

## BEEF SUSTAINABILITY POLICY: RANKING CONSUMER PREFERENCES

### *SUMMARY REPORT 2* PREPARED FOR THE KANSAS BEEF COUNCIL

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#### **BACKGROUND**

The cattle and beef industry faces increasing pressure to adopt sustainable practices around environmental, economic, and social concerns. Producers, policy makers, food companies, and consumer advocacy groups are closely watching this issue. However, designing effective policies addressing public interests without undue tradeoffs for industry is complex. The term "sustainability" encompasses a wide range of issues from "climate change to corporate social responsibility"<sup>2</sup>, which fuels debate among policymakers, producer associations, and consumer groups. Addressing beef industry sustainability includes increased attention to environmental and social issues, alongside ongoing economic considerations. Concerns like animal welfare; impacts of cattle production on land and water quality; greenhouse gas emissions; beef affordability; and other consumer preferences are currently influencing cattle producers, downstream beef demand, and policy decisions.

Given the multifaceted nature of sustainability in the meat industry, the cattle and beef sector and policy makers encounter a formidable challenge in prioritizing sustainability initiatives. Addressing specific sustainability issues frequently comes with increased costs and trade-offs among different performance metrics by producers. As a result, there is a need for more information on how individuals rank their preferences for policies and strategies. This information is essential for the industry to successfully produce sustainable beef while navigating the complexities of varied stakeholder interests and trade-offs.

This report summarizes information cattle producers as well as policy makers can use to understand consumer rankings of preferences for beef sustainability.<sup>3</sup> The specific objective is to rank consumer preferences for individual components of the three pillars of beef sustainability.

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<sup>1</sup> We acknowledge partial funding support for this project from the Kansas Beef Council. Opinions presented are solely those of the authors and do not necessarily represent those of the Kansas Beef Council.

<sup>2</sup> Midan (2021, p.2) Sustainably Raised Meat Insights Report, available at <https://midanmarketing.com/reports/sustainably-raised-meat/>

<sup>3</sup> This is the second summary report for this project with the first one ranking broad consumer preferences for beef product attributes available at: <https://agmanager.info/livestock-meat/meat-demand/meat-demand-research-studies/ranking-consumer-beef-preferences>

## SUSTAINABILITY POLICIES USED IN THE STUDY

Nine beef sustainability policies were chosen for this study, three from each pillar of sustainability as shown in Table 1. Policy attribute preferences ranked included mainly sustainability characteristics that were sourced from cattle and beef industry and academic literature. The intent of selecting only nine policies was to keep the number of choices from being burdensome for respondents while covering a broad spectrum of sustainability policies. The policies and strategies were selected to specifically reflect factors related to each of the three pillars of sustainability - environmental, economic, and social.

**Table 1. Beef sustainability policy options evaluated**

<b>Beef Sustainability Policy</b>	<b>Definition</b>
<b><i>Environmental</i></b>	
Greenhouse gas emissions	Greenhouse gas emissions of cattle production
Conservation of water and land	Cattle and beef producer conservation of water and land
Water quality and cleanliness	Cattle and beef production impact on water quality and cleanliness
<b><i>Economic</i></b>	
Affordability of beef	Affordability of beef
Economic viability	Economic viability of small cattle farming operations
Supports local communities	Beef sold supports local communities where cattle farms are located
<b><i>Social</i></b>	
Animal welfare	Animal welfare treatment of the cattle
Wage levels and working conditions	Wage levels and working conditions for beef industry workers
USDA sustainability certification	USDA sustainability certification on beef retail product packaging

## METHODS

To assess the relative importance attributed to each beef sustainability policy option among U.S. residents, we employed a technique referred to as a Best-Worst Scaling (BWS) survey method design. This method requests respondents to select the "most important" and "least important" options from a choice set that contains a subset of options to reflect the importance rankings of alternatives. By presenting respondents with multiple-choice sets and altering the subset of choices, an exhaustive ranking of the policies can be determined.

The following statement appeared before the best-worst questions:

“Thinking about the sustainability of beef you buy, which attribute below is most important and which is least important to you? (Please select the most and least important to you from the lists on the following pages)”. An example of one of the best-worst questions is presented in Figure 1.

**Figure 1. Example of BWS choice set used in the survey.**

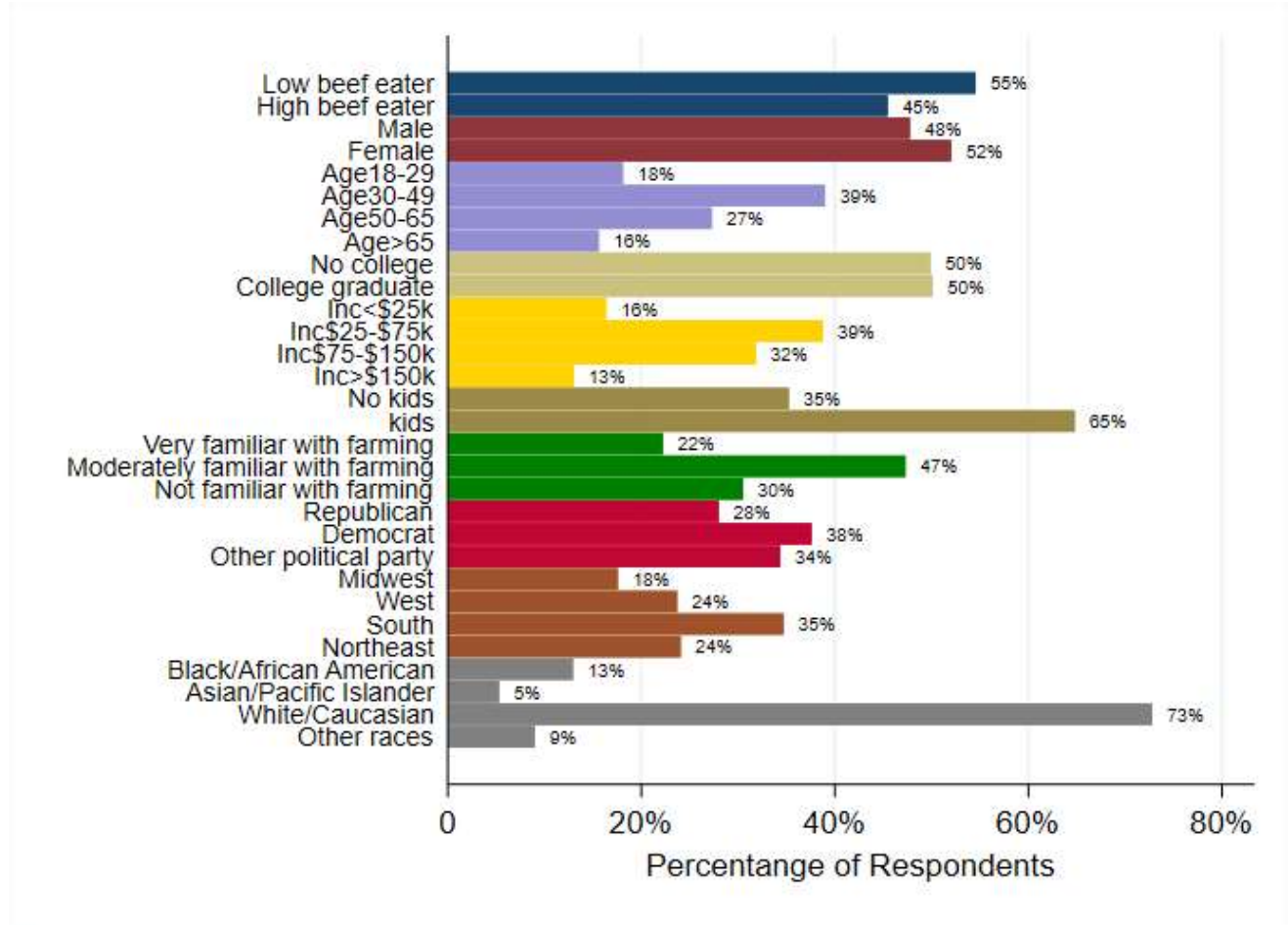
Please select the **most** and **least** important to you from the list below

Most Important		Least Important
<input type="radio"/>	<b>Cattle and beef producer conservation of water and land</b>	<input type="radio"/>
<input type="radio"/>	<b>Cattle and beef production impact on water quality and cleanliness</b>	<input type="radio"/>
<input type="radio"/>	<b>USDA sustainability certification on beef retail product packaging</b>	<input type="radio"/>
<input type="radio"/>	<b>Beef sold supports local communities where cattle farms are located</b>	<input type="radio"/>

### CONSUMER SURVEY

A nationally representative survey was conducted of US consumers in March 2023. The survey was administered through an on-line panel managed by dynata™. The survey was entered by 3,783 possible respondents of which 416 indicated they did not consume meat and thus did not complete the survey. 366 of the 3,367 respondents who finished the survey were speeding or provided incomplete responses and these responses were not used in our analysis leaving 3,001 usable responses. Participants in the survey had to be currently residing in the US and were at least 18 years old. Overall, the sample matches closely with US Census demographic data. Figure 2 presents survey respondent demographic characteristics. For more information on survey results, see <https://agmanager.info/livestock-meat/meat-demand/meat-demand-research-studies/ranking-consumer-beef-preferences>

**Figure 2. Demographic and Socioeconomic Characteristics of 3,001 Survey Respondents**



**RESULTS**

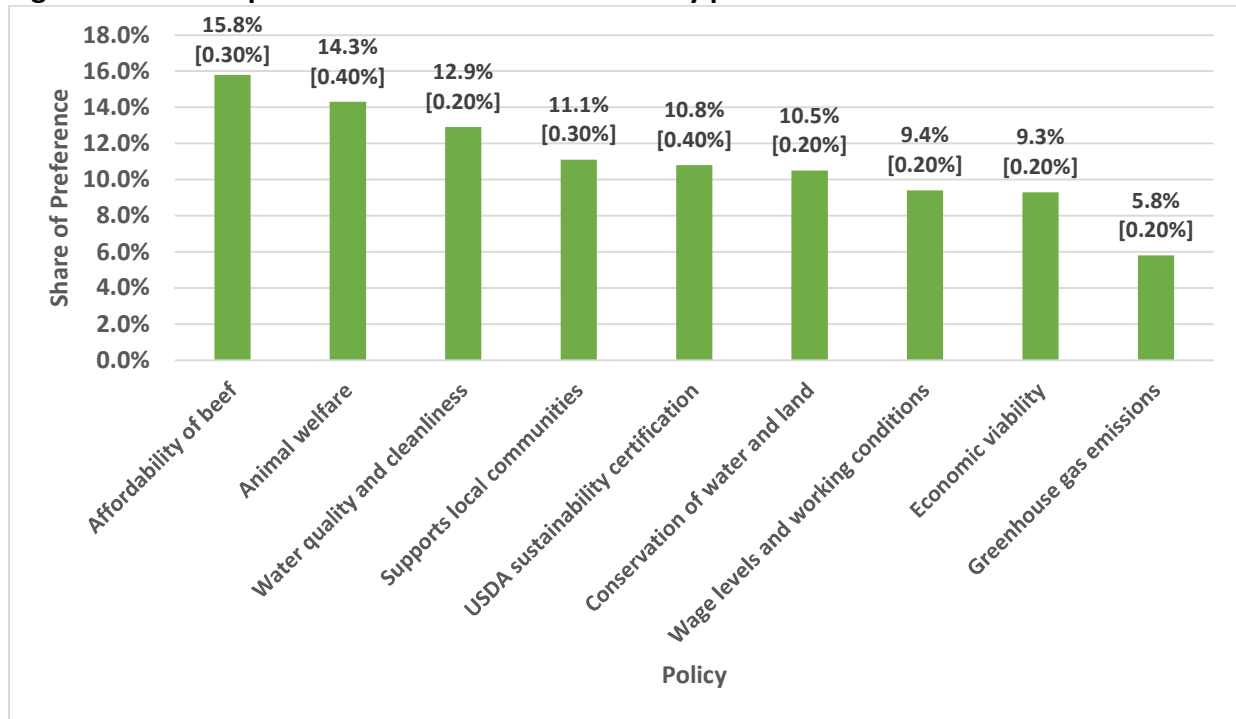
Figure 3 presents shares of respondent preferences for the various sustainability policies, which were estimated using statistical modeling. The share of preferences is a scale that measures relative importance respondents assign to one policy over others when comparing alternative choices. Shares of preferences sum to 100% across the nine policy alternatives. A larger share means more respondents preferred that policy over other options. Every policy option was highly preferred by at least some respondents. Thus, no share of preference alternatives is zero.

Affordability of beef has the largest share of preference at 16%, revealing that it is the top concern among consumers among the nine alternatives. This indicates that the cost of beef is a higher priority than environmental and social policies for most consumers. Respondents’ emphases on affordability of beef suggest any sustainability or other policy that raises the cost of producing cattle or beef will harm more consumers than it would benefit. However, consumers demonstrate considerable variation in their preference rankings as five other alternative policies have preference shares not far below affordability at 10% to 14%. This indicates several policy options have roughly comparable numbers of consumers ranking them higher than other alternatives.

Animal welfare ranked second overall with a 14% share indicating support for policies promoting animal welfare standards. These findings align with previous research that has also found animal welfare relatively important to consumers. Respondents consider cattle and beef production impact on water quality and cleanliness as another important concern, ranking it third with 13% share of preference, slightly below animal welfare. This policy aims to address any adverse impacts of cattle and beef production on water quality and cleanliness. Relatedly, about 11% (sixth-ranked) of respondents expressed a preference for cattle and beef producers to prioritize water and land conservation. Given the relative importance placed on water quality or conservation, the beef industry is advised to prioritize these issues in sustainability efforts.

Beef that supports local communities where cattle farms are located was ranked the fourth-most important policy, with about 11% of respondents considering it most important. Other policies with preference shares between 11% and 9% included USDA sustainability certification of beef retail product packaging; cattle and beef producer conservation of water and land; wage levels and working conditions for beef industry workers; and economic viability of small cattle farming operations. Greenhouse gas emissions from cattle production received the lowest share of preference, with only 6% of respondents considering it most important. Greenhouse gas emissions in cattle and beef production policy and product preferences are consistent with previous works placing it as the lowest rank, providing strong evidence of relatively low consumer concern with this issue.

**Figure 3. Share of preferences for beef sustainability policies**

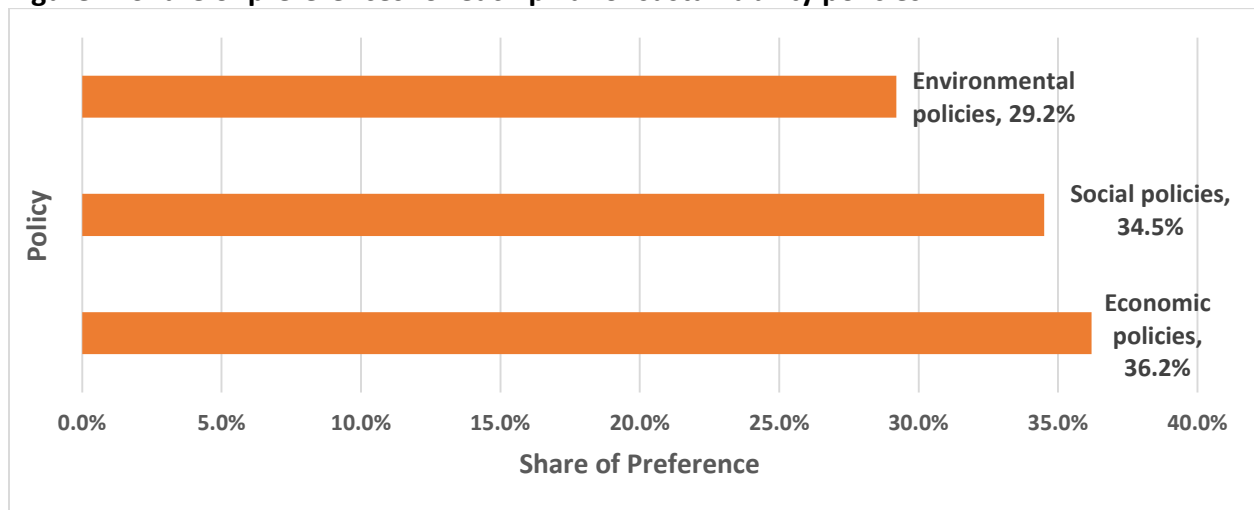


Notes: Standard errors are in parentheses. All share of preference values are statistically significantly different from zero at the 1% significance level.

A final point about results in Figure 3 is that the share of preferences makes it possible to compare relative strengths of findings. For instance, affordability of beef has nearly three times as many consumers ranking it more important than greenhouse gas emissions of cattle production (15.8%/5.8% = 2.7).

Although all the policies were considered important by some segments of respondents, comparing each sustainability category (environmental, economic, and social) sheds more insights into relative preferences. Figure 4 shows the combined shares of preferences for each sustainability pillar calculated by summing the individual shares for each pillar from Figure 3. Economic sustainability policies have the largest share of preferences (36%) while environmental sustainability policies have the lowest preference share (29%). Even though the difference is modest, it gives us an insight into what group of policies matter most to consumers. This also indicates the importance of evaluating specific policies/attributes rather than just generic policies.

**Figure 4. Share of preferences for each pillar of sustainability policies**



**POLICY PREFERENCE BY DEMOGRAPHIC AND SOCIOECONOMIC TRAITS**

We further assessed how demographics and other socioeconomic factors were related to shares of preferences for the various policies. Some demographic and socioeconomic traits are related to diverse preferences for beef sustainability policies. Where preferences are similar across demographic traits of respondents, there is little opportunity to address a specific policy with a particular demographic. Alternatively, where rankings vary across demographics, presents an opportunity for aligning product attributes/policies with specific demographics.

High beef eaters and male respondents are more likely to place the most importance on affordability of beef, while consumers aged 30-49 and moderately familiar with farming place a lesser importance on affordability of beef.

For animal welfare of cattle, people between the ages of 30-49 and 50-65, Asian/Pacific Islander, and other races (besides whites) are more likely to place greater importance on animal welfare policy. Males, people with income between \$25,000 and \$150,00, those familiar with farming, and Republicans ranked animal welfare policies lower. Male respondents slightly favor wage levels and working conditions for beef industry workers policy, while individuals aged 30-49 and 50-65 are less supportive relative to females and people between 18 and 29 years.

Republicans, higher-income individuals, and high beef eaters rank greenhouse gas emissions policy lower, while college graduates tend to rank greenhouse gas emissions policy higher as more important. Individuals aged 30 and above prefer USDA sustainability certification on beef retail product packaging, while Asian/Pacific Islanders show the least support, relative to their respective baselines.

Preferences for economic viability of small cattle farming operations and beef sold supporting local communities where cattle farms are located were not strongly related to most demographics, though Democrats, those with no familiarity with farming, and lowest income consumers were less supportive. Cattle and beef production impact on water quality and cattle and beef producer conservation of water and land have similar demographic determinants associated with their shares of preferences with young respondents less than 30 years old, males, and Republicans having strongest support.

## **IMPLICATIONS**

The implications for cattle and beef sustainability policy and production decisions are:

1. Affordability of beef is the most important policy of the largest share of respondents. Prioritizing beef affordability in sustainability decisions is crucial, as policies increasing costs of beef harm consumers. This reinforces the importance of carefully assessing the cost-benefit tradeoffs of any sustainability initiative whether driven by policy or industry initiatives. Investing in cost-effective production technologies to reduce beef costs benefits a wider consumer base than policies that increase production costs while striving to accomplish other concerns. New technologies that enhance animal welfare; reduce environmental impact, particularly water and land quality and conservation; and lower production costs together strongly align with consumer policy preferences.
2. Animal welfare is important to consumers, and they will largely support policies directed toward ensuring animal welfare. Policies should focus on technology to improve animal health and production efficiency, benefiting consumers by keeping beef affordable and other complementary benefits. However, policies that raise costs without efficiency gains can harm consumers, especially if they become mandatory and translate into increasing beef prices. Alternatively, through specialized and unique premium-priced welfare-enhanced product offerings, policies enabling voluntary animal welfare assurances might be advantageous to both producers and consumers.

3. Consumers do not prioritize greenhouse gas emissions in beef production. Among the nine beef sustainability options, addressing greenhouse gas emissions from cattle and beef production ranked low, with only a 6% top preference share. This indicates a low priority for such policy efforts without additional benefits.
4. Consumers prioritize economic policies over environmental policies. This indicates that in as much as some consumers want the environmental issues of cattle and beef production to be addressed, such policies need to be careful not to increase beef prices for consumers, or again, more harm could occur than benefits. Hence policy priority should be given to affordability of beef to most consumers and economic opportunities for cattle and beef producers.
5. Respondent preferences for beef sustainability policies are heterogeneous, with no single policy favored by a large majority as roughly eight of the policies have a 10% to 16% preference shares. This suggests bundling multiple complementary sustainability policies is likely to be more successful than individual initiatives in addressing varying priorities of consumers and stakeholders.