

Agriculture By the Numbers

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NDSU Extension Agribusiness and Applied Economics

**Strong Profits Expected
for Backgrounding Cattle
Over the 2024-2025
Season**

**Should an Open Beef Cow
be Retained in the Herd
with Record-high Cattle
Prices?**

**Beef Exports in 2024
Exceeded Expectations**

**Global Wheat Inventories
Tighten**

Strong Profits Expected for Backgrounding Cattle Over the 2024-2025 Season

Bryon Parman, Agricultural Finance Specialist

The 2024 and 2025 calf backgrounding season is still ongoing; however, it is shaping up to be one of the best we have seen in years. As an article by Tim Petry, NDSU Extension livestock specialist, illustrates, beef exports in 2024 were above forecasts, cow inventories in the U.S. are as low as they have been in over 80 years and feeders are being encouraged to put more weight on finished cattle to help make up some of the difference in overall beef production. This situation, plus other factors such as inexpensive feed and strong beef demand, has created higher-than-average fed and feeder cattle prices.

However, high beef cattle prices do not necessarily mean backgrounding will be highly profitable. For instance, if weaned calf prices for calves between 475 and 600 pounds are high relative to 750wt to 900wt cattle, even with inexpensive feed, the high cost of incoming weaned calves can wipe away most or all of the potential profits. Conversely, there can exist situations where feed costs can be high, yet backgrounding or finishing cattle can be highly profitable if the cost of incoming calves is low relative to 800wt or 900wt cattle.

Often, what dictates the price-per-pound differentials between cattle of different weights are the relative supply of incoming calves, feed costs and the price of fed/finished cattle. There also typically exists a price differential for heifer calves versus steer calves at weights below 900 pounds, with the gap being much larger at lower weights. This fact often makes heifer calf backgrounding a safer bet for producers as there is a somewhat built-in advantage based on heifer feeder calf pricing compared to steers.

The above situations, for the most part, assume that the overall price of cattle remains constant while they are on feed. However, one of the most important factors related to backgrounding is the overall price movement of cattle while they are on feed. If calves brought into the feeding operation in late fall are relatively expensive, and

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Strong Profits Expected for Backgrounding Cattle Over the 2024-2025 Season — continued from page 1

overall market values for beef cattle fall even a few percentage points, financial losses can be substantial. On the other hand, if cattle prices move upwards while they are on feed, there is potential for significant financial gains.

NDSU Extension produced cattle backgrounding forecasts back in November of 2024 for the 2024-2025 cattle feeding season. Based on the prices at the time, backgrounding steers was marginally profitable at higher average daily gain rates. In contrast, heifer backgrounding was shown as profitable primarily by closing the price slide gap between heifers and steers. However, those calculations were revisited in January 2025 with the upward movements in fed cattle prices. The result of this price movement is substantial increases in profitability for all six cattle feeding scenarios compared to a few months ago. Table 1 breaks down each scenario and the profit increases from late last fall until now.

The Fed Steer Prices figure from Tim Petry's article "Beef Exports in 2024 Exceeded Expectations" on page 6 in this newsletter shows how cattle prices moved from Fall 2024 to January 2025 on an upward trend that has thus far persisted. The result shown in Table 1 is that the price movements have added from \$200 to \$250 profit per head for backgrounding and \$150 per head for finishing steers.

It is important to note how a similar price drop could have impacted producers. If prices per cwt had fallen approximately \$25 for backgrounded calves and \$10 per cwt for finished steers, the losses would have been equally as large. Table 2 shows a scenario. While backgrounding heifers and finishing steers do not technically become a loss, the financial difference is still significant, and in this case, backgrounding steers would result in substantial losses.

So, while cattle producers are likely pleased with the direction that prices have moved over the last few months, Table 2 emphasizes the importance of utilizing some of the available risk management tools such as Livestock Risk Protection (more information may be found at www.rma.usda.gov/policy-procedure/general-policies/livestock-insurance-plans) or futures markets hedging strategies. In years like this, it may seem like paying a premium for something producers aren't going to use is an unnecessary expense. But when cattle prices are this high relative to their historical norms, protecting yourself from possible price declines is more important than ever.

Table 1. Cattle backgrounding profitability for six different feeding scenarios. October-November 2024 Prices vs January 2025 Prices

Sex	Weight	ADG	Days on Feed	Profit/ Loss OCT/Nov 2024	Profit/ Loss Jan 2025
Steers	500-800	1.8	165	-\$2.45	\$198.61
Steers	525-805	2.8	100	\$12.71	\$217.89
Steers	575-1,400	3.6	220	\$151.48	\$292.11
Heifers	450-756	1.8	170	\$201.34	\$457.96
Heifers	550-850	1.8	170	\$224.65	\$424.98
Heifers	525-805	2.8	100	\$250.29	\$505.55

Table 2. Cattle backgrounding profitability for six different feeding scenarios. October-November 2024 Prices versus An Assumed \$25 per cwt reduction in backgrounded calves and a \$10 per cwt reduction in fed cattle prices

Sex	Weight	Profit/Loss OCT/Nov 2024	Assume a \$25/cwt drop
Steers	500-800	-\$2.45	-\$202.45
Steers	525-805	\$12.71	-\$187.29
Steers*	575-1,400	\$151.48	\$11.48* (-10cwt)
Heifers	450-756	\$201.34	\$13.84
Heifers	550-850	\$224.65	\$12.15
Heifers	525-805	\$250.29	\$50.29

Should an Open Beef Cow be Retained in the Herd with Record-high Cattle Prices?

By Jon T. Biermacher, Extension Livestock Development Specialist; Tim Petry, Extension Livestock Marketing Specialist; and James K. Rogers, Extension Forage and Crops Production Specialist

We live in a world with record-high beef cattle prices, primarily due to a record-low national cattle inventory combined with strong and resilient consumer demand for beef. The price of heifers for replacements is also at an all-time high. Beef cattle operators have been asking if it makes economic sense to keep cows identified as open via pregnancy testing and take on the uncertainty of rebreeding her in hopes that she will produce a calf.

We conducted a benefit-cost analysis on three alternative open cow replacement scenarios: (1) selling an open cow and purchasing a bred heifer replacement, (2) selling an open cow and purchasing a younger (3 to 6-year-old) bred replacement cow and (3) keeping and rebreeding an open cow and keeping her in the herd.

Economic results for the three alternative open cow management scenarios are reported in Table 1. The open cow “slaughter” price, bred heifer price and bred replacement cow price were obtained from the Stockmen’s Livestock Exchange in Dickinson, North Dakota on Jan. 14, 2025. Stockmen’s Livestock Exchange data is used as an example for computational purposes. Prices for bred cows and heifers differ by geographic region, so producers should use market prices near their location. Also, there is a range in market prices paid for bred cows and heifers depending on several market factors that affect value, so producers should consider what type of replacement cattle and prices best fit their production goals.

Continued on page 4.

Table 1. Economics for alternative scenarios for replacing open cows

Scenario 1: Sell an open cow and purchase a bred heifer

Source of revenue/cost:	Weight (lbs.)	Price (\$/lb.)	Value (\$/hd.)
Sell open cow	1400	1.30	1,820
Purchase bred heifer	-	-	-3,019
Sell steer calf, Nov 2025	600	3.10	1,860
Sell heifer calf, Nov 2025	575	2.80	1,610
Sell average calf, Nov 2025	587.5	2.95	1,733
Sell steer calf, Nov 2026	600	3.15	1,890
Sell heifer calf, Nov 2026	575	2.85	1,639
Sell average calf, Nov 2026	587.5	3.00	1,763
Value of scenario 1	-	-	2,297

Scenario 2: Sell an open cow and purchase a 3-6-year-old bred cow

Source of revenue/cost	Weight (lbs.)	Price (\$/lb.)	Value (\$/hd.)
Sell open cow	1400	1.30	1,820
Purchase a 3-6 year bred cow, Nov 2025	-	-	-2,899
Sell steer calf, Nov 2025	600	3.10	1,860
Sell heifer calf, Nov 2025	575	2.80	1,610
Sell average calf, Nov 2025	587.5	2.95	1,733
Sell steer calf, Nov 2026	600	3.15	1,890
Sell heifer calf, Nov 2026	575	2.85	1,639
Sell average calf, Nov 2026	587.5	3.00	1,763
Value of scenario 2	-	-	2,417

Scenario 3: Keep and rebreed and open cow

Source of revenue/cost:	Weight (lbs.)	Price (\$/lb.)	Value (\$/hd.)
Value of steer calf, Nov 2026	600	3.15	1,890
Value of heifer calf, Nov 2026	575	2.85	1,639
Average value of calf, Nov 2026	587.5	3.00	1,763
Value of scenario 3			1,763

Difference in value between scenario 1 and scenario 3 **534**

Difference in value between scenario 2 and scenario 3 **654**

Difference in value between scenario 2 and scenario 1 **120**

Open cow “slaughter” prices, bred heifer prices, and bred replacement cow prices were obtained at: www.gostockmens.com/images/E0331001/250114.pdf.

Projected steer and heifer calf prices were obtained from www.ndsu.edu/agriculture/sites/default/files/2025-01/ec1090-25.pdf.

Should an Open Beef Cow be Retained in the Herd with Record-high Cattle Prices? — continued from page 3

Projected steer and heifer calf prices used in the analysis were obtained from the NDSU Extension's agribusiness publication "Plotting a Course — Planning Prices for 2025."

For the first scenario, the cow/calf producer sells the 1,400-pound open cow for \$1.30/pound, equaling \$1,820. Next, the producer purchases a bred heifer at \$3,019, and the heifer will produce a calf that will be weaned and sold in November 2025 and another that will be weaned and sold in November 2026. Because we do not know if the calves will be steers or heifers, we averaged the values of a weaned 600-pound steer and weaned 575-pound heifer and obtained a calf value of \$1,733 in 2025 and a calf value of \$1,763 in 2026. The total value of Scenario 1 equals \$2,297 (\$1,820 for the open cow plus \$1,733 for the calf in 2025 plus \$1,763 for the calf in 2026 minus the cost of the bred heifer).

For the second scenario, the cow/calf producer sells the open cow for \$1,820 and then purchases a 3 to 6-year-old bred cow replacement for \$2,899. Then, the bred cow will produce a calf that will be weaned and sold in November 2025 for \$1,733 and another that will be weaned and sold in November 2026 for \$1,766. The total value of Scenario 2 is \$2,420/head (\$1,820 for the open cow plus \$1,735 for the calf in 2025 plus \$1,764 for the calf in 2026 minus \$2,899 cost for the bred cow).

For the third scenario, the cow/calf producer chooses to keep an open nonpregnant cow and take a chance on rebreeding her and keeping her in the herd. In this case, the open cow will not produce a calf until November 2026. In this case, the value of the calf in 2026 is the same as that of the calf in 2026 for Scenario 1 and Scenario 2 (\$1,764).

The analysis shows that Scenario 2 has the greatest value at \$2,420/cow. Scenario 1 is \$124 less than Scenario 2 and \$532/cow greater than Scenario 3. Scenario 2 is \$656/cow greater than Scenario 3.

We did not include transaction costs such as commission fees, veterinary expenses, brand inspection, beef check-off fees or transportation costs, but they are important considerations. It is also worth mentioning that producers

should consider why the cows are being sold when purchasing bred cows. They could be marketed due to undesirable factors such as temperament, poor udders, mothering ability or other reasons.

Extraordinarily high cattle prices can create situations where cattle producers might be inclined to gamble on keeping and rebreeding open nonpregnant cows, hoping they will produce a calf. This is understandable because some cows, identified as open, appear to be in good health and condition (they may even be younger cows with several years ahead) so producers might think the cow is not at fault for a nonpregnancy. However, from an economic perspective, those preconceptions are irrelevant when comparing the best options for replacing her. Overall, during the current market conditions, results suggest that selling open cows and purchasing bred replacement heifers or cows to put back into the herd is better economically.

We are not arguing against open cow management practices that might add value to open cows prior to marketing, such as retaining her on available feed rations to add weight and improve condition. Such practices have been shown to be economical, allowing producers to retain open cows and market them later (late winter or early spring) to take advantage of a seasonally advantageous slaughter cow market. We do, of course, recommend that producers do a benefit-cost analysis prior to retention to make sure such a retention strategy pencils out for their operation.

Please feel free to contact me with any questions at jon.biermacher@ndsu.edu.

	STOCKMENS LIVESTOCK EXCHANGE									
	Dickinson, North Dakota									
	TOP PRICES FROM STOCK COW & BRED HEIFER SALE									
	Tuesday, January 14, 2025					1478 hd sold				
	YOUNG STOCK COWS					BRED HEIFERS				
Hi	Wibaux,MT	14	Black	3-4yrs	3200.00	Hi	Solen	27	Black	1173 3350.00
Lo	Rapid City,SD	11	Red	4-6yrs	2425.00	Lo	Beulah	2	BlkRed	1030 2400.00
	319 Young Cows Ave. \$2899					294 Bred Heifers Ave. \$3019				
	SOLID MOUTH STOCK COWS					SHORT TERM STOCK COWS				
Hi	Wibaux,MT	10	BlkBwf	7yrs	2900.00	Hi	Zap	9	BlkBwf	S.T. 2500.00
Lo	Belfield	1	Red	Solid	2250.00	Lo	Medora	3	Black	S.T. 1800.00
	168 Solid Mouth Cows Ave. \$2609					205 Short Term Cows Ave. \$2264				

Source: www.gostockmens.com

Beef Exports in 2024 Exceeded Expectations

Tim Petry, Extension Livestock Marketing Specialist

U.S. beef exports in 2024 were expected to decline but ended the year stronger than earlier expected. Potential headwinds were anticipated decline in beef production coupled with record-high cattle and beef prices and a strong U.S. dollar.

In January 2024, the USDA projected 2024 beef exports to be 2.8 billion pounds and beef production to be 26.2 billion pounds (www.usda.gov/oce/commodity/wasde).

However, a 3 billion-pound total beef export and a 27 billion-pound total beef production ended the year at levels very close to 2023.

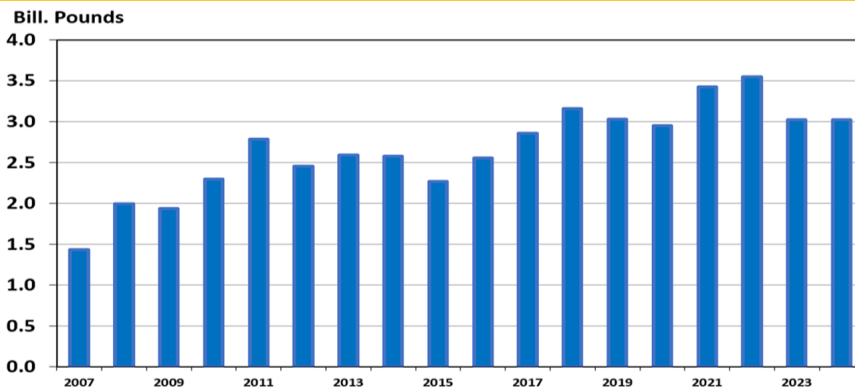
The increase in beef exports exceeded expectations due to higher-than-expected beef production and continued strong export demand even through record-high cattle and beef prices.

Despite the beef cow herd declining in 2019 through 2024, 2024 beef production turned out to be the same as 2023 due to an increase in fed steer and heifer carcass weights, more heifers on feed due to U.S. drought conditions in major cow-calf regions and the use of beef genetics in the dairy sector.

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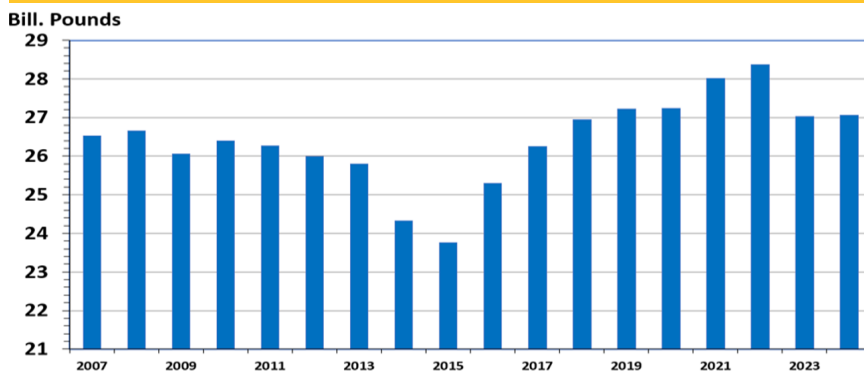


U.S. Beef Exports — Carcass Weight, Annual



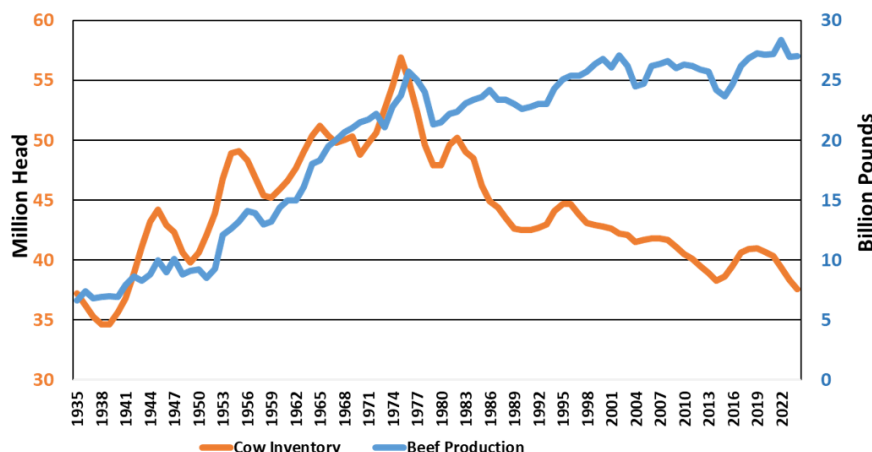
Source: USDA ERS

U.S. Beef Production — Annual



Source: USDA NASS & WASDE

U.S. Cow Herd and Beef Production



Source: USDA NASS

Beef Exports in 2024 Exceeded Expectations

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Fed steer and heifer carcass weights averaged 20-25 pounds heavier than the year before, which was the equivalent of slaughtering a million more fed cattle. That offset the 716,300 head decline in U.S. beef cow numbers from 2023 — an important factor to consider when cyclical beef cow herd expansion occurs.

Feedlots kept cattle on feed longer due to the record-high prices for the fewer available replacement feeder cattle and lower feed costs.

Beef packers encouraged higher fed cattle weights to help bolster lower beef production levels because strong beef demand resulted in near-record high choice beef cut-out values well above \$300/hundredweight (cwt.).

Fed cattle prices also exceeded expectations. The USDA's January 2024 forecast for 2024 annual fed cattle prices was a record \$178.25/cwt., up from \$175.54 in 2023. Fed cattle prices in 2024 exceeded expectations at a record-high \$187/cwt., buoyed by strong domestic and export demand for beef.

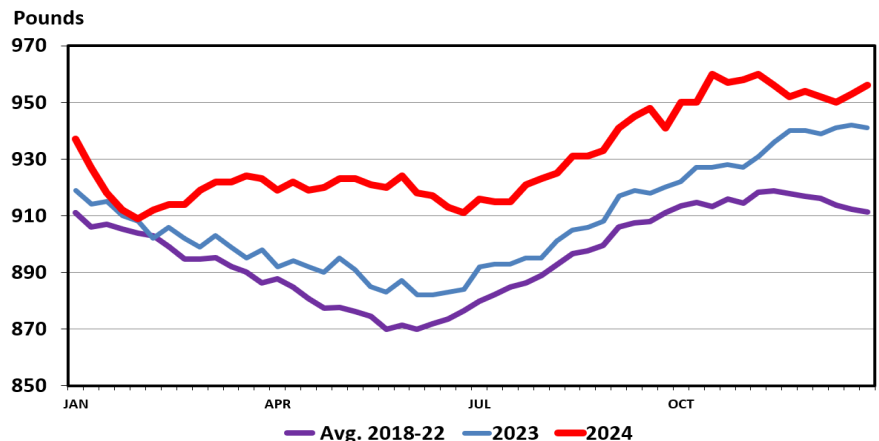
Even though 2024 beef export volume was similar to 2023, higher prices caused the 2024 value of exports to exceed 2023 by 6%, according to the U.S. Meat Export Federation (www.usmef.org).

The USDA Economic Research Service publishes U.S. livestock and meat trade data monthly and annually by country. That report with historical data back to 1989 is available at www.ers.usda.gov/data-products/livestock-and-meat-international-trade-data.

Historically, the top U.S. beef export markets were Japan, South Korea, Mexico and Canada. In 2021, China quickly emerged as the third-best market after the U.S.-China Phase One trade agreement became effective in March 2020. Exports to South Korea have been steadily increasing, which challenges Japan for the top spot.

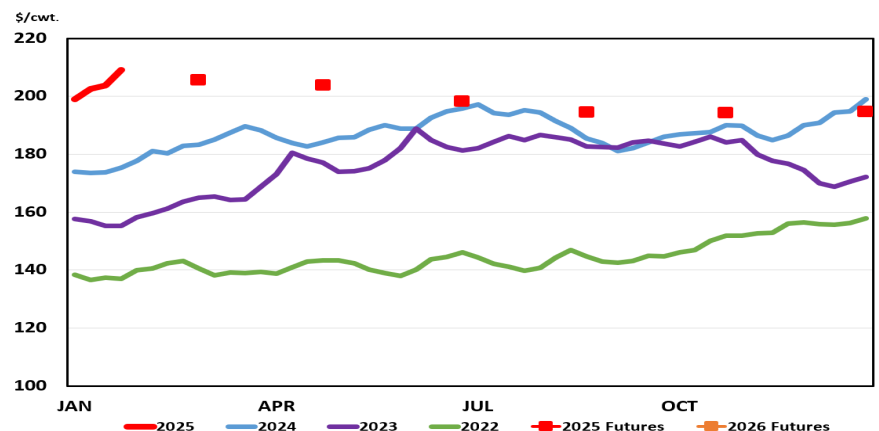
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Steer Dressed Weight — Federally Inspected, Weekly



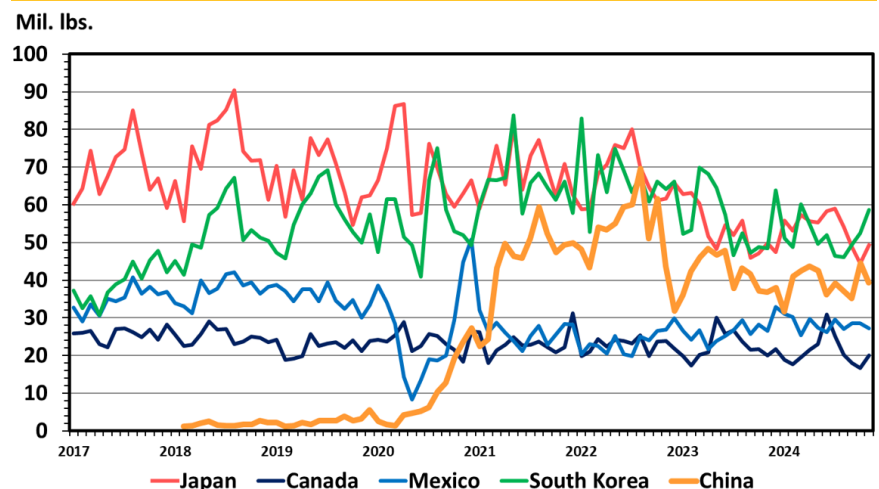
Source: USDA NASS & AMS

Fed Steer Prices — 5 Market Weighted Average, Weekly



Source: USDA AMS

U.S. Beef Exports to Major Markets — Carcass Weight, Monthly



Source: USDA ERS

Beef Exports in 2024 Exceeded Expectations

— continued from page 6

Even though 2023 and 2024 beef exports were off the record high, they were still tied for the fourth highest ever, only behind 2022, 2021 and 2018.

The USDA forecast for January 2025 is for beef exports to decline to 2.6 billion pounds in 2025 compared to 3 billion in the last two years, due to 2025 beef production decreasing to 25.8 billion pounds from 27 billion. History has shown that the U.S. beef industry is very resilient and adaptive at producing more beef than expected, remembering back to just last year.

The USDA is projecting annual 2025 fed cattle prices to continue increasing cyclically to another record high of \$195.50/cwt., which also could be a headwind for beef exports.

It will also be important to watch if potential trade issues occur because China, Mexico and Canada are the third, fourth and fifth top customers for U.S. beef.

The U.S. is the leading exporter of high-quality beef in the world because it is the largest producer of beef and has the reputation of providing the safest, most dependable beef products.

Maintaining a strong export market despite headwinds is important. The U.S. Meat Export Federation estimates that beef exports contributed \$412 per head to fed cattle sold in 2024 and nearly 14% of beef production.



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Global Wheat Inventories Tighten

Frayne Olson, Crop Economist/Marketing Specialist

United States wheat prices have seen a significant decline since mid-May 2024. Farm managers have been asking if there is any hope for higher U.S. wheat prices in the near future. The answer is maybe.

Approximately 50% of U.S. wheat is sold to domestic wheat mills to produce flour, about 40% is exported and the remaining 10% is used for seed and animal feed. For the past 15 years, the annual wheat use for domestic milling has varied from a low of 926 million bushels in 2010/2011 to a high of 972 million bushels in 2022/2023. This is very stable compared to export volumes, which fluctuated from a low of 707 million bushels in 2023/2024 to a high of 1.289 billion bushels in 2010/2011.

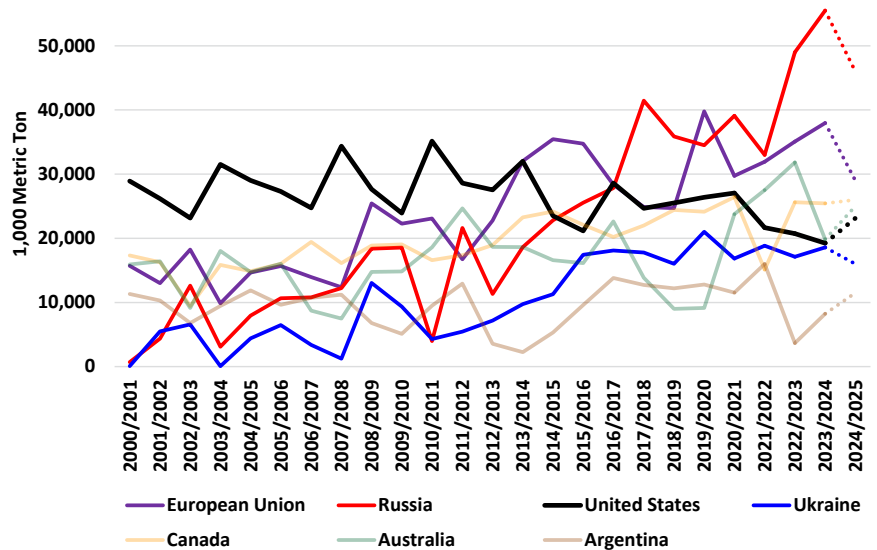
Wheat export levels are one of the key determinants of U.S. wheat prices. Global wheat supply and demand conditions, grain quality, ocean shipping rates, currency exchange rates and trade policies all have major impacts on trade flows and the competitiveness of U.S. wheat in the world market.

The U.S. Department of Agriculture lists 69 different countries who have purchased wheat from the U.S. over the past five years. The largest buyers have been Mexico, the Philippines, Japan, South Korea, Taiwan and China.

However, the U.S. has significant competition from other wheat exporting countries. Figure 1 shows the historical marketing year wheat export levels for the top seven wheat-exporting countries. The dotted line segments for the 2024/2025 marketing year are the current USDA forecasts reported in the Jan. 10, 2025, World Agricultural Supply and Demand Estimates.

The global wheat trade is watching two important developments very closely. The first is the projected drop in wheat exports from both Russia and the European Union. Russian exports are projected lower because of poor wheat yields from drought conditions in the western winter wheat production regions. The EU exports are expected to be down due to quality problems in French and German wheat. Extended rain showers during harvest in France and Germany negatively impacted the milling quality of their wheat.

Figure 1. Historical and Projected Wheat Export Levels by Country



USDA Jan. 10, 2025, World Agricultural Supply and Demand Estimates and PSD Online Custom Query.

Important policy changes are also occurring in China, India and Russia, impacting wheat. China is the world's largest wheat-producing country and holds about 50% of the global wheat inventories. China's domestic consumption has exceeded production levels for the past five years, increasing wheat imports. Chinese trade policies are continually changing and growing uncertainty in the world wheat markets.

India is the second-largest global wheat producer. India is typically self-sufficient in wheat, with production and domestic consumption levels being very similar. However, India's wheat inventories have been falling for the past three years, and domestic prices have recently increased dramatically. India is currently experiencing warmer-than-normal temperatures and below-normal rainfall. Even though India typically imports very small amounts of wheat, there have been years when wheat imports exceeded 5 million metric tons, which is about 180 million bushels.

Russia is the world's third-largest wheat producer and largest wheat exporter. Last year's wheat production was below expectations but still very large. Russian wheat export prices have been very competitive for the past year but have begun to rise

Continued on page 9.

Global Wheat Inventories Tighten

— continued from page 8

since late December. Russian soil moisture conditions have not improved since last fall. The western winter wheat-producing regions have had warmer than normal, and rainfall has been below normal, similar to India. The Russian government has been increasing their export tax, making it more expensive to export wheat, to stabilize domestic wheat prices.

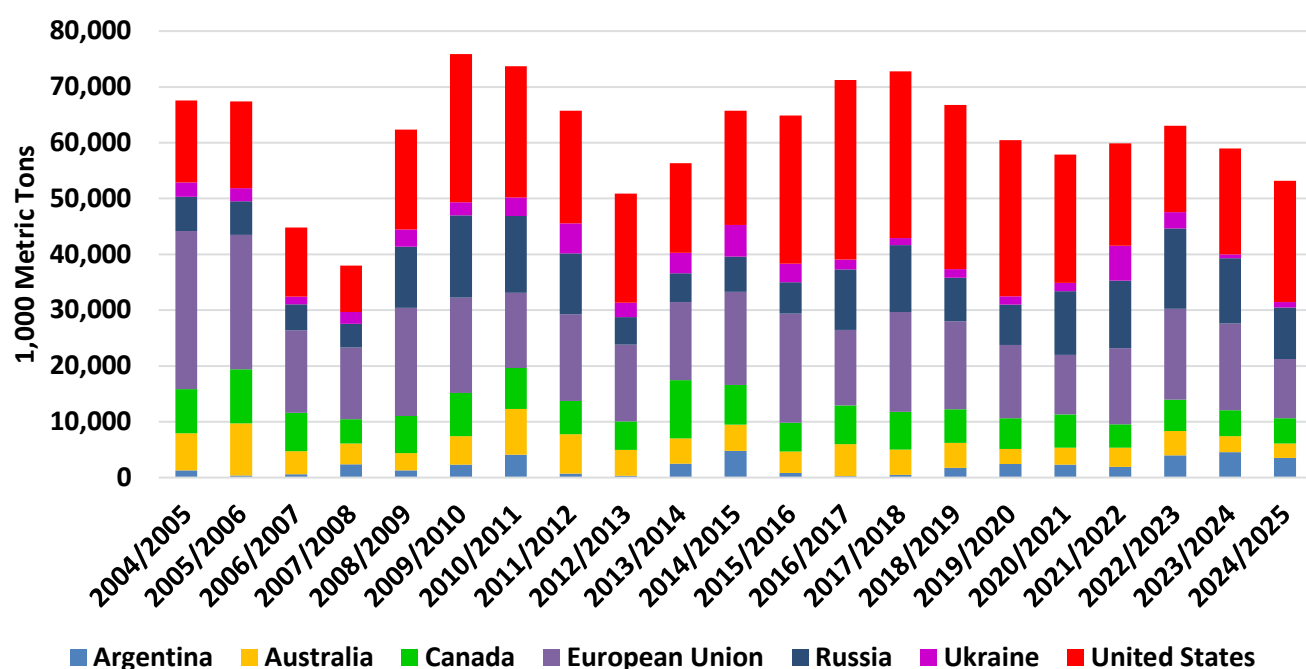
Figure 2 shows the estimated wheat ending stocks for the major wheat-exporting countries. These countries' current 2024/2025 total ending stocks are the lowest since 2012/2013.

Current global wheat price levels do not suggest any major concerns about available wheat supplies. In fact, the wheat export prices for the countries listed in Table 2 have narrowed. In other words, the difference between export prices by country is smaller now than in August and September 2024.

However, if there is significant change in potential wheat supplies, like lower production in Russia or India, or another change in Chinese trade policies, prices could respond quickly. Smaller production in Russia could further limit wheat export volumes. Smaller production in India could lead to an unexpected increase in wheat imports.

As global wheat prices increase, U.S. wheat becomes more competitive in the export market. The U.S. is one of the few countries with comfortable wheat inventory levels and can meet the quality standards for a wide range of global buyers. Some countries will not buy U.S. wheat. However, given the tighter ending stocks in other countries, if the demand for wheat in the international market increases, the U.S. could become the source for many countries looking for additional wheat.

Figure 2. Estimated Wheat Ending Stocks for Major Wheat Exporting Countries



USDA Jan. 10, 2025, World Agricultural Supply and Demand Estimates and PSD Online Custom Query.