

# Agriculture By the Numbers

July 2020

**NDSU Extension Agribusiness and Applied Economics**

Livestock Byproduct Values Impacted by Trade Issues and COVID-19

U.S.-China Phase One Agreement Still Creating Market Uncertainty

Government Assistance Has Become Critical to Supporting Net Farm Incomes

One Projection of Future Domestic Ethanol Use

## Livestock Byproduct Values Impacted by Trade Issues and COVID-19

By Tim Petry, NDSU Extension Livestock Economist

The importance of U.S. meat exports to U.S. livestock markets receives a lot of press.

Livestock byproducts are less glamorous and their importance sometimes is overlooked. However, the value of byproducts, sometimes referred to as “offal or drop value,” also plays an important role in livestock prices.

Beef byproducts include all items, edible and inedible, from harvested cattle that are not part of the dressed carcass. The hide is the most valuable byproduct. Other beef byproducts include items such as edible and inedible tallow, livers, hearts, tongues, oxtails, tripe (stomach), and meat and bone meal. Edible byproducts are often referred to as “variety meats.”

Values for individual meat byproduct items are influenced by many supply and demand factors. Export demand is especially important because the amount of U.S. byproducts produced is large in comparison with domestic demand.

For example, many hides are exported to overseas customers to be processed into leather and leather products. So economic conditions around the world and the value of the U.S. dollar relative to other currencies impact byproduct values.

Historically, China was a major destination for U.S. cattle hides and lamb pelts. In retaliation for U.S. tariffs on Chinese goods imposed in mid-2018, China placed tariffs on many U.S. agricultural commodities including hides.

U.S. native steer hide prices were \$62 in May 2018 prior to the Chinese tariffs but fell to \$38 in February 2020. COVID-19 caused

Editor: Bryon Parman  
Assistant Professor/Agricultural  
Finance Specialist

701-231-8248  
bryon.parman@ndsu.edu

**NDSU**

EXTENSION

# Livestock Byproduct Values Impacted by Trade Issues and COVID-19 – continued from page 1

further hide manufacturing problems in China and impacted the demand for leather products around the world. Since February, hide prices have declined to \$25 per hide.

Lamb pelts that once brought \$10 apiece added value to market lambs. Now pelts have a negative value and decrease lamb value (see chart).

Tastes and preferences for beef and pork variety meats differ throughout the world. Fortunately, some foreign customers actually prefer variety meats such as livers and hearts, unlike many U.S. consumers. Beef tongues, for example, are popular in Japan. Hog snouts and ears are popular in some countries.

Chicken feet, called paws, are popular in some Southeast Asian countries. In some countries, particular variety meats are considered luxuries or used for medicinal purposes. In other countries, a variety meat may be a cheaper source of protein for lower income consumers.

The USDA Agricultural Marketing Service (AMS) publishes detailed byproduct value reports for fed cattle at [www.ams.usda.gov/mnreports/nw\\_ls441.txt](http://www.ams.usda.gov/mnreports/nw_ls441.txt). Also available is a cow byproduct report at [www.ams.usda.gov/mnreports/nw\\_ls444.txt](http://www.ams.usda.gov/mnreports/nw_ls444.txt), and a market hog byproduct report is available at [www.ams.usda.gov/mnreports/nw\\_ls446.txt](http://www.ams.usda.gov/mnreports/nw_ls446.txt).

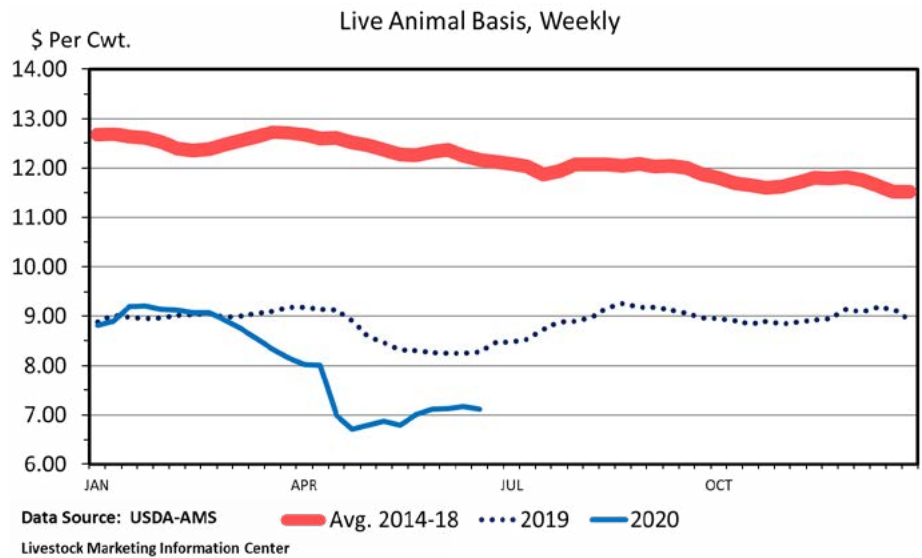
The latest mid-June reports indicated that byproducts added \$7.12 per hundredweight (cwt) to the value of a typical market steer (see chart), \$7.96/cwt to the value of a market cow and \$3.66/cwt to a market hog value.

Market steer and cow byproduct values increased to record high levels at more than \$16/cwt in 2014, with market hog values at \$6.50/cwt. But changing U.S. and world economic supply and demand conditions caused values to decline since then.

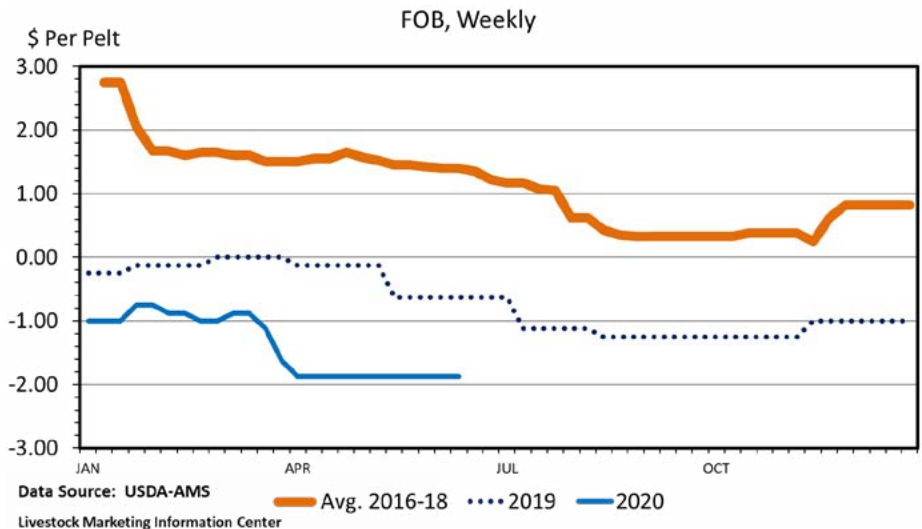
COVID-19, trade and other dynamic supply and demand factors will continue to impact

byproduct values in 2020. Japan, South Korea and Mexico are very good U.S. variety meat customers and trade agreements were recently ratified with them. The Phase 1 agreement with China signed on Jan. 15, 2020, did not reduce tariffs, but we hope it will allow expanded access to China's growing demand as the COVID-19 pandemic subsides.

## Steer Hide and Offal Value



## Premium Unshorn Lamb Pelt Prices



# U.S.-China Phase One Agreement Still Creating Market Uncertainty

By Frayne Olson, Crop Economist/Marketing Specialist, NDSU Extension

Multiple U.S. government officials have stated that the Phase One trade agreement between the U.S. and China is moving forward and that China intends to fulfill its commitments under the agreement.

However, Chinese purchases of U.S. agricultural products have been smaller than many crop and livestock market traders expected. The COVID-19 outbreak, combined with continuing political tensions between the two countries, has raised concerns about the agreement's implementation.

To fully understand the conflicting signals surrounding the Phase One agreement, we need to briefly review the agreement's structure. The signed agreement has six chapters covering topics ranging from agricultural trade to intellectual property rights and technology transfer to financial services such as banking and investment services.

The agreement's first five chapters define procedures for removing existing trade barriers that restrict the flow of U.S. goods and services into China. Many of the comments made by U.S. officials are referring to the implementation of these first five chapters. However, Chapter Six, titled Expanding Trade, has been the focus of crop and livestock markets since the agreement's signing on Jan. 15, 2020.

In Chapter Six, China has agreed to purchase an additional \$200 billion of U.S. manufactured goods, agricultural goods, energy products and selected services during the next two years. The additional purchases are above baseline values in 2017. The agreement states China will purchase an additional \$32 billion in U.S. agricultural products during the next two calendar years, referring to 2020 and 2021.

After the agreement's signing, farm managers and agricultural market traders became very optimistic about the increased demand base. However, like most agreements, the devil is in the details.

For example, the additional agricultural purchases are not divided equally across each year. For calendar year 2020, the increase is \$12.5 billion, while the 2021 increase is \$19.5 billion. The increase is above a 2017 baseline, which unfortunately was not specified.

China is expected to meet two layers of purchasing targets: total value by year, discussed above, and value by commodity category. An appendix to the agreement lists six agricultural product subcategories that specify targets for increased purchases by commodity group. These six subcategories are soybeans, meat, cereals, cotton, other agricultural commodities and seafood. The specific dollar targets for each subcategory will not be released to the public because the information will distort market behavior and prices.

Historically, soybeans have been the largest U.S. agricultural product imported by China, averaging about 50% of the total value. The original assumption, after the agreement was signed, was U.S. soybean exports to China would grow rapidly. However, 217 agricultural products meet the requirements for increased imports under the agreement.

The table lists the value, in U.S. dollars, for the 217 agricultural products listed in the agreement and highlights the top six commodities, ranked by value. The total value for calendar year 2017 is listed, as well as the January through April totals for 2017 and 2020, which is the most recent data available.

The total value of sales for January through April 2020 is about \$4.2 billion, while the January through April 2017 total sales is about \$6.6 billion. The 2020 values are below the comparable 2017 values for many reasons, including the impact of COVID-19

Continued on page 4.



# U.S.-China Phase One Agreement Still Creating Market Uncertainty — continued from page 3.

on the Chinese economy, the African swine fever outbreak in China that reduced its hog population, competition from other exporting countries and uncertainty about how the Phase One agreement will be implemented.

Soybeans remain the largest product by dollar value. However, meat products such as pork, poultry and edible offal, or variety meats, have increased substantially from 2017 to 2020. Cotton and grain sorghum remain top grain products.

One of the key concerns for the crop and livestock markets is whether China can increase agricultural purchases to reach the total values and subcategory values identified in the trade agreement. The soybean market is especially sensitive to this question because 2020 sales to date are about one-third of the comparable 2017 value.

China has the capacity to meet the total purchasing volumes listed in the agreement, but timing is important. The most straightforward way to increase the total value purchased and reach the added \$12.5 billion target in 2020 is for China to buy more high-valued products such as meats and dairy products. Another strategy is to purchase agricultural commodities in 2020 that had low purchasing levels in 2017, such as corn, ranked 17th in value in 2017; ethanol, ranked 25th in 2017; or wheat, ranked seventh in 2017.

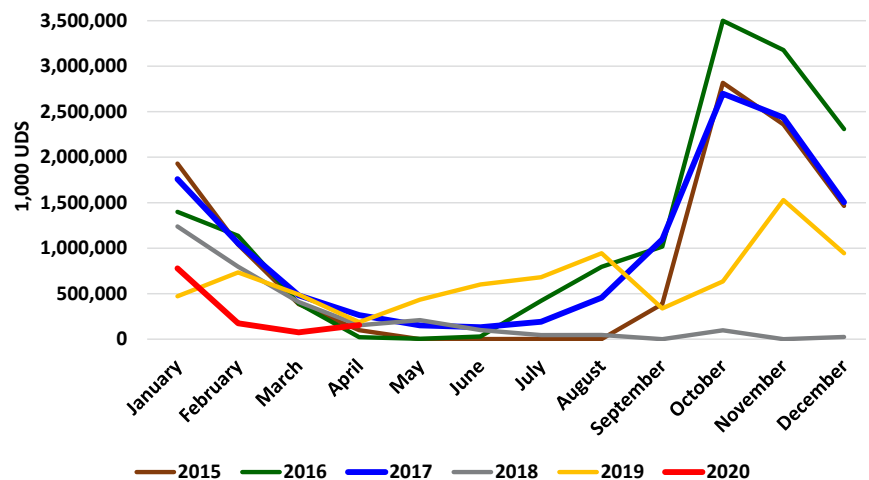
China, as well as most other countries, has very seasonal buying patterns for U.S. soybeans due to competing exports from Brazil. Brazil's soybean harvest typically begins in late February and ends in late April, so its soybean export bids are very competitive from harvest into August. The U.S.

## Value of U.S. Exports to China by Commodity for Agricultural Products Listed in Phase One Agreement.

2017			2020	
Product	Jan. — April Total (\$1,000)	Annual Total (\$1,000)	Product	Jan. — April Total (\$1,000)
Soybeans	3,558,724	12,224,802	Soybean	1,183,705
Cotton	502,623	972,554	Meat of swine	720,346
Raw hides - bovine	303,485	876,715	Cotton	382,321
Grain sorghum	295,783	839,459	Grain sorghum	246,367
Whole frozen fish	200,795	821,879	Edible offal	155,025
Animal fodder	139,286	388,818	Poultry meat	150,416
<b>Total all 217 products</b>	<b>6,594,358</b>	<b>20,836,644</b>	<b>Total all 217 products</b>	<b>4,198,844</b>

Data from U.S. Department of Agriculture Foreign Agricultural Service's Global Agricultural Trade System.

## Value of U.S. Soybean Exports to China by Month




soybean harvest typically begins in September and ends in November, so U.S. soybean exports bids are most competitive from October through February, when the Brazilian soybean harvest begins again.

The figure shows the value of U.S. soybean export sales to China by month from January 2015 through April 2020. Once again, the pattern of U.S. soybean exports to China is very seasonal.

Even though 2020 U.S. soybean sales to China are below the 2017 and 2019 levels, the major soybean export season has not yet begun. China still has time to reach the levels seen in 2017, but significant purchases will need to begin soon.





# Government Assistance Has Become Critical to Supporting Net Farm Incomes

By Bryon Parman, NDSU Extension Agricultural Finance Specialist

Average commodity prices for North Dakota's main crops during the last few years have been depressed due to trade disputes, as well as higher yields nationwide and worldwide.

Meanwhile, cash rents have been slow to react, remaining elevated despite gross sales values remaining low and other major production costs such as seed, chemicals and equipment remaining elevated. While some production costs have come down, they have not declined off of their highs nearly as much as commodity prices have. Per-acre yields have improved year over year on average, partially offsetting (and causing) lower commodity prices, but they still have not improved enough to compensate for the sticky production costs and lower cash prices for nonspecialty crops.

Federal legislation, including the 2014 and 2018 farm bills, has helped offset the lower commodity prices via the Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) programs. This was especially true from 2014 to 2016, when higher prices from 2010 to 2012 for corn, wheat, soybeans and other agricultural commodities were being included in the Olympic average reference price.

As prices have remained much lower than during the 2010 to 2013 time frame, the reference prices and revenue calculations for ARC and PLC have declined. While the 2018 update to the 2014 farm bill has helped with some of the issues pertaining to yield trends and reference price calculations, as well as the ability to switch between programs much more frequently, the persistence of low commodity prices year over year with sticky production costs remains an issue.

However, in the last two years, many crop farmers in North Dakota and across the U.S. were aided by ad-hoc farm programs known as market facilitation. The justification for this assistance was further reduction in commodity prices due specifically to trade disputes.

According to North Dakota's Farm Business Management Program records, the state average total payment per farm from the government in 2019 was \$86,569, with a net farm income including government payments and crop insurance of \$74,100. The state average payment from crop programs including ARC and PLC in 2019 was \$16,943 per farm.

However "Other Government Payments" made up mostly of the Market Facilitation Program (MFP) totaled \$68,404. On average, according to the Farm Business Management records, government payments made up more than 100% of net farm income. Even the highest-income producers (the high 20%) saw more than 50% of their net income come from some form of government payment.

2018 was a similar story to 2019; however, more was paid out per farm in the form of crop programs (ARC/PLC) than in 2019, and the other government payments portion was lower on average. Other government payments averaged \$35,734 in North Dakota, a bit more than half of what was paid out in 2019, while crop payments were \$23,347, or about 37% greater than what was paid in 2019.

Continued on page 6.

# Government Assistance Has Become Critical to Supporting Net Farm Incomes – continued from page 5

The importance of these programs to net income was also great in 2018 because the statewide average had government payments of more than 50% of net farm income, and many producers would have seen a substantial net loss were it not for the MFP, as well as crop program payments. Additionally, the 2018 market facilitation, while the largest single year dollar figure in history at the time (\$12 Billion), was smaller than the subsequent year's program, which was authorized at \$14.5 billion total and included more crop types.

Due to COVID-19's impact on the U.S. and global economies, another single year assistance program was authorized under the CFAP (Coronavirus Food Assistance Program) totaling \$16 billion. The CFAP includes additional crops that neither the 2018 nor 2019 MFP included, as well as more livestock, such as beef cattle and sheep, which also were not included in the MFP because the COVID-19 pandemic has impacted nearly every corner of agriculture in North Dakota and the U.S. as a whole.

Discussions have been held about increasing the amount of assistance farmers and ranchers will receive in 2020, depending on how long and how much the ongoing COVID-19 pandemic affects American agriculture. While the actual numbers will not be known for some time and while the possibility exists that commodity prices will rebound by this fall, 2020 may show an even greater share of net farm income coming from federal aid than the previous two years.

This especially will be the case if another round of CFAP payments are made. There is hope that in the near future, programs such as the MFP and CFAP will not be needed to keep a large share of North Dakota and U.S. farmers from taking a substantial loss. In the meantime, the MFP and CFAP likely have helped many of the more vulnerable producers avoid exiting farming altogether.

## 2019 Net Farm Income and Government Payments for the Low, Mid and Highest Net Farm Income Groups.

	State Average	Low 20%	40-60%	High 20%
Gross cash farm income	\$846,523	\$954,899	\$514,996	\$1,534,550
Crop government payments	\$16,943	\$13,808	\$7,367	\$38,279
CRP payments	\$1,222	\$527	\$1,044	\$3,102
Other government payments	\$68,404	\$63,903	\$43,275	\$127,817
Total government payments	\$86,569	\$78,238	\$51,686	\$169,198
<b>Net farm income</b>	\$74,100	-\$96,157	\$39,002	\$317,478

Data from North Dakota Farm Business Management records:  
[www.ndfarmmanagement.com/reports.html](http://www.ndfarmmanagement.com/reports.html)

## 2018 Net Farm Income and Government Payments for the Low, Mid and Highest Net Farm Income Groups.

	State Average	Low 20%	40-60%	High 20%
Gross cash farm income	\$772,147	\$630,177	\$640,028	\$1,419,845
Crop government payments	\$23,347	\$17,734	\$18,523	\$46,221
CRP payments	\$1,119	\$1,119	\$437	\$1,623
Other government payments	\$35,734	\$25,106	\$35,269	\$57,246
Total government payments	\$60,200	\$43,959	\$54,229	\$105,090
<b>Net farm income</b>	\$116,227	-\$42,700	\$80,927	\$365,638

Data from North Dakota Farm Business Management records:  
[www.ndfarmmanagement.com/reports.html](http://www.ndfarmmanagement.com/reports.html)

# One Projection of Future Domestic Ethanol Use

By David Ripplinger, NDSU Extension Bioproducts/Bioenergy Economist

Each month, the Energy Information Administration (EIA), an agency in the U.S. Department of Energy, updates its Short-Term Energy Outlook (STEO).

The resource includes historical data and projections for energy prices, and supply and demand figures for a variety of energy products. It is similar in many ways to the U.S. Department of Agriculture's World Agricultural Supply and Demand Estimates (WASDE), but with an energy focus. The Short-Term Energy Outlook includes projections of domestic ethanol production and use that are of critical importance to U.S. agriculture.

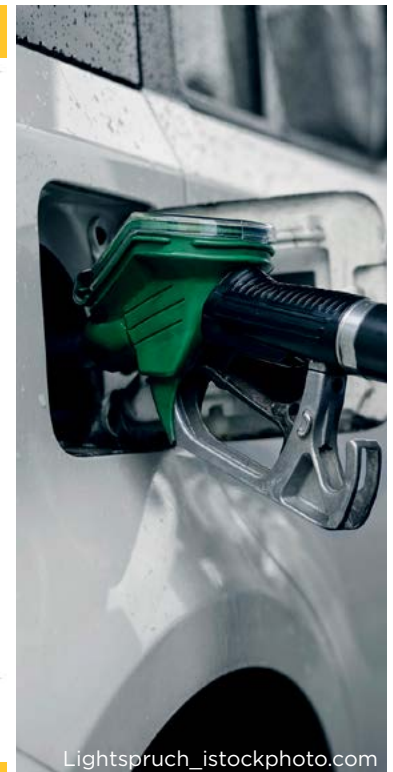
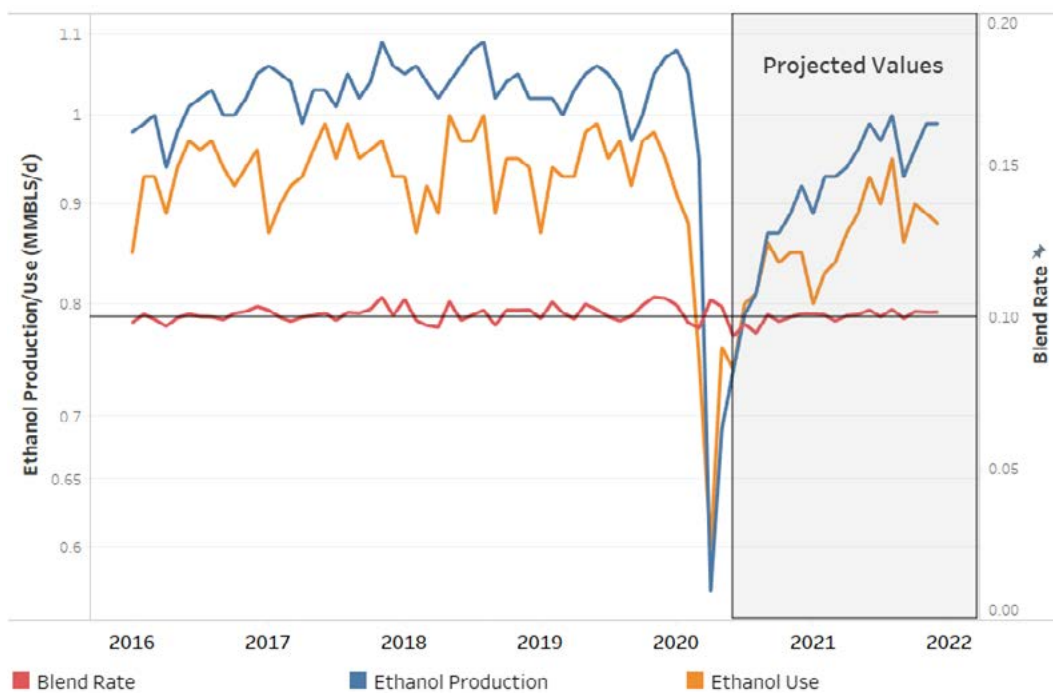
The June STEO projects that U.S. ethanol production and use will continue to increase steadily through mid-2021 before leveling off at around 950,000 barrels a day, which is 14.5 billion gallons on an annual basis. This is lower than where the industry was pre-COVID-19 but a massive increase from the lows we saw in April. If that level held, the U.S. would use about 275 million fewer bushels of corn each year.

By also looking at total gasoline use, we can get a better understanding of the EIA's projected use of higher blend rates. As most ethanol sold in the U.S. is used to economically increase the octane of gasoline with a 10% blend, and almost all gasoline sold contains 10% ethanol, we can look at the projected blend rate to get an idea of the EIA's thoughts about near-term use of higher blends such as E15 and E85.

Unfortunately, the EIA expects the blend rate to stay close to 10% through the end of next year.

As with so many other forward-looking studies, the Short-Term Energy Outlook's first caveat on all its reports since April has been the uncertainty caused by COVID-19. While we don't know what exactly the future has in store for us, the EIA expects ethanol production and use to continue to increase during the next 12 months, providing a home for a lot of corn as it does.

## Ethanol Production and Use



NDSU EXTENSION

EXTENDING KNOWLEDGE >> CHANGING LIVES

The NDSU Extension does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names. NDSU encourages you to use and share this content, but please do so under the conditions of our Creative Commons license. You may copy, distribute, transmit and adapt this work as long as you give full attribution, don't use the work for commercial purposes and share your resulting work similarly. For more information, visit [www.ag.ndsu.edu/agcomm/creative-commons](http://www.ag.ndsu.edu/agcomm/creative-commons).

County commissions, North Dakota State University and U.S. Department of Agriculture cooperating. NDSU does not discriminate in its programs and activities on the basis of age, color, gender expression/identity, genetic information, marital status, national origin, participation in lawful off-campus activity, physical or mental disability, pregnancy, public assistance status, race, religion, sex, sexual orientation, spousal relationship to current employee, or veteran status, as applicable. Direct inquiries to Vice Provost for Title IX/ADA Coordinator, Old Main 201, NDSU Main Campus, 701-231-7708, [ndsu.eoaa@ndsu.edu](mailto:ndsu.eoaa@ndsu.edu). This publication will be made available in alternative formats for people with disabilities upon request, 701-231-7881.