Agriculture By the Numbers

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An Overview of Import Tariffs and Market Responses

Frayne Olson, Crop Economist/Marketing Specialist

There have been many recent news articles discussing the potential implications of increased tariffs on imports from China, Mexico and Canada. Many of these articles cite various economists who describe the potential impacts to consumer prices, business profitability and inflation rates. Unfortunately, most articles only provide a very basic definition of tariffs or a brief quote from an expert. As usual, the implications of tariffs on prices, trade volumes and inflation are more complex.

Let's start with a few core concepts. A tariff is a tax levied by governments on the value of an imported product, including the freight and insurance costs needed to get the products to a U.S. port of entry. Every product traded in the international market has been assigned a Harmonized System, or HS, code as a common international identification system. As a tariffed product enters the U.S., the U.S. Customs and Border Protection agency identifies the product from the HS code and assess the assigned tax on the product. The importing company must pay the tax before the item can be released and enter the U.S. These tax revenues then go to the U.S. Department of Treasury.

The underlying political debate revolves around who ultimately pays the cost of this tax over time and how tariffs can impact trade flows. The answer is it depends.

Let's consider a simple example. Assume that the bulk price for avocados from Mexico entering the U.S. is $1.00 per pound. If a new 25% import tariff were placed on Mexican avocados, the adjusted cost to the importing company would be $1.25 per pound ($1.00/lb. x 0.25 = $0.25/lb.; $1.00/lb. purchase price plus $0.25/lb. tax = $1.25/lb.).

Will the added cost from the tariff be passed on to consumers, reduce the profit margins of the company or result in lower import prices? Once again, it depends. Let's consider two possible extreme scenarios.

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An Overview of Import Tariffs and Market Responses

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The first example is where the U.S. consumer pays almost all the increased costs. Almost all the increased cost could be passed on to the end consumers if the U.S. market for avocados has no alternative short-term domestic or international supply chains, there is little competition with only a few sellers in the U.S. market and there are no close substitutes for avocados. Sales volumes for avocados in the U.S. will drop because of the higher consumer prices and total profits for the companies selling avocados will likely fall.

The other extreme example is where the companies in the exporting country lower their export prices to compensate for the import tariffs. In this example, the price for Mexican avocados entering the U.S. would need to fall to $0.80 per pound. The 25% tariff would become $0.20 per pound and the price in the U.S. market would be $1.00 per pound ($0.80/lb. plus $0.20/lb. tariff equals $1.00/lb.). In this example, there must be three factors: a wide variety of alternative short-term domestic and international supply chains, a high level of competition with many sellers in the U.S. market and many close substitutes for avocados.

Under these conditions, the Mexican avocado suppliers must lower prices to remain competitive and the impact of the U.S. import tariffs will be born by the Mexican suppliers. In contrast, the domestic sellers and consumers have many alternatives and will likely not realize any price changes.

In reality, the total cost of import tariffs will be shared between the U.S. consumers, U.S. importing companies and international suppliers. The exact proportion of the tariff costs paid by each of these three groups will depend on the following:

- Scope and configuration of the tariffs
- Structure of the international and domestic markets
- Level of competition between companies in the industry
- Number of close substitutes
- Consumers' sensitivity to price changes (In other words, do consumers stop buying the product simply because it is too expensive?)

Estimating the economic impacts of import tariffs is never easy because it is very difficult to anticipate how consumers, producers and suppliers will adapt to new tariffs. Economists do their best to predict these changes, but the estimates are never perfect. The hard part about managing tariff policies is to balance the economic and social benefits from tariffs against their costs.

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2024 Late Season North Dakota Custom Farm Work Rates Released

Ron Haugen, Farm Management Specialist

The results of the North Dakota 2024 late season custom farm work rates survey have been released.

This survey is conducted by USDA's National Agricultural Statistics Service North Dakota Field Office and contains state and regional level custom work rates for harvesting, drying and hauling crops, seed preparation, hauling hay and livestock, and other custom work for fall operations.

The survey is done in two parts: early season operations and late season operations. The early season operations survey is for spring and summer activities, such as planting, tillage, pesticide application and haying. The late-season operations survey includes fall work, such as harvest, grain drying and hauling.

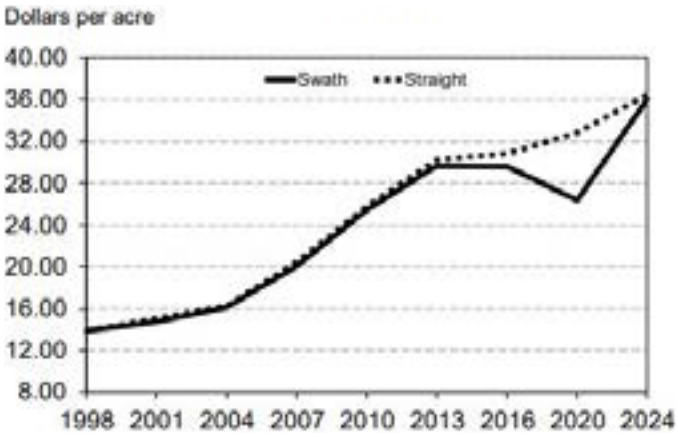
These surveys are done every four years and are funded by the North Dakota Agricultural Experiment Station and NDSU Extension. Appreciation is given to these agencies and all survey participants.

The 2024 late season operations survey summarized about 1,370 reports from farmers, ranchers, aerial sprayers, elevators and custom operators. The survey shows the number of reports for each operation, the range in rates, the most frequently reported rates and the average rate for each operation. It also compares the current rates to the 2020 rates, which is the last time the survey was conducted. Custom rates include charges for machines and equipment, tractor and power units, fuel, repairs and operator labor.

In comparing the 2024 late season rates with 2020, rates for 2024 were much higher, as expected, with the inflation pattern the economy is in. In comparing all late season operations, rates increased on average almost 35% from 2020. Increases varied by type of operation. Historic rates are shown in these three charts.

The late season operations survey results can be found on the NDSU Extension farm management page at www.ndsu.edu/agriculture/ag-hub/ag-topics/farm-management/north-dakota-custom-rates.

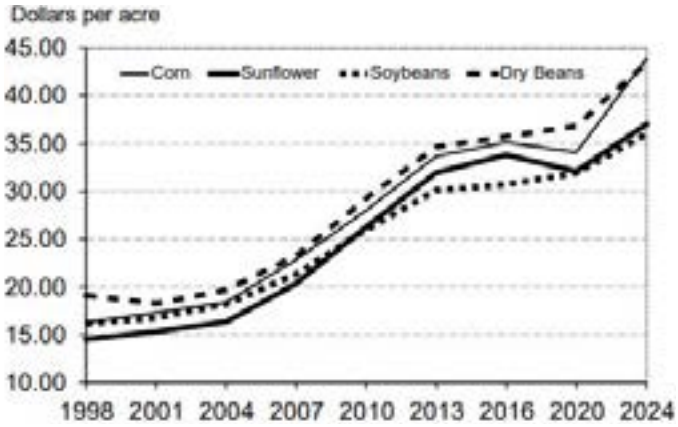
Small Grain Combining: 1998-2024[1]
North Dakota



[1] Average for 1998 do not include flaxseed.

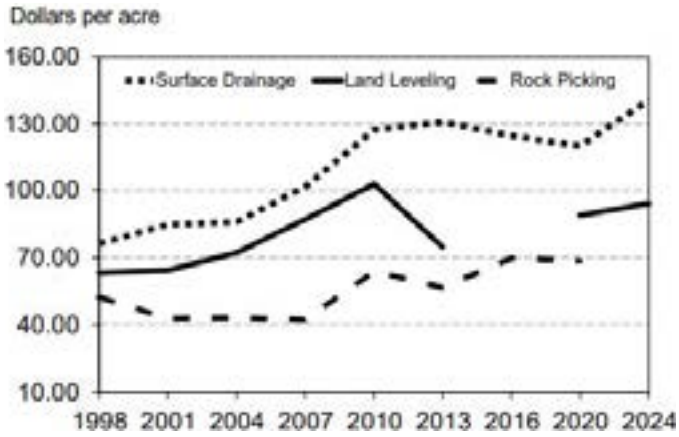
USDA National Agricultural Statistics Service

Straight Combining: 1998-2024
North Dakota



USDA National Agricultural Statistics Service

Surface Drainage, Land Leveling and Rock Picking — Average Rate: 1998-2024



Land leveling data withheld for 2016. Rock picking data withheld for 2024.

USDA National Agricultural Statistics Service

Considerations for Increasing the Supply of Corn Silage in Richland County

Jon T. Biermacher, Professor of Practice and Extension Livestock Development Specialist

News this past summer that a large dairy is being built in Richland County near Wahpeton has crop producers interested in how it might impact the crops they produce and the prices they receive for them. Many producers have questions based on the new dairy's expected demand for the significant quantities of corn silage that they will be needing on an annual basis. Rough estimates suggest that the 12,500-head dairy will require 80,000 tons of corn silage each year.

There are economic opportunities for supplying corn silage to the new dairy, but these opportunities will primarily be available to farmers operating within a 20-mile radius of the new dairy, which plans to locate on the edge of Abercrombie, North Dakota. To ensure the best possible outcome, it is most important for interested farmers to spend some time up front to do the necessary financial planning and budgeting prior to engaging in an agreement to supply the new dairy with corn silage.

Corn silage is a high-energy feed commonly used by beef, dairy and sheep operations. To understand the potential opportunity for farmers to grow additional corn silage in the county, it is important to know how much of it is being produced now. Table 1 reports the average number of acres harvested, total production and average yield of corn silage and corn grain for Richland County and seven adjacent counties (USDA, 2024). On average, Richland County farmers produced 44,673 tons of silage per year between 2012 and 2022, and the eight-county region produced a total of 324,220 tons per year.

Unlike corn grain, which is more cost-effective to transport longer distances, the economics of corn silage falls apart when it must be transported longer distances, especially more than twenty miles. As a result, the entire quantity of silage produced in each county reported in Table 1 is presumably used by beef, dairy and sheep producers operating in their respective counties.

Of course, there can be trade of silage between silage producers and livestock producers that reside near each other on a county line, but I suspect the total quantity of this trade is small relative to the total supply produced in each county. As a result, the new expected demand of silage of 80,000 tons per year is how much additional silage farmers in Richland County will need to produce for the new dairy.

Using the average yield and quantity of silage production in Richland County (Table 1), it will require about 4,624 acres of cropland currently used to produce corn for grain to produce corn silage to supply the new dairy (i.e., 80,000/17.3). Of course,

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Table 1. Average (2012-2022) Number Acres Harvested, Total Production, and Yield of Corn Silage and Corn Grain in Richland County and Adjacent Counties

County, State, County Seat	Silage Acres Harvested	Silage Production (tons/year)	Silage Yield (tons/acre)	Corn Acres Harvested	Corn Production (bu/year)	Corn Yield (bu/acre)
Richland, North Dakota, Wahpeton	2,588	44,673	17.30	272,786	46,171,714	170
Cass, North Dakota, Fargo	1,492	18,014	14.61	278,271	45,379,714	163
Ransom, North Dakota, Lisbon	4,466	63,411	14.18	92,183	16,001,500	174
Sargent, North Dakota, Forman	1,436	22,141	16.35	122,614	20,617,714	168
Big Stone, Minnesota, Ortonville	1,474	15,148	14.21	85,286	23,616,000	180
Traverse, Minnesota, Wheaton	4,078	83,123	19.46	134,043	23,779,857	177
Wilkin, Minnesota, Breckenridge	1,043	19,208	17.85	122,467	19,760,000	161
Roberts, South Dakota, Sisseton	3,873	58,503	15.45	145,250	24,985,167	172
8-county Region Total/Average	20,450	324,220	16.17	1,252,900	220,311,667	171

Source: https://quickstats.nass.usda.gov/

Considerations for Increasing the Supply of Corn Silage in Richland County — continued from page 4

the expected acres needed will vary depending on the yield and quality of corn silage produced each year. For example, if there is a 20% variation in yield from one year to the next, then the number of corn acres needed for silage would range between 3,700 and 5,550 acres. This variation will need to be considered when deciding upon a price of silage that will be needed by farmers.

Conversely, increasing the quantity of silage to meet the new demand for the dairy is expected to result in a loss of some of the corn grain typically produced and used in the county, assuming other crops like wheat and soybeans are not displaced to grow the silage. If the cropland used to produce crops other than corn (outside of a rotation) are not used to produce silage, then using the past five-year county average corn yield of 170 bushels per acre, Richland County can expect a reduction in the average corn grain produced in the state by 786,127 bushels (170 bushels on 4,624 acres). This reduction will not have an impact on the price of corn in Richland County because agribusinesses and livestock producers already use more corn grain each year than what is produced, and corn farmers in neighboring counties are supplying the shortfall. The neighboring counties will easily be able to supply the anticipated additional shortfall when farmers shift away from producing corn for grain to produce corn silage for the new dairy.

Providing an exact, generalized estimate of the added benefit on a $/acre basis to farmers that are interested in producing corn silage for the new dairy is difficult, mostly because each farm has a different set of constraints and access to scarce resources, including farm size, growing conditions, access to labor, and access to financial capital. Because this is so, farmers in Richland County should do due diligence to calculate estimates for expected revenues, costs, net returns ($/acre) and corresponding breakeven prices for corn for grain ($/bushel) and silage ($/ton).

Calculating corn for grain should be fairly easy for producers that keep good production and financial records. Corn for silage can be challenging for producers that have never produced corn silage. Both are needed to understand the economic tradeoffs between corn and silage and to determine the price needed ($/ton) for corn silage in order to pencil in a reasonable return necessary to make the adjustments on the farm (such as changes in management, labor, machinery and risk management) that will be required in order to shift from producing grain to silage.

Farmers who do not have historical records might consider using the Projected Crops Budget for corn grain developed by North Dakota State University Extension economists. Such a budget can help a producer understand the type of information needed to calculate net margins and breakeven prices for corn grain or any other type of crop enterprise. The downloadable Projected Crops Budgets can be found at www.ndsu.edu/agriculture/ag-hub/ag-topics/farm-management/crop-economics/projected-crop-budgets.

Calculating expected net returns and breakeven prices and yields for corn silage can be more challenging. In this case, the Corn Silage Decision Tool can help develop estimates for revenues, costs, and net returns ($/acre) for their specific farm. This resource is found at www.ndsu.edu/agriculture/ag-hub/corn-silage-decision-tool.

Feel free to contact me with additional questions at jon.biermacher@ndsu.edu.

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Cattle Prices:
2024 Review and 2025 Outlook

Tim Petry, Extension Livestock Marketing Specialist

2024 has been another historic year for cattle prices. Prices have been increasing cyclically since the previous cyclical low in 2020.

Cattle prices have been supported by five years of a cyclically declining beef cow herd, and strong beef demand. 2024 will be the sixth year of declining beef cow numbers.

Fed steer prices were record high in 2023, averaging $175.54 per hundredweight (cwt.), and continued that record high trend in 2024.

Fed steer prices started the year at a record high $173/cwt. and increased seasonally to a seasonal peak of $197/cwt. in early July. Prices declined to a seasonal low of $181/cwt. in early September.

Prices were very close to 2023 prices in September due to beef production increasing to the same level as 2023 in spite of fewer cattle numbers. 2024 beef production was buoyed by record high steer carcass weights averaging 30 pounds higher.

Fed cattle prices then began a normal seasonal increase to $195/cwt. in mid-December. 2024 prices will likely average a record high $187/cwt.

USDA is predicting a more modest increase to another annual record high of $191/cwt. in 2025 with beef production declining.

The three most important factors that affect calf and feeder cattle prices are the size of the calf crop (supply), fed cattle prices, and corn prices. All of those factors supported the record high calf prices in 2023 and again in 2024.

The 2024 U.S. calf crop is projected to be 32.9 million head, the lowest number in decades, which has been supportive to calf prices. A smaller calf crop is expected again in 2025.

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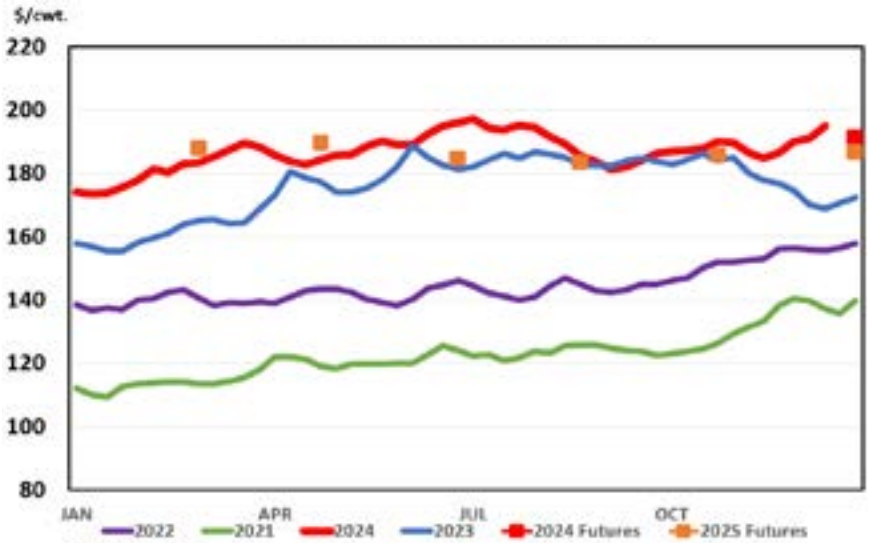
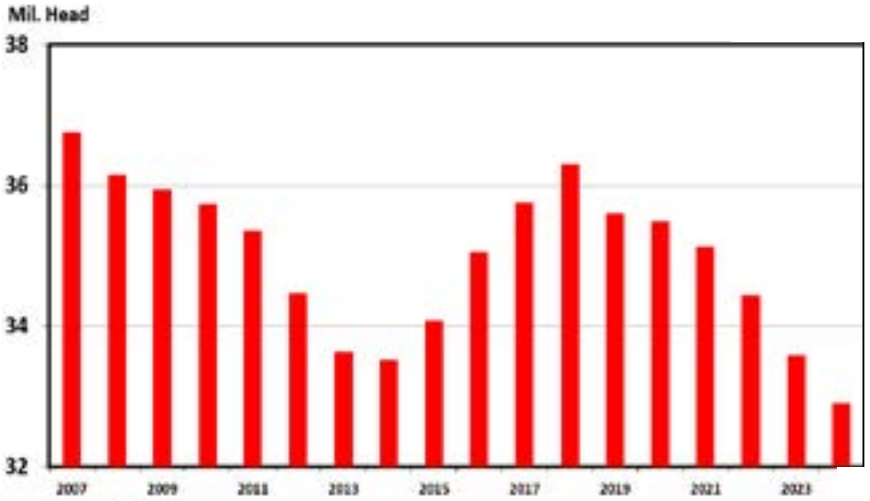
Fed Steer Prices
5 Market Weighted Average, Weekly



Source: USDA AMS

Calf Crop — U.S., Annual



Source: USDA NASS

Cattle Prices: 2024 Review and 2025 Outlook

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The decline in U.S. corn prices from near $7 per bushel (bu.) in early 2023 to $4/bu. currently has benefitted calf prices. Usually, a 10 cent/bu. change in corn prices causes in a $1/cwt. change in the opposite direction for calf prices.

Steer calf prices in North Dakota began 2024 at a record high average $290/cwt. Prices increased to their normal seasonal high at $340/cwt. in May sparked by generally good spring grazing conditions. A seasonal decline back down to $290/cwt. in October occurred when the heavy fall calf marketing run caused the normal seasonal low for the year.

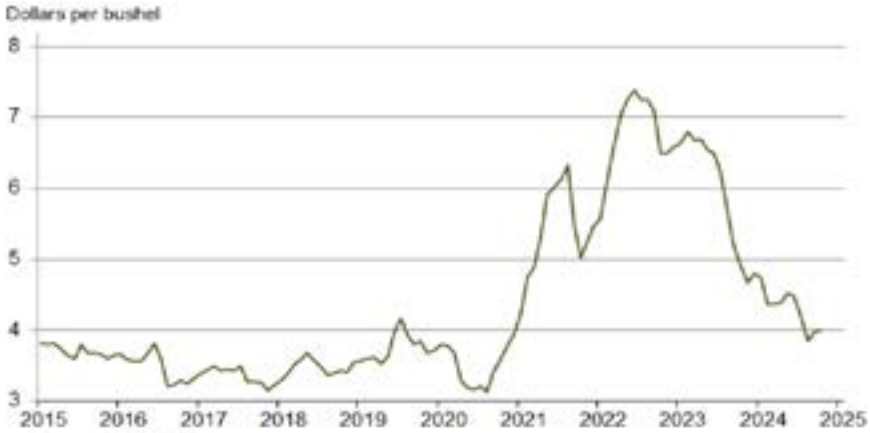
Prices have rebounded to $335/cwt. due to several positive fundamental factors.

The near-record large U.S. 2024 corn crop that pressured corn prices caused smaller western Corn Belt cattle feedlots to be aggressive buyers of northern Plains calves. The good harvest weather meant harvest finished sooner than normal and caused earlier calf purchases.

Strengthening fed cattle have supported calf prices.

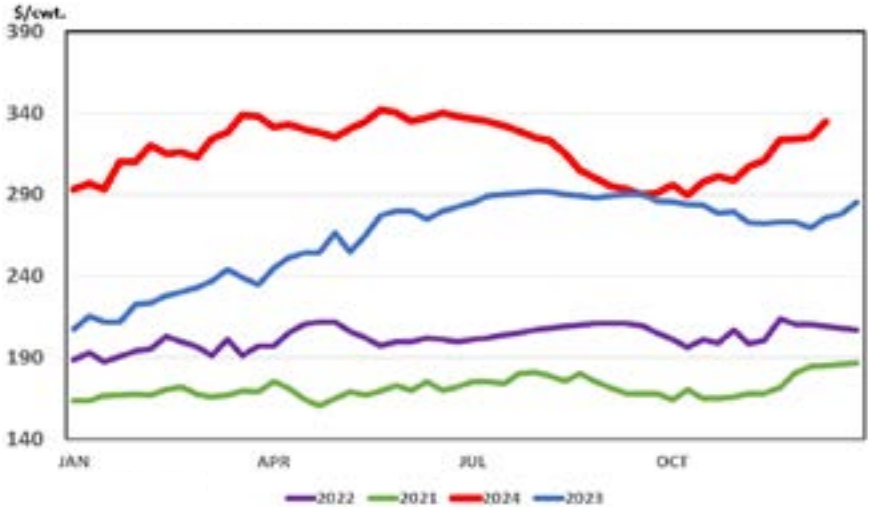
Recent beneficial rains in the drought-stricken central and southern Plains have replenished stock water supplies and improved winter grazing prospects. That has sparked the demand for calves for grazing and may have increased interest in retaining replacement heifers.

Prices Received for Corn by Month — United States



Source: USDA NASS

Medium and Large #1 Steer Calf Prices
550-600 Pounds, N.D., Weekly



Source: USDA AMS

The Nov. 22 announcement that New World screwworm was detected in southern Mexico resulted in USDA temporarily suspending live cattle imports from Mexico. It seems likely that few, if any, additional steer or spayed heifer calves will be imported in 2024. Historically, an average of over 150,000 Mexican calves enter the U.S in the last six weeks of the year. The ban has been supportive to calf prices. However, when the ban is lifted it is likely that many of those calves will enter the U.S.

More feeder cattle have been exported to Canada recently with late fall months usually seeing the peak movement. A recent northern Plains USDA Agricultural Marketing Service (AMS) auction report stated, “Cattle over 500 lbs. continue to purchased heavily by Canadian buyers, as they are being shipped north to feed.” That has been supportive to North Dakota and Montana calf prices.

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Cattle Prices: 2024 Review and 2025 Outlook

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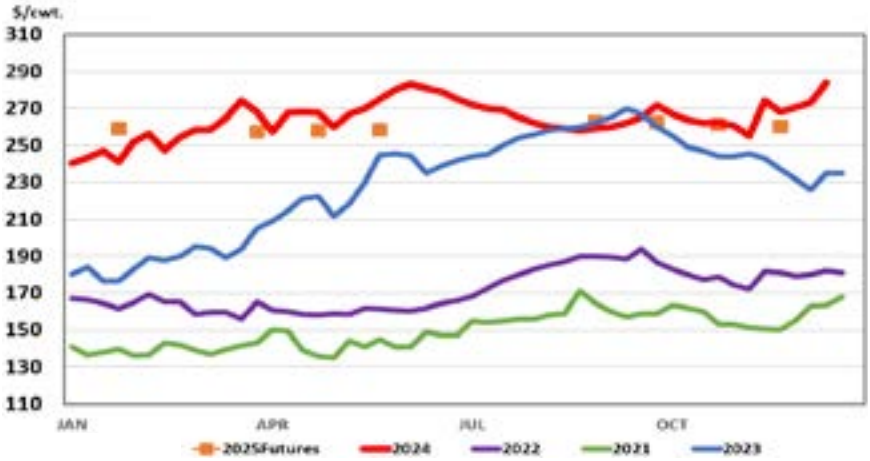
Heavier weight feeder steers have shown the same cyclical price increases as fed cattle and calves. The 750 to 800 lb. steer prices started 2024 at an average of $244/cwt. and increased seasonally to $283 in early June. Prices declined to a seasonal low of $255/cwt. in early November and have increased up to $284/cwt. The same positive market fundamentals that have affected calves including a short supply, moderating corn prices and strengthening fed cattle prices have impacted feeder steer prices.

Cull cow prices in 2024 followed the seasonal pattern with generally increasing prices until plateauing in the summer months. The normal seasonal decline occurred in the fall months when cow slaughter increased. Prices were supported this year by an 18% decline in beef cow slaughter and strong demand for hamburger. Cow prices have likely reached seasonal lows and are expected to increase seasonally the next few months.

Cyclically higher cattle prices are expected for the next couple years but at a moderating rate to the last few years. The highest cyclical cattle prices occur when beef cow herd rebuilding is in full swing. Increased heifer retention, reduced cow slaughter and lower beef production buoy prices.

More beef replacement heifers are expected to be retained in the U.S. this fall, but drought conditions on a regional basis will dictate to what extent. Production cost inflation, elevated interest rates and labor availability may also be hurdles to herd rebuilding.

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

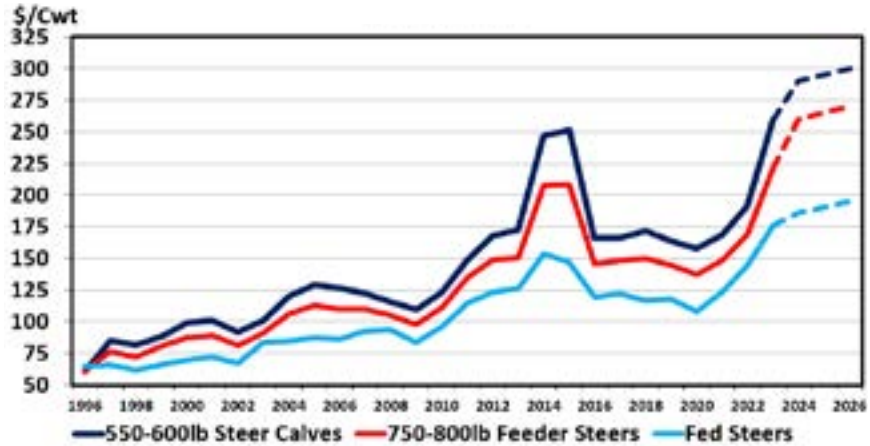


Source: USDA AMS

Beef Cull Cow Prices
Average 85-90% Lean, Weekly — Northern Plains Average

Source: USDA AMS

Average Annual Cattle Prices — North Dakota



Source: USDA AMS and NDSU