

# Agriculture By the Numbers

June 2020

**NDSU Extension Agribusiness and Applied Economics**

COVID-19 Disrupts Meat Industry

Living in a World With COVID-19

Short- and Intermediate-term Food Demand and Consumer Spending

Immediate Impact of COVID on the U.S. Corn Ethanol Industry

## Introduction

We are pleased to introduce the first issue of the monthly "Agriculture By the Numbers."

The NDSU Extension Agribusiness group at North Dakota State University, in conjunction with Agriculture Communication, will be publishing this monthly newsletter targeted to those in the agricultural production, agricultural finance, agribusiness and energy sectors. Each issue will focus on agricultural topics such as crop and livestock marketing, agricultural policy, oil, gas, biofuels, production costs, farm and ranch financial issues, and trade.

Authors for each month's issue will include agricultural economists Frayne Olson (crops), David Ripplinger (energy and biofuels), Bryon Parman (crop and livestock agricultural production and macroeconomics), Tim Petry (livestock markets) and Ron Haugen (farm policy/management).

Each issue will tackle current events related to agricultural issues in North Dakota and the Upper Great Plains region, as well as how national issues may affect state agricultural and energy issues. We are planning for each issue to be available on or around the first of each month, looking more closely at intermediate and longer-range issues rather than short or very short-run fluctuations in the markets or greater agricultural economy. We hope that readers of this report find it informative and educational because it will seek to accomplish a balance of both.

Editor: Bryon Parman  
Assistant Professor/Agricultural  
Finance Specialist

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

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# COVID-19 Disrupts Meat Industry

By Tim Petry, NDSU Extension Livestock Economist

The COVID-19 pandemic has caused severe disruptions throughout the entire U.S. red meat and poultry industry.

A dilemma is that consumers may find limited availability of some meat items on grocery store shelves, while at the same time, meat and poultry producers may not be able to find a market for livestock and poultry ready to harvest. And consumers may see increasing prices for preferred meat products, while if producers can find a market, prices may be declining.

The function of the price system is to prevent shortages and surpluses. That works very well until a sudden shock such as the pandemic unexpectedly disrupts the system.

Normally the meat industry is very efficient in moving large quantities of market-ready animals through processing, distribution and retail channels to the ultimate consumer. And because meat is perishable, the time frame is relatively short.

Approximately half of domestically consumed meat and poultry is purchased in the retail food market segment (supermarkets, convenience stores, specialty meat shops, etc.). The other half is utilized in the food service segment (restaurants, schools, sporting events, hotels, etc.).

The stay-at-home and social distancing orders meant that food service meat demand declined significantly with restaurants and schools closing and recreation canceled. Demand

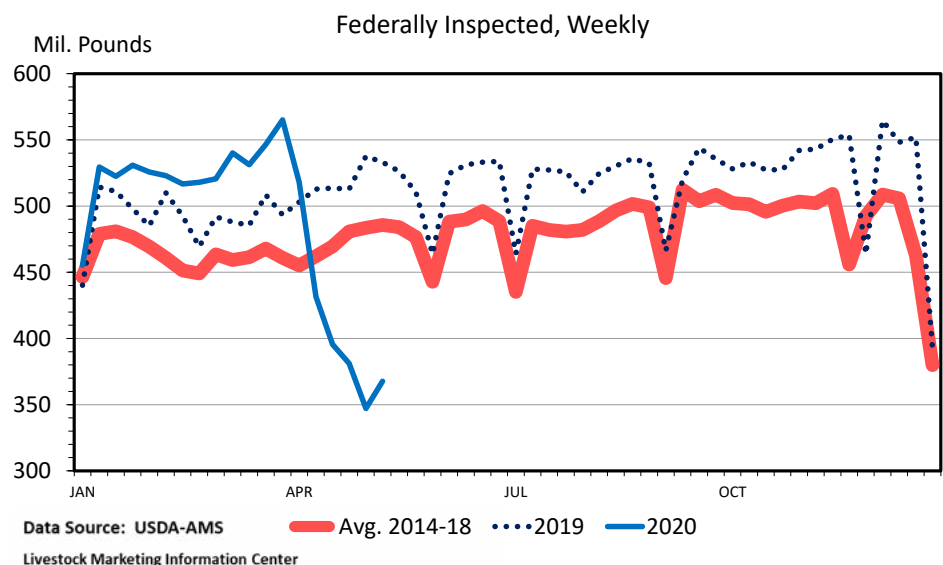
at the retail market skyrocketed and panic buying even further increased retail demand and fueled price increases.

In many cases, meat products that were destined for food service cannot be re-routed to retail easily. Bacon, for example, may go to restaurants in 25-pound cases, while retail customers prefer to purchase 1-pound packages.

The ability of packing plants to harvest livestock and poultry in a timely manner has been impacted by the spread of COVID-19 in the workforce. Plants have had to shut down to clean and disinfect premises, test employees for the virus, and implement Centers for Disease Control and Prevention and Occupational Safety and Health Administration guidelines. Closed plants reduce demand for market

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## Beef Production



# COVID-19 Disrupts Meat Industry — continued from page 2

animals, particularly in that region. And plants that reopen usually must operate at lower volumes than previously possible.

Each month the U.S. Department of Agriculture's Office of Chief Economist publishes a World Agricultural Supply and Demand Estimates report usually referred to as the WASDE report. In the April 9 report, the USDA was projecting record U.S. beef, pork, chicken and total meat production in 2020. Beef production was projected up 1% from 2019, with pork production increasing 5%, chicken production advancing 3% and total meat production climbing 3%.

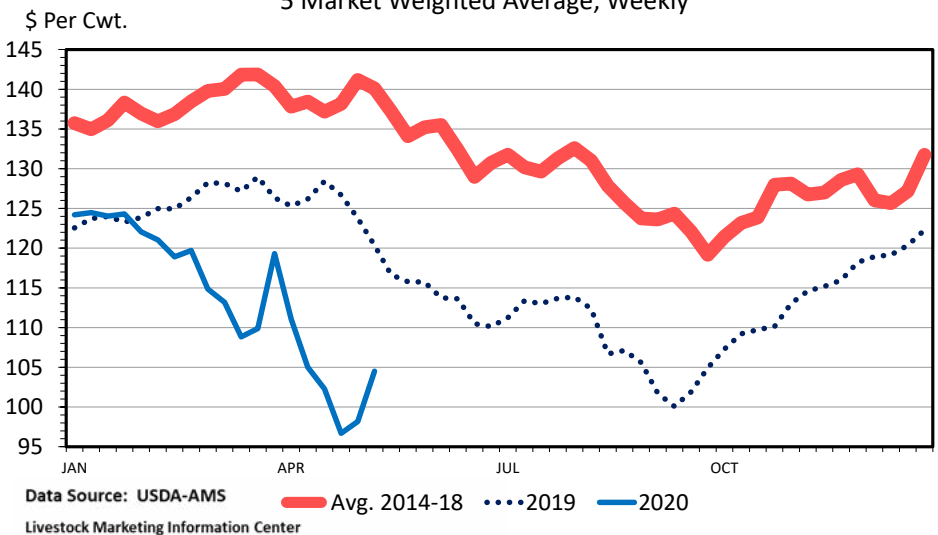
However, just one month later, the May 12 WASDE report estimated declines in meat production expected for 2020 due to COVID-19-related issues just discussed. Expectations now are for beef production to decline 5%, with pork production down about 1% and chicken production only off slightly, with total meat production declining 1.6%.

The accompanying charts help highlight the issues surrounding the COVID-19 impact on the cattle and beef industries. U.S. beef production was at record levels during the first quarter of 2020. However, as COVID-19 impacted beef packing and processing, beef production declined dramatically. Market steer prices declined with packing plant closures and slow-downs.

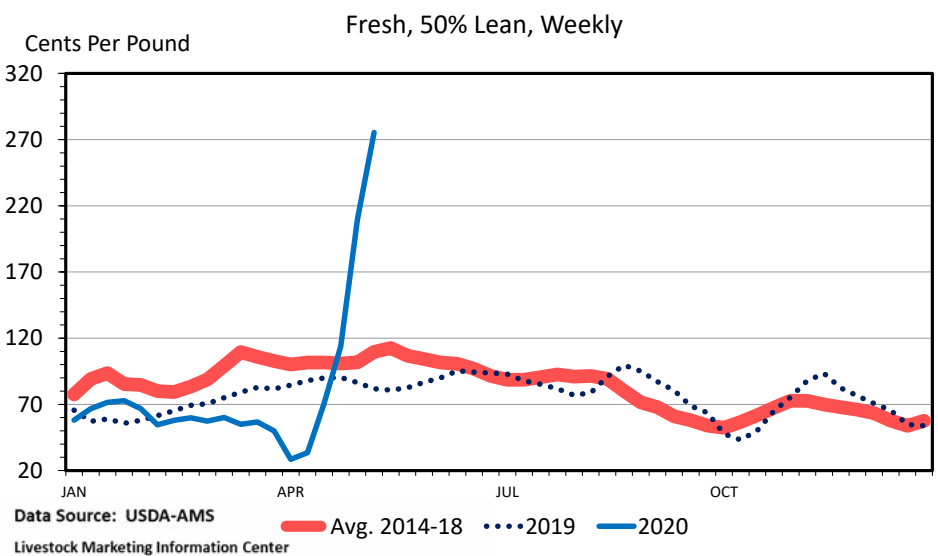
On the other hand, prices for 50% trim that comes from market steers increased due to lower supplies and increasing demand. Trim is mixed with 85% to 90% boneless cow beef to produce the different mixes of the lean-to-fat ratio (70/30, 80/20, 85/15, etc.) that consumers prefer.

During the pandemic, the demand for hamburger at retail skyrocketed, with consumers emptying shelves. And many fast-food restaurants still were able to provide drive-through and take-out service.

## 5 Market Weighted Average, Weekly



## Wholesale Boneless Beef Prices



These are unprecedented times with tremendous uncertainty and price volatility. No one knows how severe the pandemic will be or how long it will last. When the hysteria surrounding COVID-19 subsides, we hope everyone will have a greater appreciation for the importance of an efficient food production, processing, distribution and retailing system.

# Living in a World With COVID-19

By Frayne Olson, NDSU Extension Crops Economist

One of my professional mentors often would remind me that economics is much like physics: for every action, there is a reaction.

However, the reactions in economics are more difficult to predict because people are making the decisions and people learn and adapt from past experiences. Just because someone reacted a certain way in the past does not mean that person will react the same way in the future.

This concept is at the heart of today's crop market uncertainty. The challenge is to try to anticipate what market adjustments will occur because of the COVID-19 pandemic.

Unfortunately, the pandemic is impacting domestic and international demand dramatically, as well as disrupting supply chain coordination. All agricultural market participants are struggling to plan for the future and react to unexpected current events simultaneously.

The current bias in the crop markets is that a short-term bottom has been reached. The great unknown is if prices will begin to increase, and if so, how fast. Obviously, no one can predict prices accurately in the future, but let's review some of the key factors that will impact crop market psychology and general price direction.

Crop inventories from 2019 are considered adequate to slightly surplus. Even though North Dakota seeding is off to a slow start, planting progress at the national level is proceeding smoothly. Strong planting progress, combined with a favorable weather outlook, suggests good yield potential in 2020.

The U.S. Department of Agriculture will resurvey North Dakota farmers regarding actual planted acreage in early June and report the survey results in the Acreage report on June 30, 2020. This survey will provide an update to the Prospective Plantings report released on March 31, 2020.

Anticipating crop usage levels is much more complex. U.S. crops are used for food, feed, fuel and fiber domestically and internationally. In the U.S., food use often is tracked using two broad categories: meals eaten at home and meals eaten away from home, primarily in restaurants. However, the type of food items and quantities used are different for at-home versus away-from-home meals.

Meals prepared and eaten at home tend to include more basic elements, while meals eaten away from home tend to include higher valued elements, such as meats. Given the stay-at-home/work-from-home requirements, the number of meals eaten at home have increased and meals eaten away from home have decreased. This has changed the type of food items consumers are buying, and in some cases, strained supply chains.

Many states have begun relaxing business closure orders for industries deemed nonessential and easing stay-at-home requirements. However, the pandemic is not over. Local, state and federal governments, as well as businesses, are trying to develop systems that will balance public safety and worker safety with economic recovery. This is a major challenge and one that will evolve as we learn more about the virus.

Most economists are projecting an economic rebound as public health restrictions are relaxed, but a full recovery will be slow. Production systems and supply chains are being modified, which comes at a cost, and consumer behavior has changed. For example, what still is unclear is how many people will return to eating in restaurants even with reduced seating, disposable menus and more protective equipment for servers.

So what does all this mean for crop prices? As usual, the answer depends upon your assumptions about the future. Here are my current thoughts by commodity.

I believe corn prices will see a minor recovery this summer, assuming normal weather conditions through pollination. Ethanol production and use should recover as miles driven improve with a partial reopening of the economy. However, some ethanol plants currently shut down are expected to remain closed.

Livestock feed demand has not experienced a major decline in recent months, but increased feed use is unlikely. Profit margins for beef, pork, poultry and milk production are expected to remain thin. Livestock producers will be scrutinizing feed costs, and average slaughter weights likely will fall because producers have no economic incentive to push for heavy animals.

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Mexico and Japan are the top export destinations for U.S. corn. Mexico and Japan are experiencing economic challenges due to COVID-19, so export demand is not expected to increase from lower corn prices. However, China may return as a major buyer of U.S. corn if the terms of the Phase One trade agreement are fulfilled.

I expect soybean prices to be steady during the summer, assuming normal weather through pod filling. Domestic soybean crushing demand has been strong this spring. I anticipate crushing demand to be stable this summer, but it may soften this fall due to low profitability in the livestock sector, pressuring soybean meal prices and growing soybean oil inventories.

Historically, soybean export levels are very slow during the summer months, but the export pace returns during harvest. The key to soybean price levels will be export sales to China. If China returns as a major U.S. soybean buyer during harvest, soybean prices will respond. However, if trade tensions between the U.S. and China increase, soybean prices will remain soft.

Wheat price trends are more difficult to project, but I expect wheat prices to remain under pressure this summer. Domestic consumption of bread and pasta products have been strong due to more meals eaten at home, which I believe will continue.

Even though domestic wheat milling makes up approximately 50% of total use, volumes are very stable and predictable. Price volatility typically is caused by the unexpected nature of export sales. Mexico, Philippines and Japan are the top three buyers of U.S. wheat.

Once again, all three of these countries have had economic challenges due to the coronavirus. I believe wheat export sales will remain steady but not exceed last year's levels. The wild card for wheat exports is China, which was a significant buyer of U.S. wheat in the 2016-17 marketing year.

# Short- and Intermediate-term Food Demand and Consumer Spending

By Bryon Parman, NDSU Extension Agricultural Finance Specialist

Data for April 2020 is beginning to trickle in, shattering records in many areas of the economy. Nonfarm payrolls lost 20.5 million jobs in April, which was the largest one-month loss in U.S. history in terms of percentage of working adults, as well as raw total.

This follows the last couple of weeks in March, when new weekly jobless claim records were set and historically high numbers persisted into April. The previous weekly jobless claim record occurred in 1983 with 695,000 claims, while the highs of the last couple of months were nearly 10 times that amount.

The unemployment rate according to the Bureau of Labor Statistics (BLS) increases from February 2020 - April 2020 from 3.5% to 14.7%. The 14.7% rate in April probably will be revised upwards, and the rate in May growing larger still.

Meanwhile, the BLS reported that April saw the largest decline in consumer prices since December 2008, with a seasonally adjusted decline of 0.8%. The BLS defines the consumer price index (CPI) this way: "... The CPI measures the change in prices paid by consumers for goods and services." This is done by taking a defined basket of goods from a base

year, then tracking how much the cost of the items in that basket change from month to month.

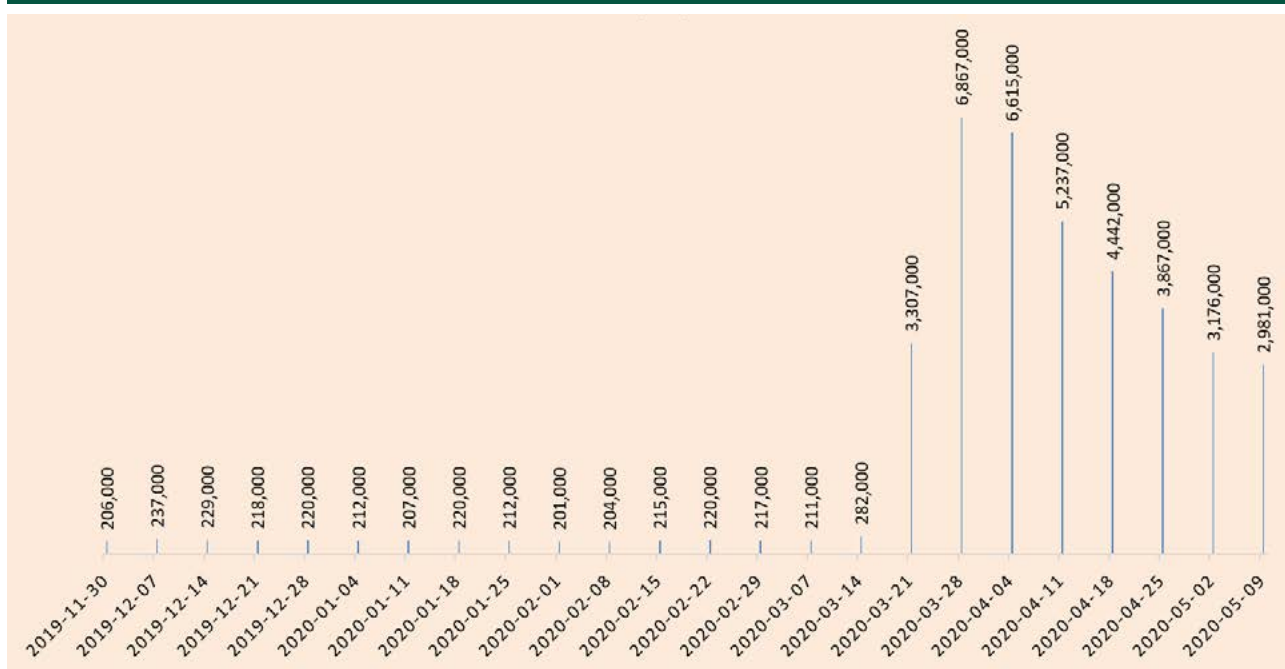
Contributing to the CPI decline were prices for hotels, insurance, airline ticket prices, clothing, used cars and recreation. However, April also saw a dramatic increase in food prices, which increased a seasonally adjusted 1.5% from the previous month, the largest increase since 1974.

The indices for animal products increased remarkably, with meats, poultry, fish and eggs increasing a combined total of 4.3%. Eggs alone experienced a massive increase, up 16.1% in April. While meat and other animal products had the largest increase as far as food categories, all other major foods such as fruits, vegetables and cereal products, etc., all increased at least 1.5%.

Interestingly, real average hourly earnings for employees increased 5.8% from March 2020 to April. Normally, this would be a harbinger of possible increases in consumer demand for all products, including higher-value agricultural products such as meats. However, the BLS notes that part of the increase in real hourly earnings is due to fewer hours worked per week by the average worker.

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## Weekly U.S. Jobless Claims, November 2019 - May 2020



Source: St. Louis Federal Reserve Bank. Online at <https://fred.stlouisfed.org/series/ICSA>

# Short- and Intermediate-term Food Demand and Consumer Spending – continued from page 6

Additionally, many of the newly unemployed were from sectors of the economy with typically lower per-hour wages such as hospitality and food service such that if most of those individuals become unemployed and their wages were not included in the calculation, average wages of those who remain employed across the country increase.

The short-run impact of all of this still is being digested as data continue to come in, albeit lagged by weeks or months where the true impact of what has happened and what is happening right now may not be clear for several months. Indeed, preliminary estimates on the impact COVID-19 has had on the first quarter of 2020 are bad, with an estimated decline of 4.8%, and likely to get worse once many of the numbers are firmed up. The second quarter is projected to be far worse, with estimates as bleak as a decrease of 34% from the Federal Reserve Bank of Atlanta.

The question going forward for the agricultural sector is the short-run and intermediate-run impact on demand, not just domestically but globally, because all major U.S. trading partners have been impacted negatively by the COVID-19 pandemic. The chart below shows monthly consumer confidence for the 36 Organization for Economic Co-operation and Development (OECD) and 70 nonmember OECD countries. Of note is the speed at which consumer

confidence in many countries has dropped, foretelling a slowdown in spending in the coming months and quarters.

Some are projecting a quick rebound, with most of the lost jobs returning in short order and consumer confidence restored by the end of 2020. Others are much less optimistic, anticipating problems in the coming months slowing any recovery and maintaining heavy downward pressure on consumer demand for not just durable goods, but higher-value foods.

In that case, consumers may substitute lower-cost calories such as wheat flour, which delivers nearly 6,000 calories per dollar vs. 73/27 ground beef, which was closer to 740 calories per dollar, but has increased in price in previous weeks. Furthermore, all-purpose flour delivers 179 grams of protein per dollar, while 73/27 ground beef delivers 40.

Other protein sources such as pinto beans, lentils and rice offer more protein per dollar, which many consumers may substitute for higher-cost sources should unemployment remain high and sentiment stay low in the coming months.

## Consumer Confidence Index for OECD Countries



Source: OECD data. Online at: <https://data.oecd.org/leadind/consumer-confidence-index-cci.htm>

# Immediate Impact of COVID on the U.S. Corn Ethanol Industry

By David Ripplinger, NDSU Extension Bioproducts/Bioenergy Economist

COVID-19 has had a tremendous negative impact on domestic passenger vehicle travel, gasoline use and ethanol use.

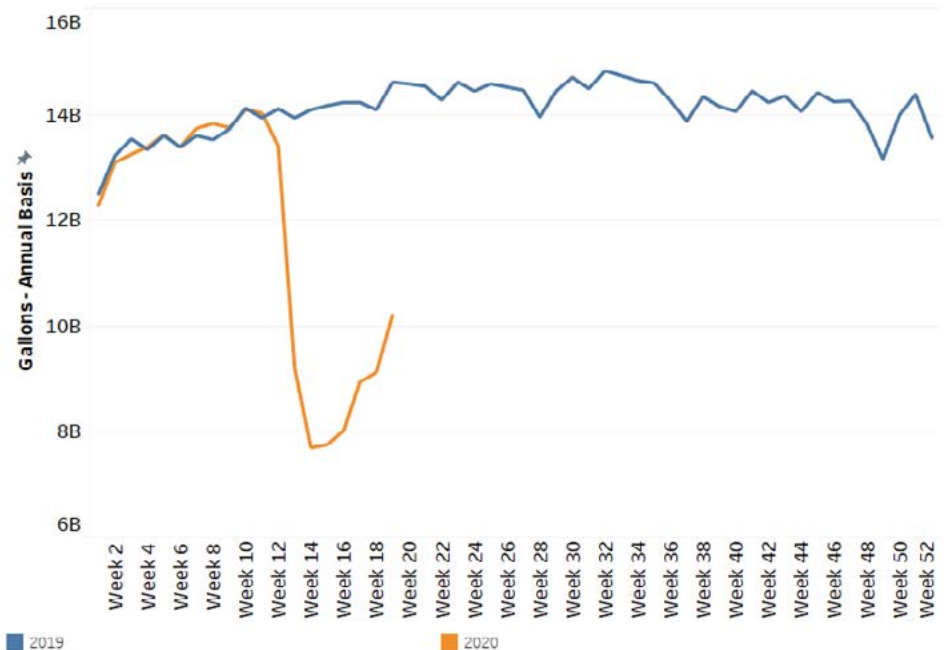
In three weeks from mid-March to early April, shelter-in-place orders, work-from-home provisions and historical layoffs led ethanol consumption to fall by 55% nationwide. This fall was closely followed by a continual barrage of corn-ethanol refinery shutdown and closure announcements as wholesale prices of ethanol fell to less than 70 cents per gallon, about half of what they had been a few weeks prior. By April 24, the U.S. corn-ethanol industry was producing at levels not seen since 2007, when it was rapidly expanding in response to the recently enacted Renewable Fuel Standard.

Fortunately, ethanol production and use have begun recovering, rising 30% from their recent lows. On an annualized basis, the increase in ethanol production in the past five weeks requires 10 million acres of corn, more than three times the amount of corn North Dakota is expected to grow in 2020.

Although considerable uncertainty exists in the transportation fuel market, like much of the economy, the beginning of the summer driving season, in tandem with the continued reopening of the economy, provides some confidence that ethanol's darkest days are behind it.

Of course, just like the economy in general, the industry is concerned that another dip, or even multiple false rallies, will occur before the economy truly finds its feet. However, increasing, but tempered optimism is developing in the industry as wholesale prices have recovered and many plants return to at least break-even levels.

## Weekly U.S. Ethanol Production, 2019-2020



Data: Energy Information Administration

Calculation: NDSU Extension



markborbely\_istockphoto.com

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