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2021 The Highest Grossing Revenue Year for North Dakota Farmers

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2021 The Highest Grossing Revenue Year for North Dakota Farmers

Bryan Parman, agricultural finance specialist

North Dakota farmers faced many challenges in 2021, including the beginning of supply chain issues, drought and lower commodity prices to begin the year. However, thanks in large part to production costs around the five-year average through spring of 2021 and elevated commodity prices in the fall, North Dakota farmers had an average gross income of over $1 million dollars for the first time since records have been kept.

The data for farm and ranch financial information comes from the North Dakota Farm Business Management Education Program and the North Dakota Department of Career and Technical Education (CTE). The instructors in the program educate and assist farmers and ranchers from all regions of North Dakota and diligently track and manage farm business records and financial information. The summary books for the last six years are online at www.ndfarmmanagement.com/resources. (For more information on the North Dakota farm business management education program, please visit www.ndfarmmanagement.com and locate your local instructor or request contact from a representative.)

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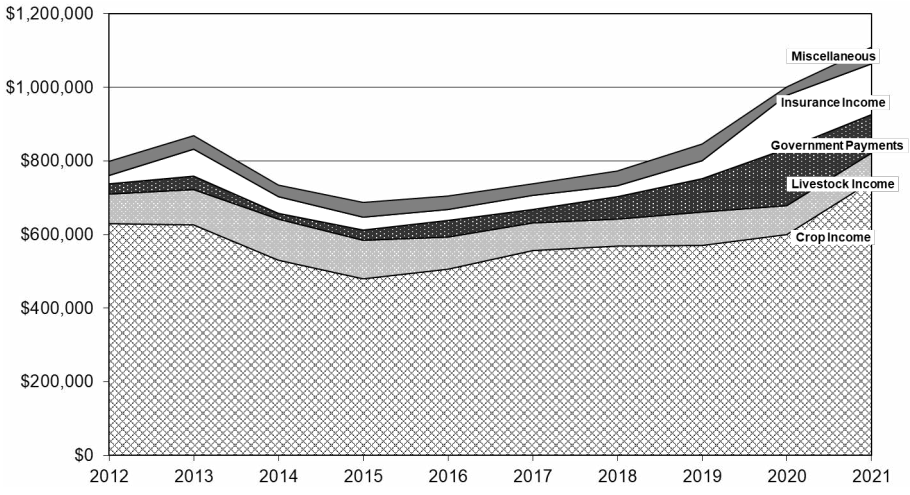
Figure 1: North Dakota Gross Farm Income 2012 to 2021



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As far as gross farm income, 2020 was the highest on record to that point, exceeding the amounts noted in 2012 and 2013, which were much higher than the subsequent six years. However, in 2020, much of the increase came from government programs such as the Coronavirus Food Assistance Program (CFAP) and crop insurance payouts. While 2021 did have a large crop insurance payout due to the prolonged drought, government program payments were lower in 2021 while crop income increased considerably.

However, 2020 was not nearly as strong in the area of net farm income as 2021. In fact, 2021 was also the highest recorded net farm income amount on average at just over $400,000 per farm, topping the previous best year on record, 2012, by over $40,000. Additionally, 2021 was the first year since 2012 where the lowest 20% of farmers in the data set, ranked by farm profitability, had a positive net farm income. Figure 2 shows net farm income for different profitability quintiles and the overall average from 2012 to 2021.

However, machinery costs, land values and other expenses have increased since the high-water mark set in 2012. As such, some of the financial efficiency measures and return ratios are not as strong in 2021 as they were in 2012. For instance, net farm

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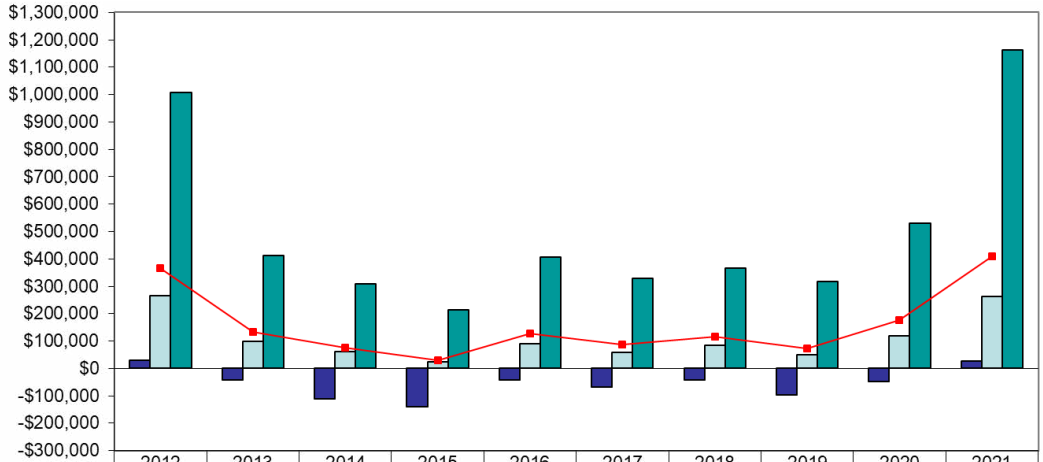
Figure 2: Net Farm Income (Accrual) Per Farm



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
20% Low Profit	30,429	(43,383)	(110,282)	(141,049)	(41,364)	(68,031)	(43,700)	(96,157)	(48,488)	27,671
Middle 60% Profit	264,545	98,437	60,113	23,278	88,621	59,071	85,076	48,615	118,208	262,188
20% High Profit	1,007,498	413,074	310,010	214,214	406,621	328,621	365,638	317,478	529,298	1,163,679
Average All Farms	367,317	133,466	76,404	28,600	126,752	88,026	116,227	74,100	176,038	408,835

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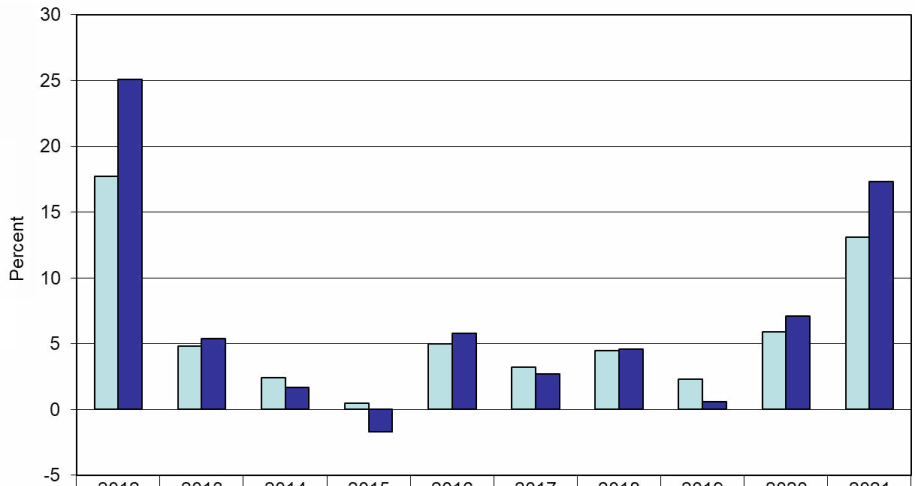
income as a percentage of gross income was 37% in 2012 but 32.5% in 2021. Operating expenses as a percentage of gross revenues in 2012 were 55.6% and increased to 57.8% in 2021. But perhaps more telling are the rates of returns on assets and equity. In 2012, the rate of return on assets was 17.7% and the rate of return on equity was 25.1%. In 2021, the rate of return on assets was 13.1% and the rate of return on equity was 17.3%. This implies that though 2021 is the highest recorded gross and net revenue year for farmers in North Dakota, the costs of major assets such as land and machinery prevented high rates of return on assets and equity even though nominal income is at record levels. (See Figure 3)

These numbers, however, may be much different in 2022. Most of the planting season this year has been wet with many unworkable acres across the state. Additionally, production costs including fertilizer, machinery and farmland prices are up considerably. In some cases, such as fertilizer products, costs are over 100% more expensive in 2022 than they were a year ago. Fortunately, most crop commodity prices are very strong, and even with high production costs, early projections indicate strong positive returns for famers able to price crops at current levels. However, for those who may have purchased or priced expensive inputs and are unable to get a crop planted, net returns will likely be much lower than they were a year ago.

Figure 3: Rate of Return on Assets/Equity for North Dakota Farmers and Ranchers



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Rate of Return on Assets	17.7	4.8	2.4	0.5	5	3.2	4.5	2.3	5.9	13.1
Rate of Return on Equity	25.1	5.4	1.7	-1.7	5.8	2.7	4.6	0.6	7.1	17.3

Growth of Chinese Economy Influences Grain Imports

Frayne Olson, NDSU Extension crop economist/marketing specialist

The growth of the Chinese economy is expected to remain slow for the rest of 2022. This slower economic growth may have implications for Chinese soybean and corn imports and the demand for U.S. crop exports.

Goldman Sachs, Citi, JPMorgan and Morgan Stanley are all projecting China's annual Gross Domestic Product (GDP) to grow between 4.0% and 4.3% in 2022. This is well below the 6.0% to 8.0% growth rates experienced in the mid-2010s but higher than the 2.35% reported by the World Bank in 2020. GDP is defined as the value of all finished goods and services produced within a country's borders.

Since March, mainland China has seen the worst outbreaks of COVID in two years. This has resulted in lockdowns for major cities like Shanghai, which closed businesses and ordered residents to stay at home for months. The resulting production and supply chain slowdowns have impacted China's economic growth as well as created ripple effects throughout the global economy.

Slow economic growth can also impact wage rates, consumer spending and demand for some food items, such as meat products. While the linkage between general economic growth and demand for specific food products is weak, there is a general correlation.

Figure 1 shows the historical GDP levels for the U.S., China, the European Union and Japan. These three countries and the European Union represent approximately 63% of global GDP. While the U.S. is the largest economy in the world, the Chinese economy has seen rapid growth since the early 1980s and has not had negative growth since 1976.

Figure 2 shows the USDA estimates for annual Chinese meat production by livestock species. Noteworthy is the relative size and growth of pork production. The dramatic drop in Chinese pork production in 2019 and 2020 was due to the African swine fever (ASF) outbreak. While Chinese pork production has recovered, the projected 2022 production amounts are still projected to be below the pre-ASF levels.

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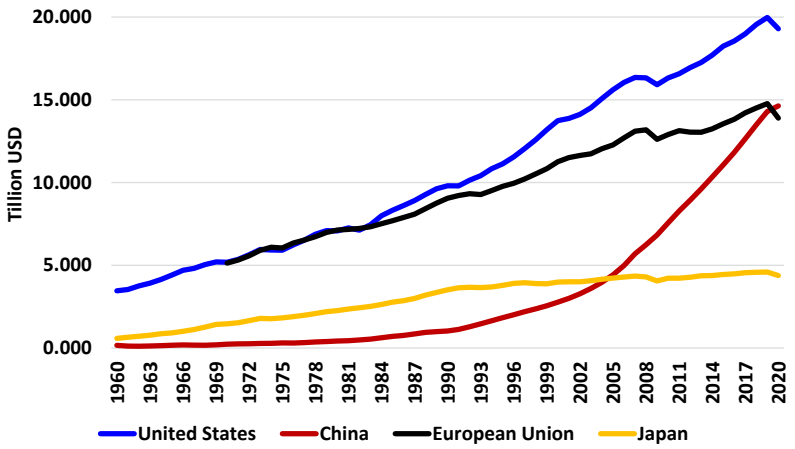
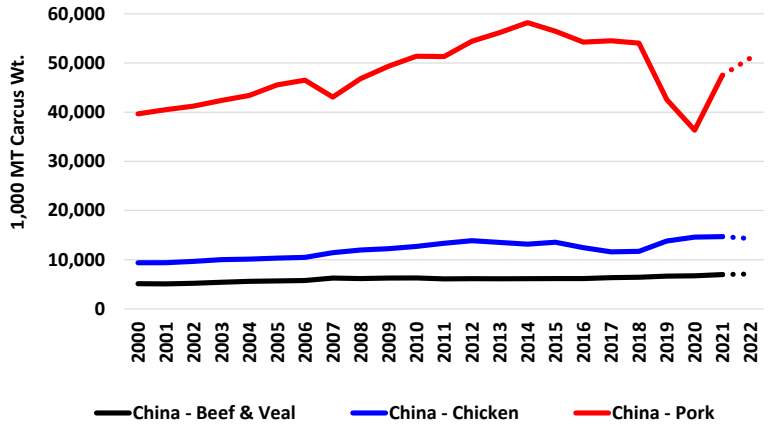
Figure 1 – Historical Gross Domestic Product for the U.S., China, the European Union and Japan



World Bank National Accounts Data

Figure 2 – Annual Chinese Meat Production by Livestock Species



May 8, 2022 USDA World Markets and Trade – Livestock and Poultry and USDA PSD Online Custom Search

Growth of Chinese Economy Influences Grain Imports — continued from page 4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The correlation between annual Chinese pork production and GDP from 2000 through 2018 was 0.88, which is very strong. Correlation is a measure of how closely two variables move together. A correlation of 1.0 means there is a perfect positive relationship between the variables. While correlation does not prove causation, where one variable causes the other variable to change, it does show there is a strong relationship, and they are likely influenced by similar forces. Data from 2019 and 2020 were not included in the correlation calculation because of the ASF outbreak.

Figure 3 shows the USDA estimates for Chinese corn and soybean imports. China imports about 85% of its total soybean use, with about 82% of all soybeans being crushed for soy oil and soymeal. In contrast, China imports about 8% of its total corn usage, with about 72% of all corn being used for livestock feed.

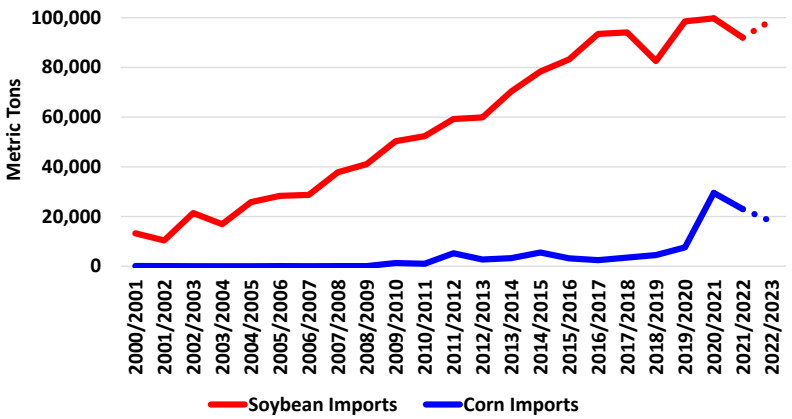
No one knows what the future will bring, but there are indicators which can be used to help monitor market conditions. Chinese GDP growth is a broad indicator of the economic conditions within the country, but it is correlated with domestic pork production. Lockdowns due to COVID have slowed the Chinese economy, which may have slowed demand for meat products. The ability for China to manage future ASF outbreaks and the incentives to rebuild pork production will be key to growth in feed demand.

Total Chinese soybean imports will likely track pork production closely. The U.S. will remain a key soybean supplier to China, but Brazil has become their primary supplier. Expanded planted area in Brazil, combined with trendline yield growth suggests that Brazil and U.S. production should be able to keep pace with the growth in Chinese soybean demand.

Total Chinese corn imports are more difficult to predict. China is the second largest corn producer in the world, with the U.S. being the largest producer. The Chinese government recently authorized the planting and harvesting of selected GMO (Genetically Modified Organism) corn varieties for domestic use. The introduction of GMO corn has the potential to increase average yields and limit the need to import corn.

The Chinese government has also authorized the imports of Brazilian corn for the first time in history. The Brazilian and Chinese governments are still working on the details of the phytosanitary requirements, but the agreement is expected to be finalized soon.

Figure 3 – Annual Chinese Corn and Soybean Imports



May 8, 2022 USDA World Agricultural Supply and Demand Estimates and USDA PSD Online Custom Search

Summer Calf Grazing Outlook

Tim Petry, Extension Livestock Marketing Economist

The recent improvement in moisture conditions in parts of the Northern Plains has increased forage availability and potential for summer grazing calves.

The current U.S. Drought Monitor (https://droughtmonitor.unl.edu) indicates that only 9% of North Dakota is in D1 (moderate drought) status with 12% in D0 (abnormally dry). That compares to last year when 100% of the state was experiencing drought with 17% in D4 (exceptional drought) and 68% recording D3 (extreme drought).

Predictions, which can be wrong, are for adequate moisture conditions to continue through June with drier conditions possible from July through September.

So the first question is: With pastures recovering from last year's drought, will there be enough forage to support a summer calf grazing program?

Corn prices have increased about $3 per bushel since October 2021. That has increased feed costs for feeding cattle significantly over last year. Higher feed costs mean that feedlots prefer to purchase heavier weight feeder cattle that have been raised on cheaper forage-based programs.

Since the mid-February Russian invasion of Ukraine and the March 31 U.S. Department of Agriculture (USDA) National Agricultural Reporting Service (NASS) release of the U.S. Planting Intensions report, September corn futures prices have increased $1.80/bushel while September feeder cattle futures prices declined $18 per hundredweight. That corresponds to the long-held adage of "a 10-cent a bushel change in corn prices causes a $1 per hundredweight change in feeder cattle prices in the opposite direction."

Prices for calves have been supported by lower supplies. The 2021 U.S. calf crop marked the third straight year of decline. A lower U.S. beef cow inventory in 2022 will mean a smaller calf crop. The feeder cattle supply outside of feedlots is also lower than last year due to larger placements into feedlots due to drought conditions in much of the Western U.S.

Price support for heavier feeder cattle has come from live cattle futures prices for the last half of 2022 and first half of 2023, which are the highest since 2015, but price pressure has occurred due to the increasing corn prices.

Purchasing or retaining calves to summer graze is a "margin" enterprise, so it is important to compute expected costs and returns. NDSU Extension has a summer grazing budget tool available at www.ndsu.edu/agriculture/ag-hub/ag-topics/livestock/ tools for your planning purposes. The spreadsheet shows example costs and returns and allows users to input their expected numbers.

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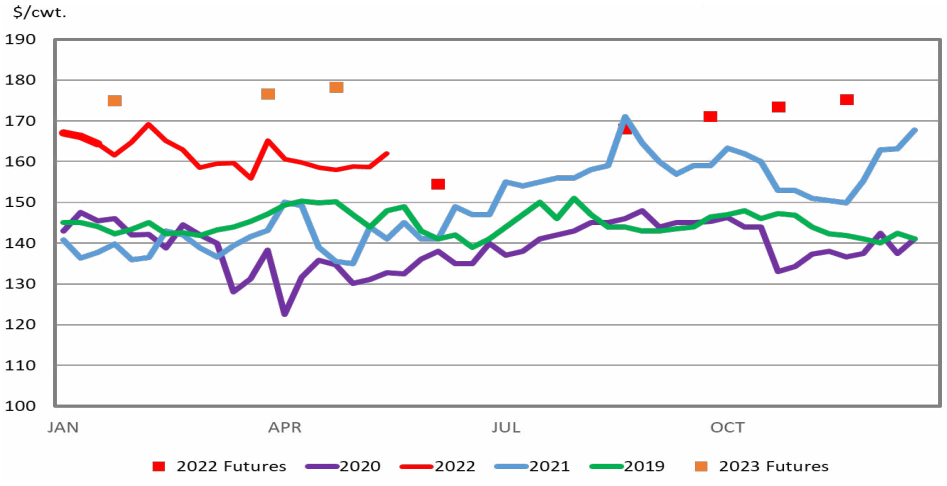
Summer 2022 Grazing Budget
(costs - $/head)

		Example		Your #s
1. Pasture	(4 A @ $ 21.00)	84.00	(A @ $)	0.00
2. Minerals, salt		0.50		
3. Purchased Feed and Supplement				
4. Veterinary, drugs, implants		12.00		
5. Marketing (brand inspection, commission, check off, hauling)		25.00		
6. Shrink		2.00		
7. Utilities, fuel, oil		5.00		
8. Hired Labor				
9. Repairs (fencing, waterers, etc.)		3.00		
10. Interest on calf and operating		15.00		
11. Death loss (1%)		10.73		
12. Miscellaneous		1.00		
13. Fixed Costs (insurance, taxes, depreciation)		3.00		
A. Total Production Costs (sum 1 thru 13)		161.23		0.00
B. Operator Labor and Management				
C. Total Costs (A + B)		161.23		0.00
D. Hundredweight produced		2.5		
E. Feed Cost / cwt gain (1 + 2 + 3 / D)		33.80		#DIV/0!
F. Total Cost / cwt gain (C / D)		64.49		#DIV/0!
G. Beginning calf value	(550 lbs @ $ 1.95)	1072.50	(lbs @ $)	0.00
H. Sale Weight (cwt)		8		
J. Breakeven Price / cwt (C + G / H)		154.22		#DIV/0!
K. Expected Selling Price / cwt	($ 165.00) Projected profit/hd	86.27	($)	#DIV/0!
L. 10% Higher Selling Price	($ 181.50) Projected profit/hd	218.27	($ 0.00)	#DIV/0!
M. 10% Lower Selling Price	($ 148.50) Projected profit/hd	-45.73	($ 0.00)	#DIV/0!
N. Breakeven Purchase Price at Expected Sales Price ($/lb)		2.11		#DIV/0!

Summer Calf Grazing Outlook — continued from page 6

Prices for 550-600-pound steers at North Dakota livestock auction markets reported by the USDA Agricultural Marketing Service are ranging from $190/cwt to 200/cwt. Prices for 750-800-pound steers are ranging from $155/cwt to $165/cwt. CME feeder cattle futures prices for September are trading about $171/cwt. (see chart).

Medium and Large #1 Feeder Steer Prices
750-800 Pounds, N.D., Weekly



In the budget example, I assumed a 550-pound steer calf purchase price or value if already owned at $1.95/cwt. The expected selling price for the 800-pound steer in the fall was $165, which is lower than the September feeder cattle futures market but at the high end of the current cash market.

With the example costs and returns shown in the budget, a return to labor and management of $86.27 per head was projected.

Summer grazing heifers either for sale as feeder heifers or breeding for replacement heifers is also a viable enterprise. My May column was devoted to adding value to heifers and is available at: www.ndsu.edu/agriculture/ag-hub/ag-topics/farm-management/agriculture-numbers

Feeder cattle cash and futures prices are expected to be volatile throughout the summer with changing weather conditions and fed cattle prices. Corn planting progress, final planted acres, crop development, and expected yield information, along with a dynamic corn export market will likely cause significant corn price volatility.

COVID-19 pandemic impacts linger, inflation is a concern for consumer beef demand, and the Russian-Ukraine war is causing chaos in world agriculture, energy and financial markets with unprecedented uncertainty.

The budget indicates that a 10% lower-than-expected selling price of $148.50/cwt could result in a loss of $45.73/ head.

So, with all the uncertainty, there is risk of lower fall feeder cattle prices. A marketing plan that includes price risk management strategies should be considered.

For example, as I write this column in late May, a USDA Livestock Risk Protection (LRP) insurance policy for 800-pound beef steers with a coverage price of $169.81/cwt for September 20 maturity had a $4.14/cwt premium cost. A lower coverage price just to cover the breakeven price of $154.22 shown in the example budget may be considered. A $155.81/cwt LRP coverage price had a premium cost of $0.96/cwt.

For current LRP coverage prices and premiums go to: https://public.rma.usda.gov/livestockreports/main.aspx

It is important to discuss your price risk management options with your lender.