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Rebuilding with resiliency is a necessity for the US beef supply chain

Each new cattle cycle offers an opportunity to accelerate change; that time is here

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Summary

Every cattle cycle presents opportunities for change. The focus for US producers in the next 10 years needs to be on evolving into a beef supply chain that better adapts to the uncertainties challenging participants in a largely commodity-based business.

Production and price risk management are more challenging today than in previous cycles. Volatile climate patterns, supply changes, and margin shifts have made operating increasingly tricky for US cattle producers and beef processors. While those factors guide the thesis for this paper, they represent only a partial list. Labor availability, sustainability commitments, legal challenges, regulatory burdens, and a growing list of other issues are exhausting the beef supply chain.

A 25-year trend of higher consumer beef demand and lower per capita supplies has created elevated market prices that expose market participants to greater financial risk than ever before. With demand on a solid foundation, the beef industry needs to build resiliency throughout the supply chain with the same intensity with which it built demand over the last three decades.

Operations focusing on vertical coordination, technology adoption, and policy engagement can create a more economically viable business that will better navigate the chaos of future cycles.

Recent rally covers costs, adds volatility, and creates uncertainty

The combination of higher cattle prices and input costs has added risk across all industry segments and stifled the market signals that generally lead to herd rebuilding. The costs of making a poor decision – either in production or price management – have never been higher.

The recent price break in the cattle futures markets on the Chicago Mercantile Exchange illustrates this. The CME live cattle futures rally from the 2020 pandemic lows to the 2023 highs captured the attention of the global beef market. The nearby live cattle futures contract rallied 120% from April 2020 to September 2023, with prices appreciating from USD 85 to USD 187/cwt.

At the start of the uptrend, the US beef cow herd was already 1.5 years into its liquidation phase. Cattle producers were losing money, feedyards were full, and abundant supplies stretched processing capacity to its limits. Profitability returned for many cattle producers in 2023, but cow liquidation persists and heifer retention remains elusive. Drought has increased production risk for many cattle producers, and higher costs have undermined potential returns.

From 2020 to 2023, USDA-reported corn prices were up 70%, while alfalfa and other hay prices increased by 48% and 29%, respectively. EIA-reported retail diesel prices are 65% higher, and

rising interest rates add to cost appreciation, increasing 132% compared to the 2020 average. In comparison, USDA fed steer prices increased 62% and the CME feeder cattle index price improved 61%.

Recent cattle market appreciation offset the rising costs of cattle production, but that only tells part of the story. The 2023 price trend also includes a lesson in market volatility.

Figure 1 shows the April 2024 live cattle futures contract. From September 15, 2023, highs to recent lows, the market sent a completely different economic signal to feedyards regarding the expected value of fed cattle and the implied margin for millions of cattle on feed.

Figure 1: April 2024 live cattle futures contract daily closing price, Nov 2022-Jan 2024

Source: Chicago Mercantile Exchange, Rabobank 2024

Based on a 1,500-lb finished weight, that correction was worth USD 495 per head in lost revenue potential for feedyards. Cow-calf and grower operations experienced a similar fate. Feeder cattle cash prices declined from USD 254 to USD 215/cwt during that time, representing a shortfall of more than USD 300 per head for sellers.

The futures contract recovered 35% of losses in the following weeks. But market losses from the initial correction will largely remain for cattle producers on this turn of cattle, fueling uncertainty regarding the beef market's ability to sustain higher prices for herd rebuilding.

Beef consumers need to incentivize ranchers

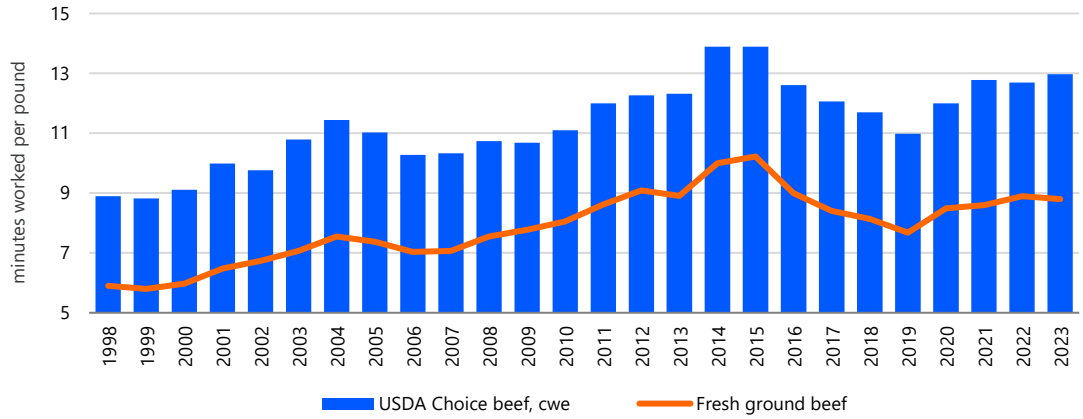
Rabobank expects higher consumer beef prices and cattle markets into 2026, but it will take a sustained period of steady to lower costs to incentivize producers for a multiyear herd rebuild. Tightening consumer budgets, increasing recession risks, and fluctuating margins are shaking the confidence of cattle producers who need consistent profitability to execute the next herd rebuild.

Consumers pay for each herd expansion, providing the dollars shared throughout the rest of the US beef supply chain. A few conditions, outlined below, must be met, but a 2026 average Choice retail beef price at USD 9.50/lb and fresh ground beef at USD 7/lb are possible. Each price is nearly USD 1.50/lb higher than the 2023 average, and that increase can finance a herd rebuild.

Figure 2 shows that a US family at the median income level worked 13.9 minutes to pay for a pound of USDA Choice beef and 10.1 minutes for a pound of ground beef at the 2015 cycle highs. Median household income grew to a new high of USD 74,580 in 2022. That translates to 13.0 minutes of work to secure a pound of Choice beef and 8.8 minutes for a pound of ground beef. Consumers must be willing to make a labor allocation for beef similar to the previous highs to incentivize the next herd rebuild.

Furthermore, household incomes must grow at least 3% annually, below the 10-year average of 3.8%. Finally, prices for competing protein items – like pork chops and boneless chicken breasts – must trend between USD 4 to USD 5/lb.

Figure 2: US Consumers need to work longer for each pound of beef consumed, 1998-2023

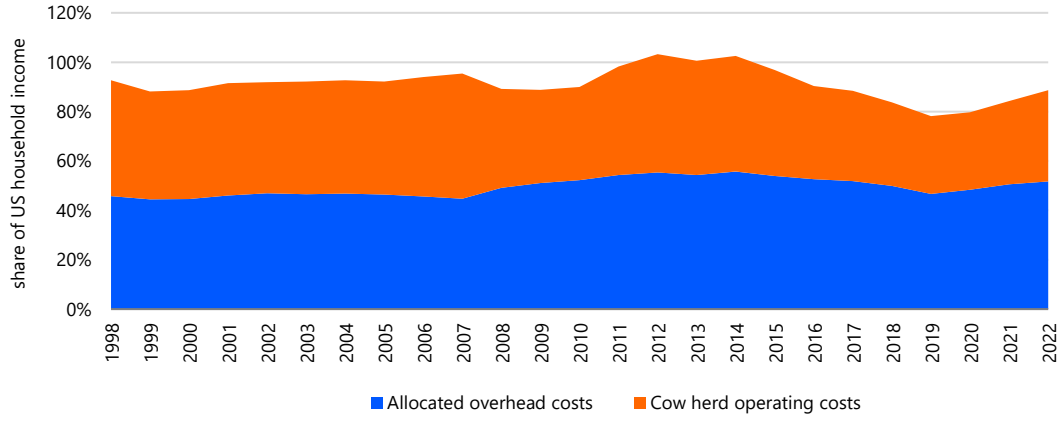


Source: USDA, BLS, US Census Bureau, Rabobank 2024

Depending on margin shifts across segments, that translates to annual average calf prices reaching USD 400/cwt and fed cattle near USD 235/cwt. Those prices can make producers consistently profitable if costs do moderate. But higher prices can also limit opportunities for new entrants, just when the industry needs to encourage participation in the cow-calf segment.

Running a cow-calf operation is a part-time job for most US producers. This can limit access to capital and place emphasis more on cash flow than profitability in herd rebuilding and liquidation decisions. Figure 3 outlines the percentage of annual US median household income it takes to pay the operating and overhead costs of a 40-cow herd. This provides a relative benchmark for when cash flow becomes a limiting factor for family cow-calf operations.

Figure 3: Share of household income dedicated to cow herd costs, 1998-2022



Source: US Census Bureau, USDA, Rabobank 2024

The ability to budget and build long-term business plans in the cattle-producing segments remains clouded by uncertain returns. Overhead costs have outpaced income growth for family operations over the last 25 years, recently reaching more than 50% of household income. Operating costs have commanded a smaller percentage of household incomes over the last 10 years, but that trend reversed recently. USDA-reported operating costs per cow were relatively consistent: between USD 535 and USD 600 per head from 2016 to 2021. However, those costs increased nearly USD 100 in 2022 to USD 689 per head. We can expect higher 2023 operating costs as well.

Consistency of returns is an important consideration. In the same dataset, cow-calf revenue minus operating costs, labor, taxes, and insurance led to an average loss of USD 21 per head from 2018 to 2022. That compares to an average profit of USD 153 per head in the five years preceding that period, with a peak of nearly USD 400 in 2014.

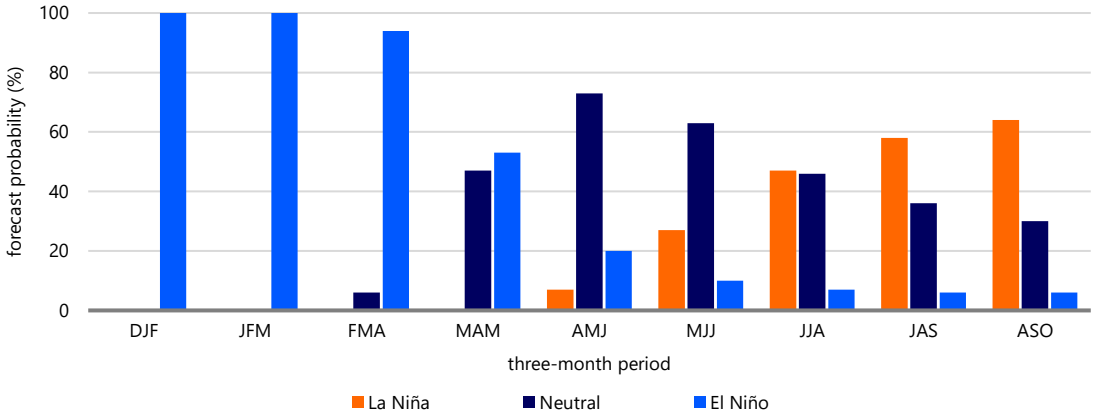
Expect consumers to pay more for beef, and those higher beef prices should support additional cattle market upside. However, cow-calf operations need more than higher prices and short-term profitability to rebuild herds. Consistent cash flow and predictable returns for cattle producers need to be an industry focus to encourage and retain new operators over successive cattle cycles.

Persistent drought stalls rebuilding efforts

Drought has been the biggest issue for US cattle producers to manage over the last two decades, and it will remain challenging for the industry over the next several years. Expect a slower, weaker cow herd rebuild in the next cattle cycle. A significant correction in precipitation patterns and a focus on herd environmental resiliency will be necessary to renew producer confidence and kickstart herd rebuilding efforts.

Widespread drought has forced US producers to be creative with sourcing feedstuffs and managing pasture resources, and continued ingenuity will be necessary over the next several years to rebuild the US beef cow herd and capture more of the cattle market upside.

Figure 4: ENSO probabilistic forecasts show transition to La Niña in 2024, Dec 2023-Oct 2024



Source: International Research Institute for Climate and Society, Columbia University Climate School 2023, Rabobank 2024

A wetter winter and spring is necessary to improve moisture availability next growing season, and the current El Niño climate pattern has delivered early 2024 snowstorms. The more significant concern for cow-calf producers is that a transition to La Niña appears likely in 2024 (see figure 4), casting doubt on the potential for sustained precipitation to refresh pastures.

Moderate or worse drought continues to affect around 40% of the US beef cow herd, and USDA-reported December 1 hay stocks at 76.7m short tons are the second smallest in the last 10 years and the third smallest in the previous three decades. This is forcing many cow-calf operations to sell now rather than rebuild herds.

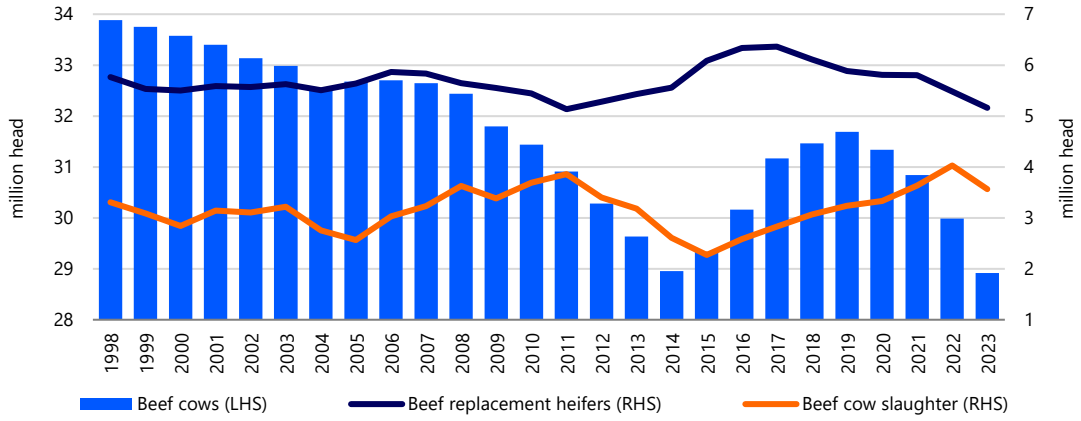
During Q4 2023, the percentage of heifers in feeder cattle and calf sales was 41.4%. This compares to 40.7% in the final quarter of 2022 and 40.4% over the previous five years. Expect the number of heifer replacements available in 2024 to remain historically small. That means fall 2024 is the next best opportunity for US producers to secure future herd replacements.

Beef cow culling also remains elevated. From September to November 2023, beef cow slaughter averaged 75,000 head per week. It was the second-largest slaughter rate during that period in the last 10 years (2022 equaled 79,600 head per week). The 2023 culling rate will be around 12%. It usually takes a culling rate near 10% to approach national herd stabilization. Values near 9% generally signal expansion.

Prices are trending higher, but lingering forage and margin uncertainty will not allow for the aggressive herd growth experienced from 2014 to 2019. Expect a slower recovery of US beef cow inventories. The best-case scenario remains herd stabilization in 2024 and rebuilding by 2025.

The industry needs to avoid the trend seen in 2004 to 2006 beef cow inventories (see figure 5). Beef replacement heifer numbers increased 6% through that time, but the cow herd only grew by 0.5% as drought from second half 2005 through 2006 elevated cow slaughter. Rabobank believes herd liquidation is drawing to an end after three years of aggressive culling, and that cattle producers can now focus on herd rebuilding with the youngest, most productive cows remaining.

Figure 5: Higher beef cow slaughter, lower heifer retention stalls herd growth, 1998-2023



Source: USDA, Rabobank 2024

The recent El Niño has been atypical in delivering moisture to the United States. Perhaps the next La Niña can operate under different norms as well. This remains difficult to predict. Regardless, moderation has been rare in observations of climate patterns across major US grazing regions in the last 25 years. Therefore, cattle producers need to rebuild with a more efficient and drought-resilient cow herd over the next 10 years.

Expect additional focus on cow size, stocking rates, and rotational grazing programs during the next herd rebuild to improve pasture and forage utilization, eliminate overstocking concerns, and encourage herd resiliency amid growing drought concerns.

Cow herd and capacity balance remains elusive

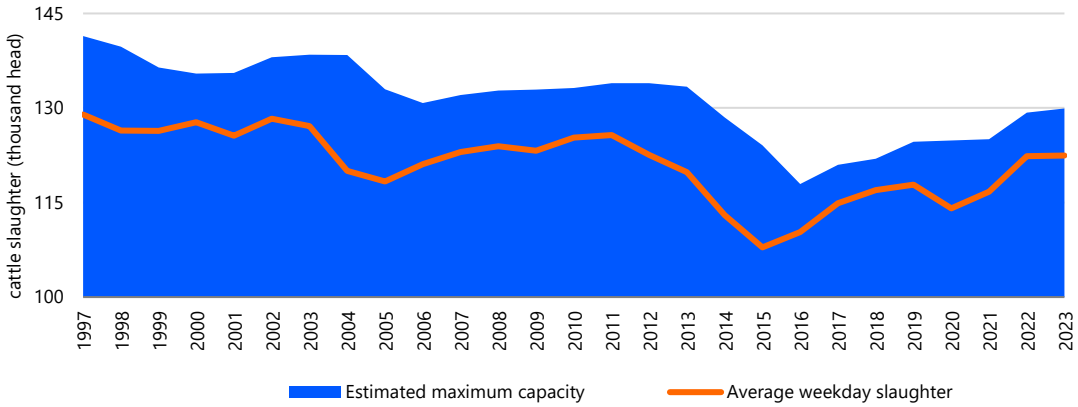
The US beef industry has struggled to find a balance between cow numbers and packing capacity. The challenge is as clear as it has ever been for current market participants. US cattle numbers are at lows last seen in 1952, but the processing segment is building an estimated 12,000 head in weekday packing capacity in anticipation of a herd rebuild that has not even begun.

Creating a more stable infrastructure across each segment requires better alignment of available supplies with capacity constraints. That involves transitioning from a commodity mindset to a collaborative approach where production risk, value creation, and market positioning are shared functions among all participants. With this approach, the industry can encourage industry investment by distancing itself from the violent and unpredictable margin swings that come with the traditional cattle cycle.

US cow numbers and beef production have been trending in opposite directions for 50 years. Better genetics, nutrition, and health management created industry-wide efficiency gains, leading to fewer cows but record-high beef production. For most of the last 25 years, packing capacity could not be idled fast enough to profitably process a shrinking cattle supply. That is, until the most recent cowherd rebuild.

Maximum weekday packing capacity peaked in the late 1990s at around 142,000 head per day (see figure 6). Weekday capacity bottomed at 118,000 head in 2016, and the processing facility losses were too much for a US cow herd expected to grow over the next four years. Cattle supplies quickly overwhelmed the processing segment.

Figure 6: US beef processors reduced weekday packing capacity as supplies dropped, 1997-2023



Source: USDA, Rabobank 2024

Packing margins flourished as cattle producers struggled. Demands for additional capacity grew louder throughout the industry over the next several years and functional weekday capacity increased 12,000 head. Most gains were made by improving or expanding existing facilities, but there were also some new entrants.

Currently, investors are building another 12,000 head of processing capacity that will be operational within two or three years. Cattle supply challenges will be waiting for those new entrants. The cattle cycle will work against processors for the next several years. The earliest herd rebuilding will begin is through retaining heifers from the 2024 calf crop, resulting in additional bred heifers and cows by 2025. In that scenario, cattle supplies will not increase until 2027.

Nonetheless, rebuilding meat and poultry processing capacity is now a political effort that carries bipartisan support. The USDA has committed at least USD 1bn through major grant and loan programs to rebuild the meat and poultry processing segment. The initiatives span all sizes of operations from local facilities to larger regional processors, and several programs are still active. Funding through state and local governments is also prevalent. The additional investment points to the potential endurance of these efforts.

Margins will be tighter for packing plants over the next three years, and new participants will face additional challenges. However, the economic principles behind capacity utilization that have dictated beef processing success and failure over the previous 25 years may not apply in the future.

Recent government intervention – and the political pressure to avoid food supply chain failures – may create a market disruption that allows beef processors to endure fundamental supply challenges for longer than previously possible.

Industry participants only need to examine how the US government distorted traditional energy market fundamentals. Subsidies, tax breaks, grants, loans, and loan guarantees – combined with structured mandates – created a foundation for ethanol and renewable diesel production and expanded solar and wind energy infrastructure, even with competition from cheaper fossil fuels.

Pursuing resiliency in the next cattle cycle

The US beef industry is navigating a business environment that is increasingly complex and challenging. At the same time, unpredictable climate patterns, supply changes, and margin shifts are increasing production and price risks for each segment.

An opportunity exists to mitigate these risks through better vertical coordination, technology adoption, public policy engagement, and other areas.

Vertical coordination

The US beef industry prides itself on a foundation that starts with independent cattle producers and continues with distinct segmentation from grower to finisher to processor. Each segment independently focuses on production efficiency and marketing to ensure economic viability.

That independence is a central part of what keeps many ranchers viable. Yet, the business environment is becoming increasingly complex and challenging. In Rabobank's view, a more vertically coordinated supply chain will be an important approach in managing this complexity.

Sustainability commitments, government regulation, and consumer attitudes toward beef production are increasingly complex. The US beef industry needs to explore supply chain solutions that allow for collaboration across segments and share the opportunity and burden of shifting market fundamentals and consumer demands more equally among all participants.

Coordination among segments is not a new concept, and there is not a once-size-fits-all approach to these models. Constant evolution and blending of concepts is necessary to meet the growing complexity of the market. The focus here is on end-user, production system, and product attribute programs that have garnered attention in recent years.

These approaches are neither exhaustive nor exclusive, but they create market differentiation through vertically coordinated supply chain efforts.

1) End-user initiatives

Walmart made headlines in August 2022 with its investment in Sustainable Beef LLC, the new Nebraska beef processing facility. It layers onto the 2020 Walmart program that sourced Angus cattle from 44 Farms and finished them at Mc6 Cattle Feeders before they were processed at Creekstone Farms. The program offers producers a nationwide direct-to-market option for cattle.

2) Production system initiatives

In March 2023, Tyson Foods introduced Brazen Beef. The branded beef program is focused on reducing greenhouse gas emissions by 10% through a partnership with Adams Land & Cattle, LLC. The Nebraska feedyard is seeking suppliers for the program and offers producers an opportunity to leverage technology and receive a premium for industry best practices.

3) Product attribute initiatives

Certified Angus Beef announced a partnership with Niman Ranch to form an exclusive grass-fed and finished product line in May 2023. Program cattle will be pasture raised and never given antibiotics, growth promotants, or additional hormones. Beef carrying the brand will still meet Certified Angus Beef's 10 quality standards for consistency and product quality.

Technology adoption

The US beef industry has actively adopted new technology throughout production and processing segments for decades. And the industry needs to continue to lead through innovation across the supply chain. Opportunities exist to leverage technology beyond traditional cattle and beef production.

As the previous solution outlines, consumers and food companies are constantly pushing for production practices, market differentiation, and value-added food attributes as distinguishing factors in the meat case. Technology will serve a valuable role in that work. Beef traceability will grow in importance, not simply for animal identification or disease traceability but also to track production claims, improve measurement, identify market inefficiencies, and improve cross-segment communication.

Rabobank recognizes the challenge of transferring production data across the supply chain. In conjunction with the BlockTrust Network, the bank initiated a pilot with clients and industry partners to communicate and track sustainability performance scores with blockchain technology on more than 300 cattle moving from ranches and feedyards to processing plants.

Blockchain technology, sensor technology, wireless technology, automation, machine learning, and data processing continue to evolve. These systems will improve the beef industry's efficiency in data analysis, benchmarking, market valuation, and product differentiation. The tools also offer an ability to more efficiently link beef products to consumers willing to pay for them. This will deliver a higher-valued product and return more consumer dollars to supply chain participants.

Public policy engagement

Government policy and regulation generally have a negative reputation within the US beef industry, but the trend toward increased government involvement remains. Focusing on lobbying, coalition building, and grant writing can have a net positive return in building beef supply chain resiliency. Additional work may be necessary to support new processing capacity, and policy as a risk management solution for cattle producers holds promise.

Policy-based solutions may exist to support new cattle producers with greater access to capital. Federal and state governments can also explore tax incentives for existing farm and ranch owners to transition businesses to younger producers.

Weather and market volatility threaten all producers, and insurance programs remain valuable in keeping farms operational. USDA insurance options such as Livestock Risk Protection, Weaned Calf Risk Protection, Crop Insurance, and Pasture, Rangeland and Forage Insurance will be increasingly useful risk management tools for the industry. Producers need to work with government officials to ensure these programs work as intended and evolve as participation grows.

Sustainability commitments also present a potential management risk for US cattle producers. In September 2022, the USDA announced its Partnerships for Climate-Smart Commodities. More than USD 3bn has been committed to programs across the agricultural supply chain that support climate-smart production practices and market development. The program offers a market-led approach, rather than a regulatory mandate, to reduce greenhouse gas emissions in US agricultural production.

Imprint

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