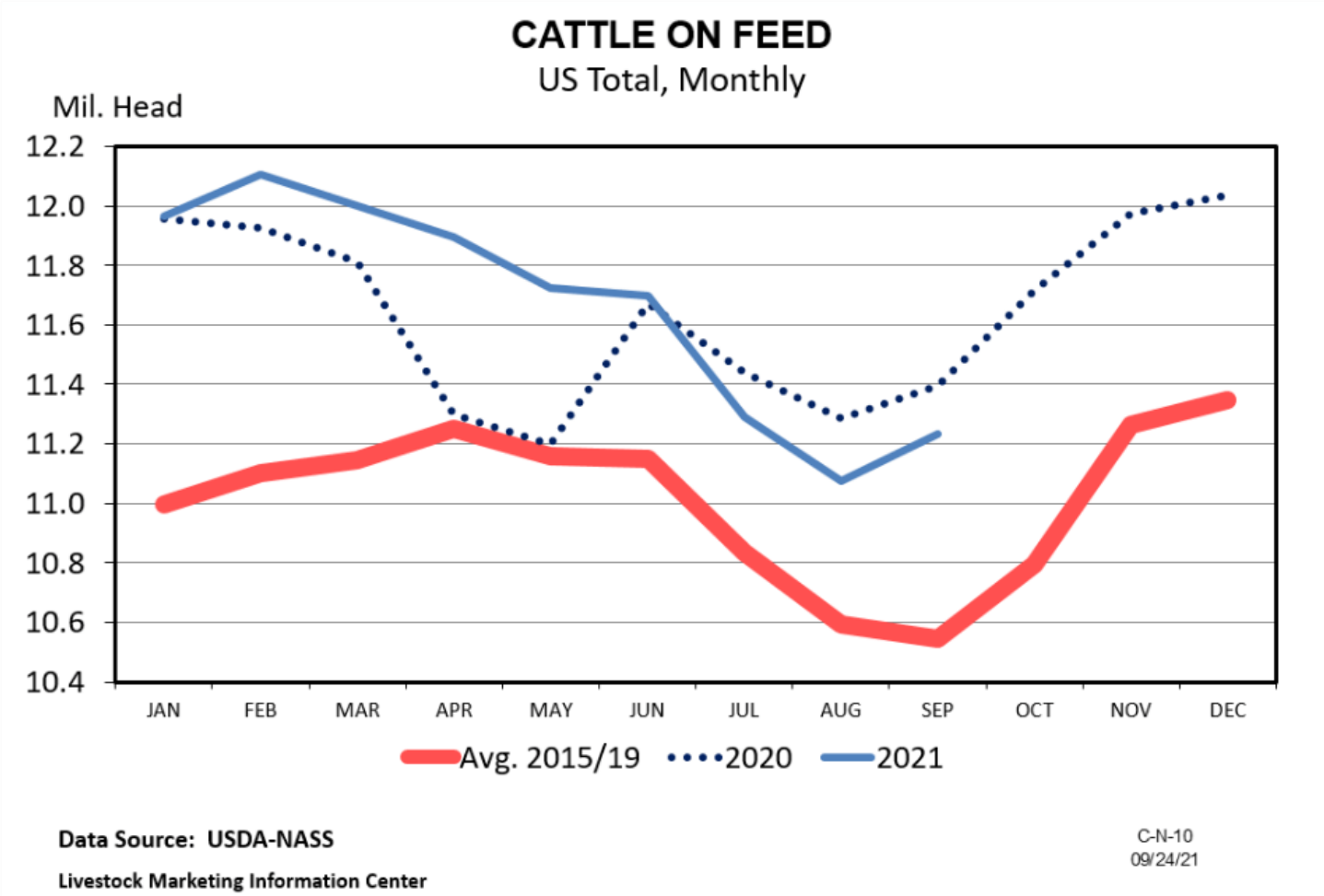
SCOUT NOW FOR CRESSLEAF GROUNDSEL…and other winter weeds in pastures and hayfields. Dr. Mark Loux, OSU Extension Weed Scientist, offers management recommendations in this OSU Extension C.O.R.N. newsletter: https://agcrops.osu.edu/newsletter/corn-newsletter/2021-33/scout-now-cressleaf-groundsel-and-other-winter-weeds-hayfields.

Fall herbicide options for grass hay and pastures, and non-crop areas, are considerably greater in number and often also effectiveness than those labeled for use in a first-year legume or legume/grass stand. For example, herbicides for a new stand of pure alfalfa include 2,4-DB (Butyrac), Pursuit, Raptor, and clethodim. The mixture of grasses and legumes removes all of these options except 2,4-DB, which we have sometimes characterized as "almost an herbicide on a good day". A bit of an exaggeration, but it has a very limited spectrum of control and weed size range. In an established stand, dormant application of metribuzin or Velpar can also be an effective option. Glyphosate is of course an option in a stand of pure RR alfalfa (if you can get it). There are a number of more effective options in grass hay and pasture. Most of the herbicides in the pasture section of the OH/IN/IL Weed Control Guide can be used for grass hay also, as long as they specify a minimum interval between application and cutting for hay. The absence of legumes allows use of products and premixes containing 2,4-D, dicamba, metsulfuron, triclopyr, and aminopyralid. Be sure to understand the restrictions on feeding or grazing aminopyralid-treated hay or areas prior to use.

Poison hemlock deserves specific mention here because it got a lot of press in Ohio this year. While it has substantial toxicity when ingested, and can cause reactions on skin of sensitive individuals, it's otherwise fairly benign. It has been fairly endemic to southern Ohio for a while, and is apparently creeping north. In addition to toxicity to animals when ingested, cressleaf groundsel and poison hemlock share the property of being weeds that appear to "all of a sudden" show up in spring, when they were really present the previous fall. Herbicides are more effective on these weeds in the fall, but there is a general lack of awareness and scouting for them at that time of the year. Waiting until spring to control them, when they become clearly evident, increases the difficulty of control. And killing sizable plants in spring results in dead plants that are still toxic, which does not resolve issues in hay. Herbicides containing triclopyr (Remedy Ultra, Garlon, numerous others) or triclopyr plus 2,4-D (Crossbow) are most effective in controlling poison hemlock. Other herbicides that provide adequate control when applied at the proper timing are dicamba (Clarity, numerous others), metsulfuron-methyl (Escort XP), metsulfuron-methyl plus dicamba plus 2,4-D (Cimarron Max) and clopyralid plus 2,4-D (Curtail).

SEPTEMBER CATTLE ON FEED REPORT…is discussed by Dr. Kenny Burdine, University of Kentucky, in this OSU Extension Beef newsletter: https://u.osu.edu/beef/2021/09/29/september-cattle-on-feed-summary/#more-11604.

Based on a mid-year comparison to total cattle on feed numbers from the July Cattle report, these monthly reports account for about 84% of total cattle of feed. The September 1 estimate came in just over 11.2 million, which was about 1.4% below the 2020 level. Cattle on feed inventory has been running below year-ago since July. A link to the full report can be found here.



Placements did tick upward for the month of August. This is normal, but the magnitude of the increase from July was larger than one would typically expect. August placements were 2% above 2020 after being quite a bit below last year for July. It's hard to read too much into this given how strange 2020 was. I also think it is very likely that drought conditions in much of the country forced some early sales of cattle into the feedlot sector. The increase seemed to be more in the heavier weight groups, which is largely consistent with that narrative. Marketings were virtually unchanged from 2020 to 2021, although they were about 3.5% below 2019.

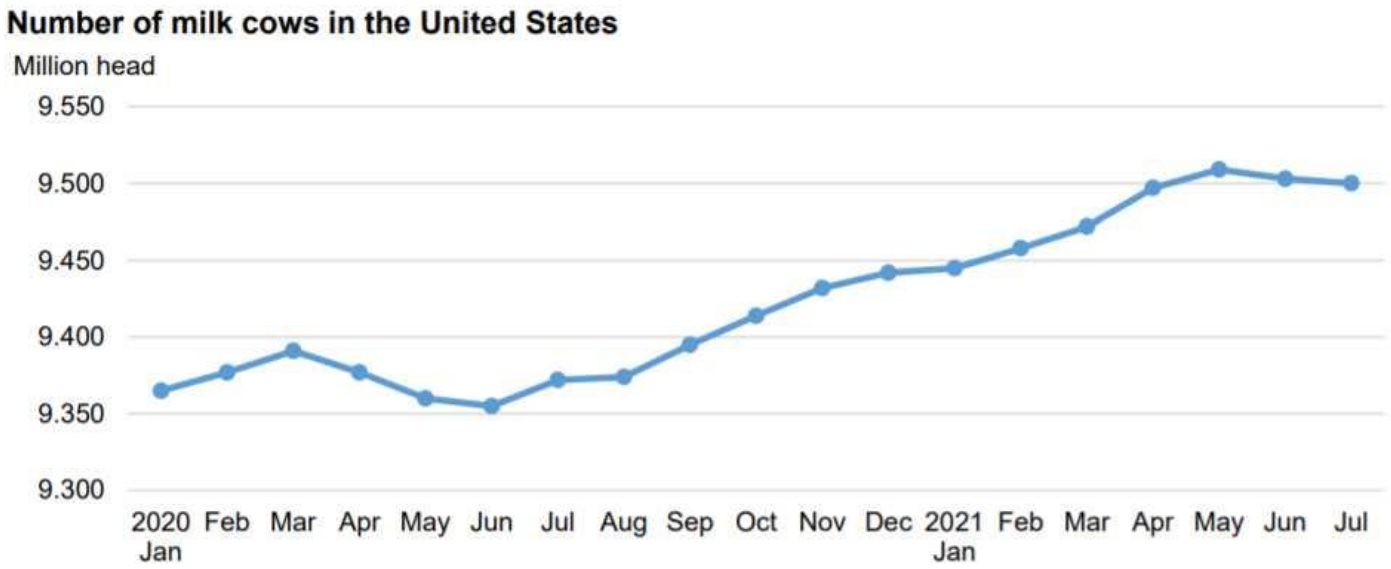
From my perspective, the September Cattle on Feed report continues to confirm that we have turned the corner on feedlot inventory and numbers should be generally trending downward over the next few years. Certainly, this is positive news for an industry that has struggled with packing capacity recently. But, I also think it is important to note that feedlot inventory, while trending downward, is still relatively high. Note in the chart above that while current inventory is below 2020, it is well above the 5-year average. As an example, the September 2021 number is still 2.2% higher than September 2019.

After expanding from 2014-2018, the US Beef cow herd reached a high in 2019. Since then, we have seen two years of declining beef cow numbers. Given drought conditions in much of the US and beef cow slaughter thus far in 2021, I think there is no question that this will be another year of contraction. The contracting beef cow herd and shrinking calf crops will lead to smaller numbers of cattle to be finished over the next several years. But it is important to understand that due to the time lag between calf crops and the placement of those calf crops on feed, and the pandemic related issues seen in 2020, we are just now starting to see the impacts of beef herd liquidation in these Cattle on Feed reports.

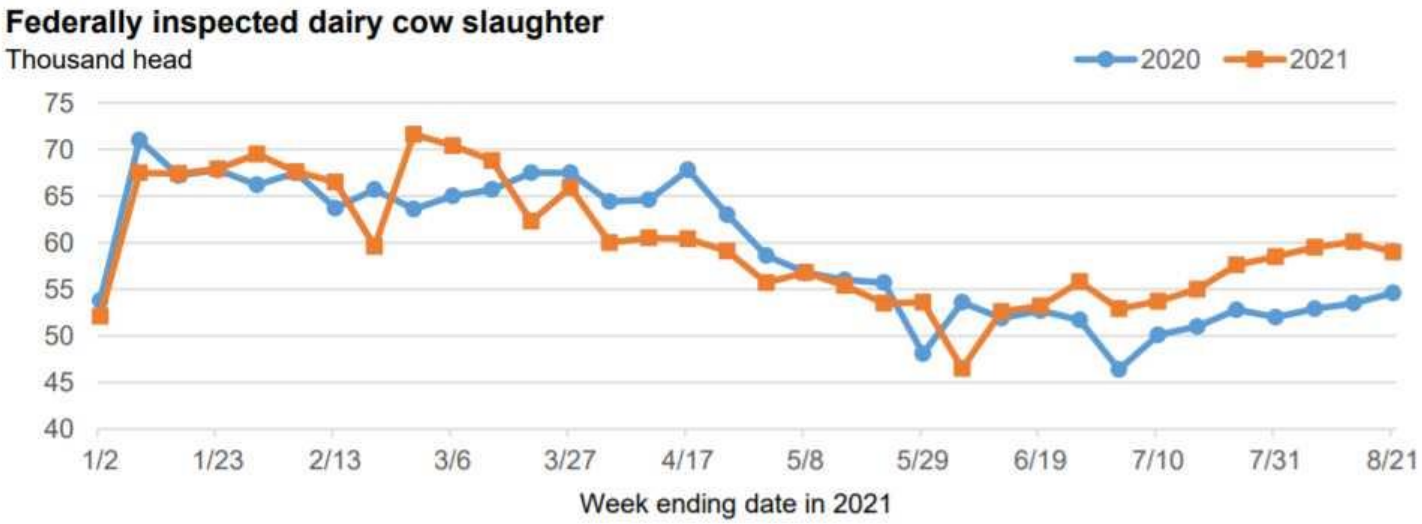
USDA DAIRY FORECAST…is presented in this OSU Extension Buckeye Dairy newsletter: https://dairy.osu.edu/newsletter/buckeye-dairy-news/volume-23-issue-5/highlights-recent-usda-dairy-forecast.

Supply and Use

July 2021 milk production was 2% higher than the same month in 2020, the number of dairy animals peaked in May 2021 at 9.509 million head, and the July number came in at 9.500 million head. Increased culling and slaughter of dairy cows at federally inspected plants contributed to these changes. Milk production for July 2021 was 14 lb higher than July 2020, averaging 2,015 lb/cow.



Source: USDA, National Agricultural Statistics Service.



Sources: USDA, Agricultural Marketing Service data as reported by USDA, National Agricultural Statistics Service.

Corn and soybean meal prices were lowered in the recent report. The 2021-2022 marketing year average for corn was reduced to $5.45/bushel. Soybean meal for 2020-2021 is projected at $360/ton. The hay market continues to be strong. Alfalfa hay in July was $201/ton, up $2/ton from June 2021 and $29/ton more than July 2020.

Dairy Forecast

Milk cow inventory has been reduced by 15,000 from the previous month to 9.485 million head because of increased culling and higher slaughter numbers. The estimated milk at 24,010 lb/cow in 2021 is 10 lb lower than the previous month's projection. USDA ERS is expecting milk production to be 227.8 billion lb for 2021.

Milk Price Forecast - 2021

Category	Forecast Price
Class III	$16.65/cwt
Class IV	$15.55/cwt
All Milk	$18.15/cwt

Milk Price Forecast - 2022

Category	Forecast Price
Class III	$16.45
Class IV	$16.05
All Milk	$18.40

MEAT GOAT PRODUCTION…and budgeting detailed information is provided in this OSU Extension Sheep newsletter: https://u.osu.edu/sheep/2021/09/28/mat-goat-production-and-budgeting/#more-4654.

CONVENTIONAL & ORGANIC ENTERPRISE NET RETURNS…are discussed in this Purdue University article: https://ag.purdue.edu/commercialag/home/resource/2021/09/conventional-and-organic-enterprise-net-returns-2/?utm_medium=email&utm_source=delivra-AgNews-202109&utm_campaign=Resource-ConventionalandOrganicEnterpriseNetReturns&utm_source=delivra&utm_medium=email&utm_campaign=Newsletter%202021-09&utm_id=42004858&utm_term=Read+more+on+Conventional+and+Organic+Enterprise+Net+Returns

Crop Yields

Table 1 shows the average conventional and organic crop yields for alfalfa, corn, oats, soybeans, and winter wheat. The ratio illustrated in the last column of the table was computed by dividing the organic crop yield by the conventional crop yield. Alfalfa and oats exhibited the smallest differences in crop yields between conventional and organic crops. The yield drags for corn, soybeans, and winter wheat were 32 percent, 37 percent, and 53 percent, respectively.

Table 1. Average Conventional and Organic Crop Enterprise Yields, 2016 to 2020

	Organic	Conventional	Ratio
Alfalfa (tons/acre)	3.71	4.51	0.823
Corn (bushels/acre)	127.1	186.2	0.683
Oats (bushels/acre)	55.8	72.4	0.770
Soybeans (bushels/acre)	35.0	48.2	0.725
Winter Wheat (bushels/acre)	31.8	67.0	0.474

Source: FINBIN Database

Gross Revenue, Total Expense, And Net Return to Land

Gross revenue, total expense, and net return to land per unit for alfalfa, corn, oats, soybeans, and winter wheat are presented in table 2. Gross revenue includes crop revenue, crop insurance indemnity payments, government payments, and miscellaneous income. Total expenses include all cash and opportunity costs, other than those associated with owned farmland. Farmland costs included in the total expense reported in table 2 were comprised of cash rent, real estate taxes, and interest, which would be lower than the full opportunity cost on owned land. Just to give the reader some idea as to how large this excluded cost may be, you would need to add an estimated $0.25 per bushel ($0.85 per bushel) to the total expense for conventional corn (conventional soybeans) if you wanted to account for the full opportunity cost on owned land. Also, note that the per unit net returns presented in table 2 represent a net return to land rather than an economic profit.

PURDUE UNIVERSITY
Center for Commercial Agriculture

Table 2. Average Conventional and Organic Gross Revenue and Total Expense per Unit, 2016 to 2020

	Gross Revenue	Total Expense	Net Return to Land
Alfalfa ($ per ton)	134.09	96.75	57.09
Organic Alfalfa ($ per ton)	170.38	131.99	59.97
Corn ($ per bushel)	3.76	3.76	0.71
Organic Corn ($ per bushel)	8.94	5.99	3.96
Oats ($ per bushel)	3.46	3.50	0.56
Organic Oats ($ per bushel)	6.13	6.11	1.22
Soybeans ($ per bushel)	10.26	8.81	3.77
Organic Soybeans ($ per bushel)	20.39	15.47	8.50
Winter Wheat ($ per bushel)	5.07	5.55	0.40
Organic Winter Wheat ($per bushel)	9.43	13.43	-2.67

Source: FINBIN Database

Though conventional and organic crops face different market phenomena, it is common to compare conventional and organic crop prices. Comparing organic to conventional gross return per unit

reported in table 2, the smallest ratio of organic to conventional gross return was for alfalfa (1.28) and the largest ratio (2.39) was for corn. Organic oat and soybean prices were approximately double their conventional counterparts, while organic wheat price was approximately 1.75 times higher than conventional wheat price. It is important to note that these price ratios represent five-year averages. The price ratios for individual crops vary from year to year. For example, during the 2016 to 2020 period, the corn price ratio ranged from 1.84 in 2020 to 2.74 in 2017.

Examining gross revenue and total expense per unit for each enterprise reported in table 2, it is evident that economic losses occurred for oats and winter wheat grown conventionally, and for winter wheat grown in an organic rotation. Economic profit was approximately zero (i.e., breakeven level) for conventional corn and organic oats. The lack of profits for the organic small grains has important implications for organic crop rotations. Numerous organic crop rotations include a small grain in the rotation. Market opportunities for organic small grains vary substantially by region, and it can be difficult to find markets for these crops. It is also useful to examine differences in net returns per unit for each crop (e.g., corn versus organic corn). The largest differences in net return per unit occurred for corn and organic corn, and for soybeans and organic soybeans. The difference in net returns per unit between the two crop rotation systems was very small for alfalfa.

It is important to note that the net returns reported in table 2 are on a per-unit basis. Given the differences in crop yields between conventional and organic crops, it is often more relevant to examine differences in per acre net returns than per-unit net returns. The average difference in net returns to land between the organic and conventional crops was $73 per acre. The largest difference was $370 per acre for corn. The difference for soybeans was $115 per acre, while the difference for oats was $27 per acre. The differences for alfalfa and winter wheat were -$35 and -$112 per acre, indicating that the conventional alfalfa and winter wheat were more profitable than organic alfalfa and winter wheat.

Difference In Net Returns Among Farms

The results above focus on differences in average net return to land. Economists have long pointed out the large differences in financial performance among farms. To account for the differences among farms, we used the FINBIN database to examine net returns for conventional and organic corn and soybean enterprises.

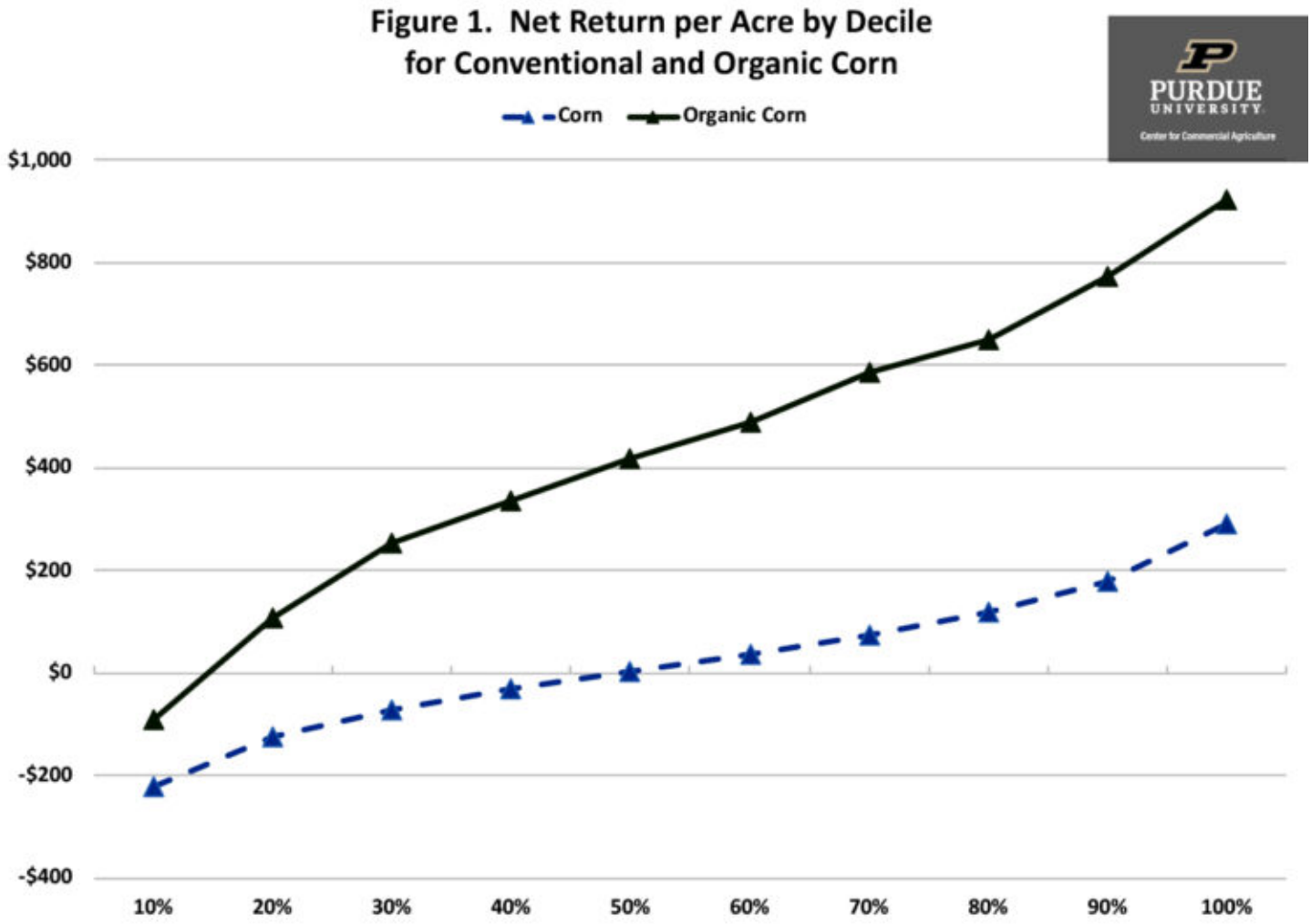
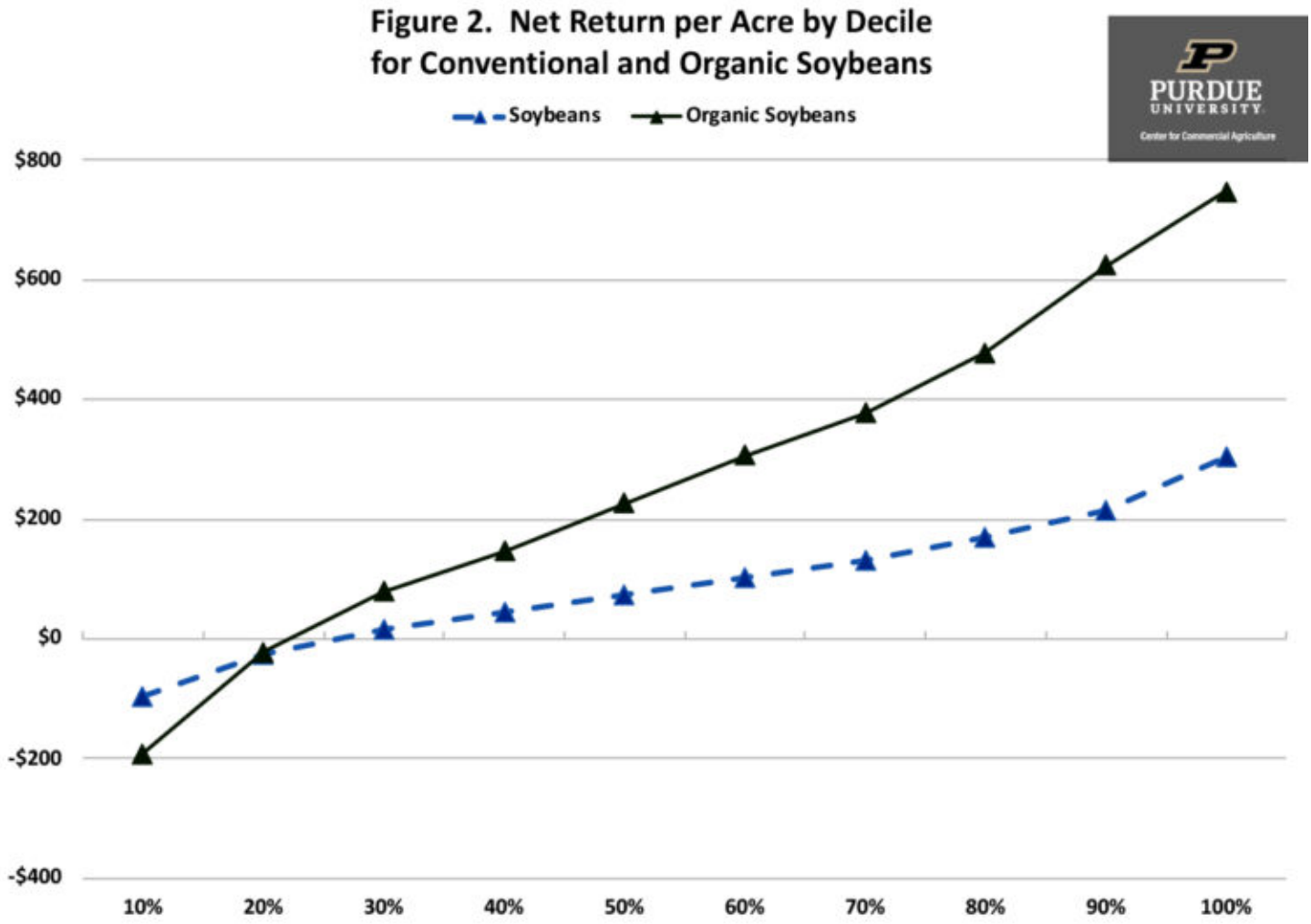


Figure 1 presents the comparisons among enterprise deciles (ten equal groups) for conventional and organic corn using 2016 to 2020 FINBIN data. Net return in this figure was computed by subtracting land expenses from net return to land, and exclude government payments, operator labor, and a management charge. The median net returns per acre for conventional corn and organic corn were $21 and $450, respectively. The difference in net return per acre for the bottom and top deciles was $511 for conventional corn and $1,013 for organic corn. Despite the larger median net return, it is important to note that there were quite a few organic farms with lower net returns for corn than their conventional counterparts in the top deciles.



Comparisons among enterprise deciles for conventional and organic soybeans are presented in figure 2. The median net returns using FINBIN data for the 2016 to 2020 period for conventional soybeans and organic soybeans were $88 and $278, respectively. The difference in net return per acre for the bottom and top deciles was $401 for conventional soybeans and $938 organic soybeans. Even though the median net return for organic soybeans is higher than the median net return for conventional soybeans, the organic producers in the lowest decile had lower net returns than the conventional soybean producers in the lowest decile.

What can we make of the results in figures 1 and 2? First, there is a larger difference in net returns between the organic producers than there is between the conventional producers. This result could be due to learning effects or the more complicated rotations associated with organic crop production. Second, obtaining a boost in net returns from organic soybean production appears to be much more difficult than it is for organic corn. This could be due to weed control issues often encountered when producing organic soybeans. The results in figures 1 and 2 stress the importance of examining the sensitivity of budgeted net returns for organic crops to changes in price, yield, and cost assumptions before transitioning acres.

Summary And Conclusions

This article compared crop yields, gross revenue, total expense, and net returns for conventional and organic corn and soybeans. FINBIN data (Center for Farm Financial Management, 2021) were used to make the comparisons in this article. Consistent with previous work, organic corn and soybean enterprises had lower crop yields, higher crop prices and gross returns, and higher net returns. However, there was a much wider difference in enterprise net returns among organic corn and soybean enterprises than there was among conventional corn and soybean enterprises. It is also important to note that the difference in net return to land for oats was relatively small, and that conventional alfalfa and winter wheat exhibited higher net return to land than organic alfalfa and winter wheat.

This article summarized net returns for conventional and organic crop enterprises. Organic crop rotations tend to include small grains and/or forages as well as crops grown while in transition to organic production. For comparisons of conventional and organic crop rotations see Langemeier et al. (2020) and Langemeier and O'Donnell (2021).

FARMER QUESTIONS ABOUT THE PANDEMIC…are answered in this OSU Extension Dairy newsletter (https://dairy.osu.edu/newsletter/buckeye-dairy-news/volume-23-issue-5/answering-farmers%E2%80%99-questions-about-pandemic-2021) by Dr. Gustavo Schuenemann and Jeff Workman, OSU College of Preventive Medicine.

Times like these should remind everyone of the importance of having a robust food production system to ensure a nation's food security. Below are the frequently asked questions we receive when visiting farms.

To answer these questions, we should look at the unbiased science. The challenge with looking at the science regarding COVID-19 is that portions of the science do not yet exist, or are not yet confirmed through replication and hard evidence. Time must pass in order to generate data.

Science is evolving as researchers around the world continue to study and learn more to create unbiased new knowledge that informs all of us. Answering one research question may lead to several new research questions, or the correct answer backed by science is no longer relevant moving forward as the virus has changed.

The "gold standard" that we typically use in the U.S. for sharing information and making decisions regarding public health are the recommendations coming from the Centers for Disease Control and Prevention (CDC). The CDC develops and changes their recommendations based on the available scientific data at any given time.

There are coronaviruses on my farm — is this the same as COVID-19?

No, there are animal coronavirus infections that are caused by different strains of coronavirus, such as calf diarrhea, winter dysentery in cows, and bovine respiratory disease complex (shipping fever).

To prevent losses, producers vaccinate their animals to protect against diseases caused by coronavirus.

When and how will the COVID-19 pandemic end?
We can't yet say exactly when the pandemic will end, but we do know that the pandemic will essentially be over when the individuals who make up the population achieve some level of immunity which ultimately stops the spread.

How do you get immunity?
Immunity may be natural, or infection-induced, in which a person is infected with the virus and recovers. Immunity can also be vaccine-induced in which a vaccine helps the body to produce antibodies. Individuals who make up the population must achieve immunity to stop the spread and ultimately end the pandemic.

What is herd immunity?
Herd (or group) immunity occurs when a large portion of the population (or herd) has some level of immunity to a virus. This means if someone who didn't have enough immunity becomes exposed and infected, the likelihood of them passing it on to someone else is much less because the majority of their contacts in their surroundings already have immunity.
When a virus infects an individual, the individual either recovers or succumbs, and the virus can only survive by spreading to another host individual. We see in other viruses, such as the measles and mumps, in which the US population already has herd immunity, there are occasional small, isolated outbreaks, but the virus is unable to develop into a pandemic.

Is immunity a sure thing?
Typically, immunity from most viruses is never 100%. For example, we achieve immunity from the chickenpox virus through natural infection or vaccination, but there are still a few cases of reinfection identified worldwide. Influenza (flu) viruses have the ability to mutate, adapt, change, and jump across species.
As the flu virus changes, a person who has been vaccinated over several years, and also has some infection-induced immunity, may still become infected. However, they have some immunity that lessons the severity of their infection and results in a faster recovery.

Why should I get vaccinated?
The safest way to achieve some degree of immunity against COVID-19 is through vaccination. The current COVID-19 vaccines have been shown to be as high as 94% effective at preventing COVID-19 hospitalizations. The Delta variant is the newest strain of concern because it appears to be more contagious and severe than earlier strains of COVID-19. All indications thus far are that individuals who are fully vaccinated have protection from the Delta variant. It is important to keep in mind, if we learn that immunity wanes over time, or that the virus has significantly changed so that the current vaccine-induced immunity (or infection-induced immunity) is no longer effective, there could be

recommendations for booster shots or other vaccine formulations at some point in the future. Individuals should choose whichever vaccine is available and they have the opportunity to receive.

Current efficacy percentages reported are developed from subsets of people, and the true efficacy numbers will become much more valid and reliable as datasets become much larger and time passes.

Keep in mind that the efficacy of the annual influenza vaccines is typically only 40 to 60%. All three COVID-19 vaccines have been found to be safe and effective. Everyone is biologically different and side effects vary. The reward (immunity or some degree of immunity from COVID-19) outweighs the risk (potential vaccine side effects).
To conclude, the safest way to achieve immunity or some degree of immunity is by becoming fully vaccinated (individuals need both doses of a two-dose series). If an individual doesn't achieve immunity that fully prevents infection, they may achieve a degree of immunity that decreases the severity of symptoms and duration.

We all do personal risk assessments and consider the risk-benefit ratio each and every day without even thinking about it. There is risk in getting up in the morning and going to work. There is risk in driving a vehicle, operating machinery, flying on an airplane, and so on. Essentially everything we do in life has some degree of risk, but when individuals determine the benefit or reward outweighs the risk, they must carry on and move forward. Talk to your doctor or health care provider to discuss the best option for you and your family.