

Agriculture By the Numbers

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NDSU Extension Agribusiness and Applied Economics

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Larger Export Sales May Lead to Increased Basis Volatility

By Frayne Olson, NDSU Extension Crop Economist/Marketing Specialist

In the past few weeks, I have received several questions about grain export capacity at various U.S. ports.

The concern is whether recent Chinese purchases of U.S. grains will continue to grow on top of existing export demand and cause congestion at U.S. export facilities. This could lead to local crop basis levels becoming more negative and farm managers in the region would see lower cash prices.

This question actually has three key components. The first is whether Chinese buyers, private and government controlled, will continue to purchase larger volumes of U.S. grains. Historically, Chinese purchases of U.S. soybeans, corn and wheat have been very seasonal. Their buying often starts just before the U.S. harvest begins, increases rapidly through harvest and then slows throughout the winter.

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Larger Export Sales May Lead to Increased Basis Volatility – continued from page 1

Every week, the U.S. Department of Agriculture (USDA) reports export sales volumes, which are watched very closely by the futures markets. Export sales measure the amount of grain contracted for delivery sometime in the future. Even though these bushels will not be loaded onto a train, barge or ocean vessel for several weeks or months, the futures market considers the bushels to be sold and removed from available supplies.

Table 1 shows Chinese purchases of U.S. soybeans, corn and wheat for the 2013-2014 marketing year through the reported sales as of Aug. 20, 2020. Chinese purchases of U.S. soybeans dropped dramatically during 2018 and 2019 due to the U.S.-China trade war but have recovered after the Phase One trade agreement was signed. U.S. corn and wheat sales to China also have increased significantly in the past few months, especially for the 2020-2021 new crop marketing year.

What still is unclear is whether these increased sales levels will continue, but many international traders believe Chinese demand for U.S. grains will remain strong for the next several months. This leads to the second key component: Will the grain deliveries to China, combined with deliveries to other U.S. grain buyers, reach high enough levels to pressure the capacity limits of U.S. export facilities?

Table 1: Total Marketing Year Purchases by China (1,000 Metric Tons).

	Soybeans	Corn	All wheat
2013-14	27,602.2	2,759.4	4,213.4
2014-15	29,640.8	473.5	332.2
2015-16	29,855.0	184.8	763.5
2016-17	36,148.3	717.9	1,562.7
2017-18	27,681.8	357.5	902.4
2018-19	13,369.9	259.6	42.0
2019-20	15,326.6*	1,771.2*	549.5
2020-21	12,516.0*	6,386.0*	1,222.6*

Wheat marketing year is June 1 to May 31

Corn and soybean marketing year is Sept. 1 to Aug. 31

USDA Export Sales Query System search on Aug. 27, 2020

* Total marketing year commitments as of Aug. 20, 2020

Table 2 summarizes the annual export volumes by crop by major U.S. port region. This information is reported for a calendar year, not the marketing year totals used in Table 1. Based upon the historical export volumes reported in Table 2, the increased

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Table 2: U.S. Export Volumes by Crop by Port (1,000 Metric Tons).

Port	Crop	2013	2014	2015	2016	2017	2018	2019	2020*
Pacific Northwest	Soybeans	9,079	12,887	11,809	14,447	13,246	7,719	11,969	3,008
	Corn	2,967	7,781	7,232	12,009	10,928	20,024	7,047	7,110
	Wheat	11,571	12,436	10,985	12,325	14,805	13,315	13,961	10,412
	Total all crops	23,618	33,104	30,027	38,782	38,978	41,058	32,977	20,530
Mississippi Gulf	Soybeans	21,436	29,087	29,593	35,278	32,911	28,124	31,398	14,649
	Corn	14,803	30,912	26,701	31,420	28,690	33,735	20,763	19,392
	Wheat	9,700	4,495	4,504	3,480	4,198	3,896	4,448	2,483
	Total all crops	45,939	64,495	60,797	70,178	65,800	65,755	56,609	36,524
Texas Coast	Soybeans	907	949	864	1,105	292	69	2	62
	Corn	255	580	596	1,669	733	730	640	527
	Wheat	9,028	6,120	3,724	6,019	6,354	3,198	6,009	2,938
	Total all crops	10,190	7,649	5,184	8,792	7,379	3,997	6,650	3,527

USDA Grain Transportation Report

* Calendar year to date as of Aug., 20, 2020

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total crop sales to China should not create significant problems for any of the U.S. port regions. However, the timing of deliveries, or the shipping volumes each week, can influence U.S. port and local basis levels.

This introduces the third component to the original question: Will increased Chinese grain purchases significantly impact local basis levels? The answer is “maybe.”

The primary job of the cash market is to ensure that the exact quantity and quality of grain is available at the correct location at the right time for domestic or international buyers. The cash market uses basis as the main price signal to regulate the flow of grain through time and direct grain to the highest valued location.

International grain deliveries require very close coordination among the importer, exporter, ocean freight provider, rail or barge freight provider and local grain elevators. Making sure the export terminal has the correct quantity and quality of grain in inventory needed to load an ocean vessel on time takes time and effort.

Basis bids from export elevators to local elevators signal what type of grain is needed at different times and ports. Export elevator basis bids, combined with rail or barge freight costs, can have a significant impact local basis levels.

If export sales are made for delivery several months in advance, the cash market will have time to manage the flow of grain to be as efficient as possible. However, sometimes disruptions occur in the supply chain or an importer wants U.S. grain delivered on short notice. These sudden adjustments often lead to price premiums.

Stronger basis levels will likely be needed to reroute grain from one location to another or draw additional grain out of storage. This can provide selling opportunities for alert farm managers.

Larger export volumes make supply chain coordination even more important. It also increases the odds that a disruption will lead to rapidly changing basis levels. Local basis volatility likely will increase in North Dakota this winter.



Farmers are Farming More Land and Owning Less

By Bryon Parman, NDSU Extension Agricultural Finance Specialist

Since 1995, farms across North Dakota have increased year over year from an average of 1,344 acres to an average of 2,178 acres in 2019.

That is a total increase of 62% or a compounded average annual increase of approximately 2% in the number of acres farmed. One might expect to see a proportionate increase in the number of acres rented and the number of acres owned during that same time period, and yet that is not the case.

Indeed, even in 1995, on average, more acres were rented than owned by farm operators. According to the North Dakota Farm Business Management records, in 1995, 424 crop acres were owned, 652 acres were cash rented and 268 crop acres would have been share rented. That means that between share and cash rents, 920 acres were rented and 424 acres were owned, or approximately 32% of acres farmed were owned by the operator.

In 2019, of the 2,178 acres farmed, on average, 1,718 were rented and 460 acres were owned. Thus, approximately 21% of the operators' farmed acres were owned vs. rented. Figure 1 shows that, for the most part, the number of acres owned has remained relatively flat during the last 25 years while the number of rented acres, especially cash rented acres, has increased remarkably.

This trend has occurred for several economic reasons, with the first being the price of farmland. Farmland prices have remained high for more than 10 years, which is a barrier to many farmers purchasing new land.

That is especially true for new and beginning farmers with limited equity. Couple that with higher machinery costs requiring more acres to spread out fixed costs, and renting may be the only option available for many farmers who would like to grow.

While land prices have grown at a rapid pace and then held steady, rents did not. Certainly, cash rental rates went up with the high commodity prices from 2006 to 2013, but not at the same rate that land values did.

Note in figure 2 how steep the increase in land values was for North Dakota cropland vs. the increase in rental rates. Essentially, while cash rents rose, they did not rise as quickly as land values, making renting more attractive from a cash flow perspective than land ownership.

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Figure 1. 1995-2019 ND Rented vs. Owned Acres

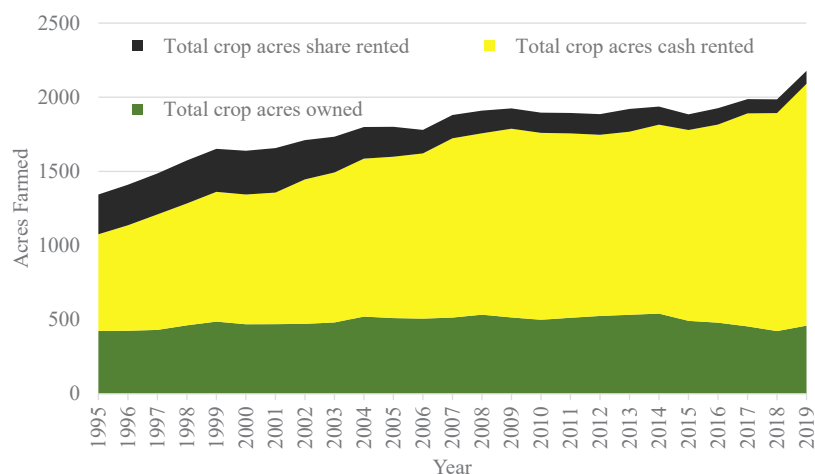
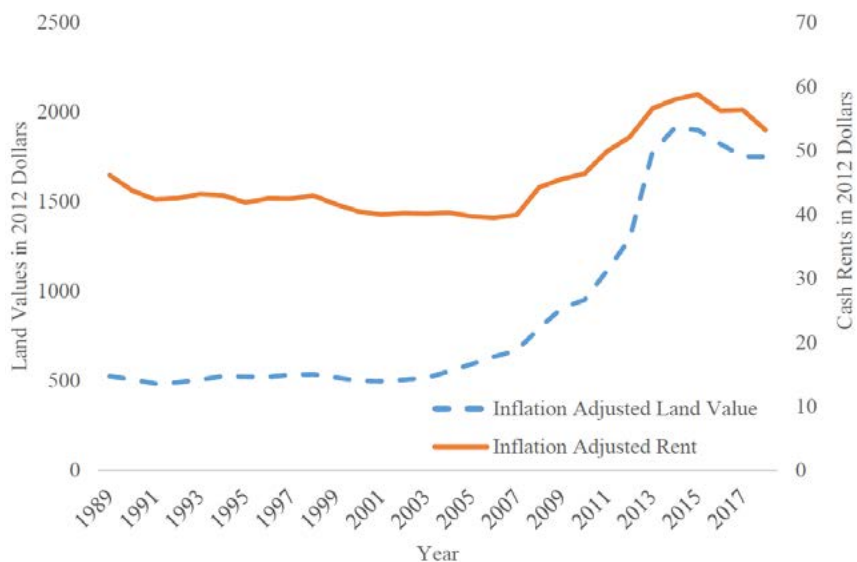


Figure 2. North Dakota Cropland Values and Cash Rents, 1989-2018



Farmers are Farming More Land and Owning Less

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The ratio of cash rents to land values is sometimes called the “cap rate” or capitalization rate, or the rent-to-value ratio. This ratio shows the percentage of cash rents relative to the value of farmland and can be used to help illustrate a rate of return, excluding interest or property taxes. Figure 3 shows the rent-to-value ratio for North Dakota through 2018.

We easily can see from the rent-to-value figure that rents, relative to farmland values, are much lower than they were in the late 1980s and 1990s. Looking at the last seven years or so, the rent-to-value ratio or cap rate has been around 3%, which is about three times lower than it was at the beginning of the 1990s.

Declining interest rates have contributed to the decline in the rent-to-value ratio, but the other factor is investment vs. cash flow. A land purchase is a long-term investment with an expected reversion (resale value) in which the buyer may expect some year over year appreciation and capital gain in the future.

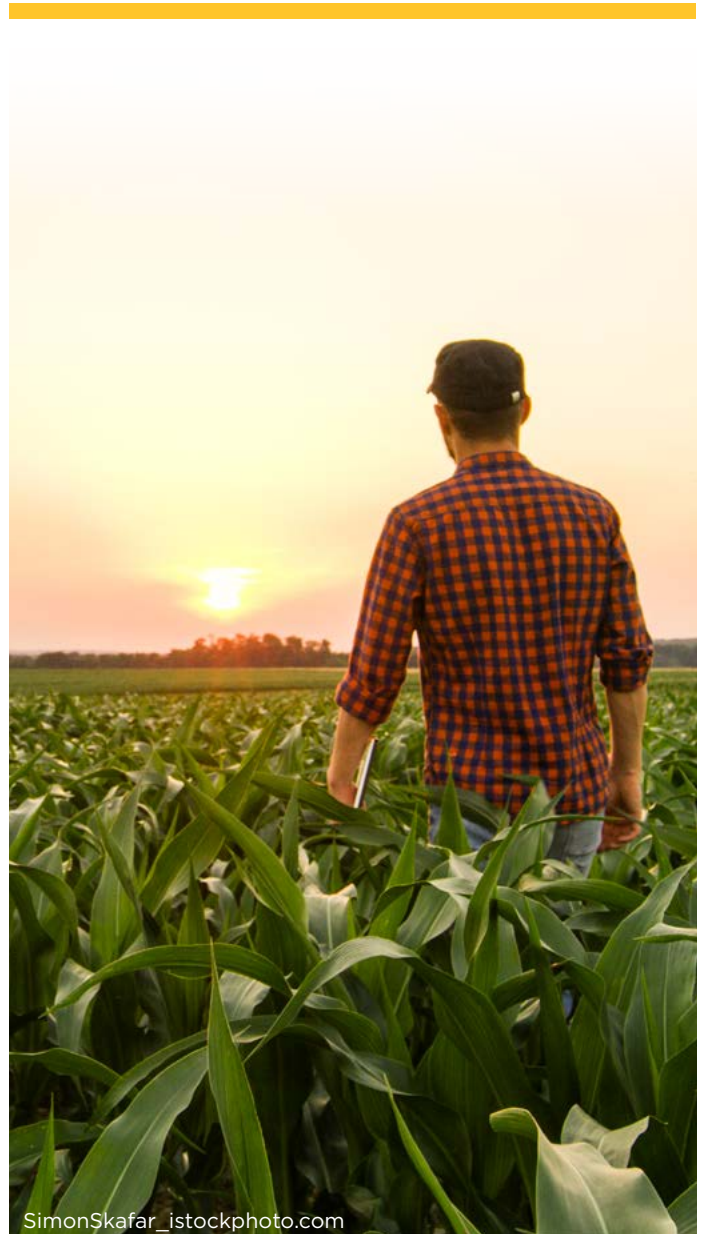
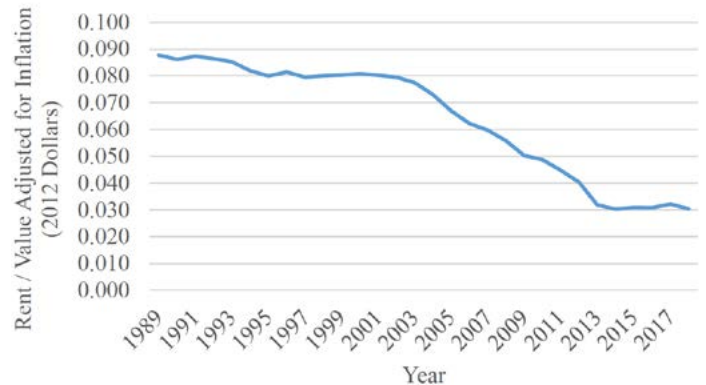
Rent, on the other hand, is a yearly cash flow decision that must make as much financial sense in year one as it does in year 10. Someone might think farmland is overpriced right now, but expecting a future increase, the purchase in five or 10 years may look much better. However, paying higher rents than can be cash flowed makes little financial sense in any year.

More land is being farmed per operator with fewer acres owned. However, it may come at a cost to credit worthiness or the ability to weather financial hardship. With 83% to 85% of all farm assets being farmland, land ownership makes up the bulk of farm wealth and potential borrowing power.

The increased cost of machinery, tight margins and the desire to grow to spread out fixed costs requires large operating loans and farmers taking on great financial risk. While the value of the owned land has increased, its share by operators of total land farmed has decreased remarkably.

Therefore, the asset base for farmers has been diminished from where it stood 25 years ago. What likely will be required is a change in net returns to land, interest rates and land values or some combination of all three before we see operators owning a larger percentage of the land they farm than what is being seen today.

Figure 3. North Dakota Cropland Rent-to-Value Ratio



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COVID-19 Disrupts Meat Production and Trade

By Tim Petry, NDSU Extension Livestock Marketing Economist

That the COVID-19 pandemic has severely disrupted everything surrounding livestock and meat production and marketing goes without saying, and international meat trade is no exception.

2020 started with much optimism surrounding the potential for record U.S. exports of beef, pork, broiler chicken and total meat. Record meat exports were important because the U.S. Department of Agriculture (USDA) also was projecting record production of beef, pork, chicken and total meat.

Each month, the USDA Office of Chief Economist publishes a World Agricultural Supply and Demand Estimates report, usually referred to as the WASDE report. In the report, the USDA projects production and exports of beef, pork, chicken and total meat for the current and next year. Current and past reports are available at www.usda.gov/oce/commodity/wasde.

Optimism for record exports came from several areas. By late 2019 and early 2020, the U.S. had settled favorable trade agreements with the top four beef customers: Japan, South Korea, Mexico and Canada. And a Phase 1 trade agreement with China also was ratified.

As a side note, record beef exports originally had been predicted for 2019 but did not materialize because our major beef export competitors ratified the Comprehensive and Progressive Trans Pacific Partnership (CPTPP) trade agreement with Japan, but the U.S. did not. So U.S. beef exports to Japan in 2019 struggled with a 38.5% tariff, compared with 26.6% for CPTPP countries.

Adding to the optimism, African swine fever (ASF) spreading across Asia and Eastern Europe caused a deficit in pork production, especially in China, which also meant improved prospects for U.S. meat exports and particularly pork. And projected record U.S. production of major meats meant plenty of meat availability for exporting, unlike for a major competitor, Australia, which had lower beef production due to several years of drought.

The USDA, in the January 2020 WASDE report, projected record 2020 production of all major meats, with beef up 1.1% from 2019, pork increasing 3.7% and chicken advancing 3.5%. Record exports of all

major meats also were projected optimistically, with beef up 9.3%, pork leading the increase at 12.8% and chicken up 4.5%.

But as COVID-19 struck the U.S. and expanded around the world, the uncertainty caused forecasting to be extremely difficult at best, with the USDA making unprecedented revisions to projections.

In the May WASDE, the USDA reduced 2020 projected beef production from plus 1.1% to minus 5% from 2019, lowered pork production to minus 1%, and chicken production back to about even. Beef exports were lowered to minus 4%, while pork and chicken exports remained near previously reported levels with strong Chinese demand.

The USDA again has made notable changes from the May WASDE. The severe impacts of the pandemic have subsided somewhat and meat packing plants and distribution channels have regained capacity and some restaurants reopened.

The August WASDE projected 2020 beef production to decline only 0.5% from 2019. The U.S. still has a chance for record 2020 beef production, depending on fourth-quarter results. Pork and chicken production are projected to be back to record levels, up 2.6% and 1.7%, respectively.

2020 beef exports still are projected to be down 4.3%, given the uncertain and weaker global economic situation.

Pork exports continue to spike upward, with a 19.4% increase forecast. Continued record high exports to China are fueling the increase.

Looking ahead to 2021, much uncertainty remains surrounding the severity and length of the pandemic in the U.S. and world. The USDA is again projecting record U.S. beef, pork, chicken and total meat production, so a strong export market will be important for livestock price support.

2021 beef exports are projected to rebound to near record levels, up more than 8% from the disappointing 2020 levels. And pork exports are expected to continue setting records as well.

We hope 2021 projections will not have to be revised as often and dramatically as they were in 2020.



The Road Forward

By David Ripplinger, NDSU Extension Bioproducts/Bioenergy Economist

Covid-19's negative impact on domestic passenger vehicle travel was significant and immediate.

Shelter-in-place orders, followed by job losses and economics, led many Americans to travel less. Many of us no longer needed to journey to work, but also limited or stopped discretionary trips.

As during the Great Recession, we see considerable interest in what future passenger travel in the U.S. will look like. Will we ever drive as much as we used to? Will some stop traveling in large numbers? Will youth not travel like generations before them?

And perhaps most critically to U.S. fossil fuel and ethanol industries, will travel powered with internal combustion engines decline? What role will electrification of transportation have?

To frame the situation, understanding the past, our current situation and potential paths forward is helpful. Coverage of these topics is a bit too much for a single article, so we'll cover them in a series through the end of the year.

American Passenger Vehicle Travel From World War II to February 2008

America's love affair with the automobile is undeniable. We probably have no better single symbol of American freedom or ingenuity than the car, no more common rite of passage than teens receiving their driver's license, and few cultural phenomenon more shared, loved or disliked as the daily commute to work or the summer road trip.

From the end of World War II until this year, passenger vehicle miles traveled (VMT) grew at a steady rate almost invariably through economic booms and slowdowns. The figure shows VMT from 1971 when the Federal Highway Administration started collecting the data through this February, prior to COVID-19 disruptions.

Only three times since 1970 have average annual vehicle miles traveled declined year over year. The first two were the result of price shocks resulting, first from the OPEC oil embargo in 1973 and next in 1979 from decreased oil production following the Iranian revolution.

Each of these events corresponded with economic recessions and gas shortages. The latter had the long-lasting effect of Americans purchasing increasingly fuel-efficient cars, initially almost entirely Japanese manufactured.

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This ever-increasing level of travel had broad implications for our country: demand for vehicles, many American made, demand for fuel, and for much of this period, a reliance on foreign oil as seen with the oil shocks. Millions of Americans jobs and a large swath of the economy are supported by cars and the gasoline used to fuel them.

Just as sure as one could easily draw a trend line of VMT through 2008, things dramatically changed. At the turn of the century, we saw concerns about peak oil, the environment and energy security. Much of this was addressed as if by perfectly timed divine intervention with the development of domestic shale oil reserves. What actually happened was

simultaneous technological innovation and market prices that led to exploration and development.

At the same time and in some respects more important to U.S. agriculture, the Renewable Fuel Standard provided a supporting policy to rapidly build out corn-ethanol refining as well as the eventual production of advanced biofuels. Many need to be reminded of the significant interest and relatively large activity associated with electric cars, whose time had not yet come.

In the next column, we'll look back at the Great Recession and its near- and medium-term impacts on travel.

