

**“Where’s the beef?”: Framing industry and popular discourses around the sustainability
and morality of the Alberta beef industry**

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ABSTRACT

The beef industry holds cultural and economic significance for the province of Alberta, Canada. Yet, it faces increasing pressure over concerns about the social and environmental impacts of beef production. To better understand tensions between the importance of the beef industry and the concerns that surround it, my research examines industry and popular discourses around the sustainability and morality of beef in Alberta, exploring how different actors understand, justify, and critique the practices of the industry. In my first analysis, I use Critical Discourse Analysis to examine how Alberta Beef Producers (ABP), as the voice of the beef industry in the province, discursively navigates tensions around the industry. Based on an analysis of public ABP documents, I describe four key discourses employed by the producer organization to portray beef producers as environmental stewards, selectively emphasizing favourable moral dimensions of the beef industry to rationalize support for it rather than confronting the negative impacts of beef production. In my second manuscript, I combine a mixed methods topic modelling approach encompassing thousands of news articles about the beef industry with qualitative Critical Discourse Analysis of a subset of those articles, identifying and characterizing popular discourses around the Alberta beef industry. I demonstrate the ubiquity of discourses of pride in the industry, which portray the industry as traditional, ethical, and sustainable, and symbolically connect the beef industry to the province of Alberta. I show that pride in the industry drives two main responses to the array of challenges faced by the Alberta beef industry: a reactionary doubling down on the desire to preserve the status quo and prevent the industry from changing, and in contrast, a willingness by some actors to imagine alternative futures for the industry that seek to make it more sustainable and ethical. By analyzing how industry actors and public stakeholders discursively frame the beef industry, these two manuscripts demonstrate that support for the beef industry is deeply entrenched in Alberta, while there is also a growing sense that the industry is at a crossroads and facing unprecedented challenges. My research offers insight into the social dynamics around the beef industry in Alberta but can also help explain how discourses reinforce support for industries more broadly, and reveals the difficulties of imagining pathways forward for the beef industry in Alberta and elsewhere. My thesis contributes to existing literature on the moral economies that develop around industries, advancing the conversation on how discourse can serve to rationalize and perpetuate industry practices despite the negative externalities they may carry for society and the environment

RÉSUMÉ

L'industrie de la viande bovine revêt une grande importance culturelle et économique pour la province de l'Alberta, au Canada. Pourtant, elle est également confrontée à des pressions croissantes en raison des préoccupations concernant les impacts sociaux et environnementaux de la production de viande bovine. Pour mieux comprendre les tensions entre l'importance de l'industrie bovine et les préoccupations qui l'entourent, ma recherche examine les discours de l'industrie et de la population sur la durabilité et la moralité de la viande bovine en Alberta, en explorant comment les différents acteurs comprennent, justifient et critiquent les pratiques de l'industrie. Dans ma première analyse, j'utilise l'analyse critique du discours pour examiner comment Alberta Beef Producers (ABP), en tant que porte-parole de l'industrie du bœuf dans la province, navigue discursivement dans les tensions autour de l'industrie du bœuf dans les documents publics. Sur la base d'une analyse de divers documents publics d'ABP, je décris quatre discours clés utilisés par l'organisation de producteurs pour dépeindre les producteurs de bœuf comme des gardiens de l'environnement, qui mettent sélectivement l'accent sur les dimensions morales favorables de l'industrie du bœuf pour rationaliser le soutien continu à l'industrie plutôt que de confronter les impacts environnementaux négatifs de la production de bœuf. Dans mon second manuscrit, je combine une méthode mixte de modélisation des sujets englobant des milliers d'articles de presse sur l'industrie du bœuf avec une analyse qualitative du discours critique d'un sous-ensemble de ces articles, identifiant et caractérisant les discours populaires autour de l'industrie du bœuf de l'Alberta. Je démontre l'omniprésence des discours de fierté à l'égard de l'industrie, qui décrivent l'industrie comme traditionnelle, éthique et durable, et qui relient symboliquement l'industrie du bœuf à la province de l'Alberta. Je montre que la fierté de l'industrie entraîne deux réponses principales à l'ensemble des défis auxquels est confrontée l'industrie du bœuf de l'Alberta : une réaction de doublement du désir de préserver le statu quo et d'empêcher l'industrie de changer, et à l'inverse, une volonté de certains acteurs d'imaginer des futurs alternatifs pour l'industrie qui cherchent à la rendre plus durable et plus éthique. En analysant la manière dont les acteurs de l'industrie et les parties prenantes publiques encadrent discursivement l'industrie du bœuf, ces deux manuscrits démontrent collectivement que le soutien à l'industrie du bœuf est profondément ancré en Alberta, alors qu'il y a également un sentiment croissant que l'industrie est à la croisée des chemins et qu'elle fait face à des défis sans précédent. Ma recherche offre un aperçu de la dynamique sociale autour de l'industrie du bœuf

en Alberta, mais peut également aider à expliquer comment les discours renforcent le soutien aux industries de manière plus générale, et révèle les difficultés d'imaginer des voies d'avenir pour l'industrie du bœuf en Alberta et ailleurs. Ma thèse contribue à la littérature existante sur les économies morales qui se développent autour des industries, en faisant avancer la conversation sur la façon dont le discours peut servir à rationaliser et à perpétuer les pratiques de l'industrie malgré les externalités négatives qu'elles peuvent entraîner pour la société et l'environnement.

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CONTRIBUTION OF AUTHORS

This is a manuscript-based thesis, composed of two original analysis chapters that are formatted as drafts for eventual submission to scholarly journals, as well as all several other chapters to meet the requirements of a Master's thesis at McGill University. The student, Michelle Hahn-Baker, is primarily responsible for the entirety of the thesis, including both manuscripts, having conceived of the research project and carried out the bulk of the research and writing. The co-supervisors also contributed to this work by providing support, guidance, and scholarly input, as well as revisions and editing. In the two manuscripts, the pronoun “we” is used to refer to the entire research team to recognize the contributions of the co-supervisors in preparation for publication, whereas the pronoun “I” is used throughout the rest of the thesis to indicate that it is Michelle Hahn-Baker's primary work and thesis.

CRediT author statement

Michelle Hahn-Baker: Conceptualization, Methodology, Coding, Qualitative Analysis, Statistical Coding, Writing - Original Draft, Visualization

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CHAPTER 1: INTRODUCTION

1.1 Introducing Alberta beef

In the Canadian province of Alberta, “I Love Alberta Beef” is a common refrain on bumper stickers, billboards, and baseball caps. In restaurants throughout the province, menus feature “Alberta beef”, oftentimes detailing the meat’s many attributes: AAA, grass-fed, pasture-raised. Alberta is known as “cattle country”, and the local beef industry is as much a cultural symbol of the province as its wide prairie landscapes and ubiquitous oil derricks. Gwendolyn Blue, a geographer at the University of Calgary, has emphasized the cultural significance of the Alberta beef industry, writing that “beef functions as a synecdoche of the province of Alberta, representing not simply an agricultural commodity, but also a means of cultural identification” (Blue, 2008, p. 79).

Beyond its cultural importance, the beef industry also bears economic importance for Alberta. The beef industry directly employs many people in the province. As of 2018, more than 14,000 employees worked in the beef and feedlot industries in Alberta, according to Statistics Canada (Toor and Hamit-Haggar, 2021). The Alberta Beef Producers, a non-profit industry association, reported that its members included 18,000 producers (Alberta Beef Producers, 2023). Indeed, in 2021, beef farms and feedlots represented the largest share of farms in Alberta, at around 35% (St. Pierre and McComb, 2022). Cargill’s Protein Processing Plant in High River, Alberta, which processes 4,700 head of cattle per day, employs a further 2,200 people (Cargill, 2023). As is further described in Section 3.2, the beef industry has a long history in Alberta, having been a key component of the province’s agricultural economy since the late 1800s (Foran, 2003).

The beef industry in Alberta is, moreover, important to Canada as a whole, as 40% of all cattle in Canada are located in the province (St. Pierre and McComb, 2022). Beef production is economically important to Canada generally, contributing around \$21.8 billion to Canada’s GDP (Agriculture and Agri-Food Canada, 2022). According to the USDA, Canada is among the top beef producing nations in the world, producing around 2% of the global beef supply (USDA, 2024). Trade is important to the Canadian beef industry, as large amounts of beef are exported from Canada and traded interprovincially (Toor and Hamit-Haggar, 2021). Amongst the provinces, Alberta has historically reported the largest international and interprovincial exports

of beef, in terms of monetary value: in 2016, the province exported \$1.6 billion worth of beef products internationally and \$2.4 billion interprovincially (Toor and Hamit-Haggar, 2021). Meanwhile, in 2016, around 17% of beef products processed in Alberta remained in the province for consumption (Toor and Hamit-Haggar, 2021). While accessing precise year-to-year data on the exportation and consumption of Alberta beef is challenging, these trends have shifted over time with key events that have shaped the industry, such as the onset of the BSE crisis of 2003 that led the United States and other key trading partners to ban importation of Canadian cattle (Government of Alberta, 2024).

Despite the economic and cultural predominance of the beef industry in Alberta, the industry is not without its challenges. The COVID-19 pandemic shed a light on labour concerns related to the beef industry. In 2020, Cargill's slaughterhouse in High River became the site of the largest single COVID-19 outbreak to date, with over 900 workers contracting the illness by May (Baum et al., 2020). At the time, the epicentre of the second largest outbreak in Canada was also a meat-packing plant: the JBS Canada beef facility in Brooks, Alberta, where almost 400 workers contracted COVID-19. The high rates of infection among employees signalled concerns related to labour practices at meat-packing plants, including a failure to ensure the safety of workers. While the COVID-19 pandemic presented exceptional circumstances, labour issues appear to be commonplace at meat processing facilities in Alberta, with employees alleging unsafe working conditions and incidences of mistreatment by superiors (Dryden, 2021).

Beef production and consumption present other concerns as well. In recent decades, medical professionals have warned against consuming too much red meat, which has been associated with certain negative health outcomes (Clark et al., 2018). For example, high consumption of red meats, such as beef and pork, has been linked to cardiovascular disease, type 2 diabetes, and some cancers (Clark et al, 2019). Another key challenge related to the beef industry is its environmental impact. Livestock production in general makes considerable contributions to greenhouse gas emissions, representing 56 to 58% of all direct greenhouse gas emissions from food, even though meat only contributes 37% of our protein and 18% of our calories globally (Poore and Nemecek, 2018). Meat makes such outsized contributions to emissions due to its high feed-to-edible protein conversion ratios, the prevalence of deforestation for animal agriculture in some regions, the emissions created by animals over their lifetimes, the emissions created through meat processing, and wastage (West et al. 2014). Meat production is

also a leading source of nutrient pollution (Godfray et al., 2018). While a wide body of research shows that all animal-based proteins have, on average, a greater environmental cost than substitute plant-based proteins, the impact of ruminant meats such as beef is great even relative to other animal products, such as eggs, dairy, fish, or chicken, and to some extent pork (Clark et al., 2019). Ruminant animals emit methane, a potent greenhouse gas, due to enteric fermentation during digestion of their feed intake, and ruminant meat production typically requires greater resource inputs (e.g., land and water) than other types of meat (Poore and Nemecek, 2018).

1.2 Understanding Alberta beef

Alberta, therefore, presents an interesting context: while the beef industry holds cultural and economic importance in the province, concerns related to its social, health, and environmental impacts – or those of beef more generally – are increasing. These tensions between beef's importance and impacts are reflected in narratives and discourses around the beef industry in Alberta. Existing research has explored the sustainability discourses of cow and calf producers in Alberta, examining how producers understand themselves as environmental stewards despite evidence of the industry's environmental harm (Kessler et al. 2016). Further research into discourses surrounding the industry can shed light on how various types of local actors navigate these tensions while contributing to the cultural prevalence of beef.

Understanding these discourses can, moreover, reveal opportunities to mitigate the harmful impacts of the beef industry in Alberta and perhaps even help the industry move in a more sustainable direction as it evolves to adapt to the many challenges it faces. As someone who still considers Alberta my home, I hope this research will contribute to the economic, social, and environmental health of the province. My interest in this research topic began in early 2022 when I walked past a storefront in Edmonton, my hometown, and noticed a display of Alberta beef apparel – baseball caps, socks, and boxer shorts. The display got me thinking about the ubiquitous presence of beef in Alberta, which until then I had taken for granted. Like most Albertans, I was highly aware of the sense of pride in the oil and gas industry that is entrenched in the province, even amidst increasing concern about climate change. Until then, however, I hadn't recognized beef as such a powerful symbol of the province I grew up in. As a person who has followed a vegetarian diet for a decade, largely due to environmental concerns, I started to consider parallels between the beef industry and the oil and gas industry in Alberta: both

industries were known to have considerable environmental impacts, yet also received widespread support from many Albertans.

I quickly realized that while much has been written about the culture surrounding support for the oil and gas industry in Alberta, the Alberta beef industry has been far less explored. This realization sparked my curiosity, and I began to wonder about how the beef industry came to be seen as a symbol of Alberta, how the legacies of the beef industry and the oil and gas industry might be intertwined, how various actors in the province rationalize and understand their support for the beef industry, and what the predominance of the beef industry might mean for the future of Alberta as it considers how to move forward in a world transformed by climate change. This research topic also appeared as a logical next pursuit for me personally. After working for some years in the field of international development, I was keen to focus my attention back on the places I come from and the transformations they need to make to build a more sustainable world.

1.3 Overarching research questions

My thesis examines industry and popular discourses around the sustainability and morality of beef in Alberta, exploring how different actors variously understand, justify, and critique the practices of the industry. My thesis responds to three principal research questions:

1. What discourses does Alberta Beef Producers (ABP), as the voice of the beef industry in the province, employ and how might those discourses frame the sustainability and morality of the beef industry?
2. What are popular discourses surrounding the beef industry in Alberta and how do they present the sustainability and morality of the industry?
3. To what extent are industry and popular discourses about the Alberta beef industry aligned, and how might such alignment work to foster support for the Alberta beef industry amidst the tensions it faces from concerns about its social and environmental impacts?

As this thesis incorporates two chapters formatted as manuscripts, I address the first two research questions in my first and second manuscript, respectively. My third and final research question, which connects the two manuscripts to more broadly examine the cultural importance of the beef industry in Alberta, is addressed in the separate thesis discussion chapter.

My manuscript-based thesis is therefore comprised of five chapters. Following this introduction, which serves as my first chapter, I proceed to present my literature review and theoretical framework for this thesis in Chapter 2. Chapter 3 is the first of my two manuscripts, in which I use Critical Discourse Analysis to examine how Alberta Beef Producers discursively navigates tensions around the beef industry in public documents. Based on an analysis of various public ABP documents, I describe four key discourses employed by the producer organization to portray beef producers as environmental stewards, which selectively emphasize favourable moral dimensions of the beef industry to rationalize continued support for the industry rather than confronting the negative environmental impacts of beef production.

Chapter 4 is my second manuscript, in which I combine a mixed methods topic modelling approach on thousands of news articles about the beef industry with qualitative Critical Discourse Analysis of a subset of articles, identifying and characterizing popular discourses about the Alberta beef industry. I demonstrate the ubiquity of discourses of pride in the industry, which portray the industry as traditional, ethical, and sustainable, and symbolically connect the beef industry to the province of Alberta. I show that pride in the industry drives two main responses to the array of challenges faced by the Alberta beef industry: a reactionary doubling down on the desire to preserve the status quo and prevent the industry from changing, and in contrast, a willingness to imagine alternative futures for the industry that seek to make it more sustainable and ethical.

The fifth chapter presents my thesis discussion, which brings the results of each manuscript into conversation to explore alignment in how industry actors and public stakeholders discursively frame the beef industry. In this chapter, I argue that support for the beef industry is deeply entrenched in Alberta, despite a growing sense that the industry is at a crossroads, facing unprecedented challenges to its economic viability. I offer insight into how discourses around the beef industry reinforce support for the industry, but also reveal the difficulties of imagining pathways forward for the beef industry in Alberta. In this discussion, I situate my thesis amidst existing literature on the moral economies that develop around industries, explaining how I advance the conversation on how discourse can serve to rationalize and perpetuate harmful industry practices.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

In this chapter, I first review the scholarly literature that provides context for my thesis, and which my thesis builds upon, then outline the theoretical framework that underpins my thesis. I begin by providing an overview of research on the sustainability of the beef industry, as this body of research provides credibility to concerns surrounding the sustainability of beef production in Alberta and the rest of the world. I move on to discuss literature on sustainability discourses related to the beef industry, offering an introduction to the field of environmental discourses and explaining how that field has addressed issues related to agriculture and food consumption choices. This scholarship is important to my thesis, as it is the body of literature my research best fits within. From there, I explore literature that aims to understand the drivers of meat consumption, which serves as context for my research by providing insight into why people choose to consume meat and the values they associate with it. Here, I pay particular attention to ideational factors that affect meat consumption, addressing the concept of moral economies that is a component of my theoretical framework. I then look at research on the cultural importance of beef in Alberta and elsewhere. This research provides important background into how other scholars have conceived of cultural attachment to beef, including the specific historical context that has led to the predominance of the Alberta beef industry.

2.1 Sustainability of the beef industry

The global meat industry is known to have significant environmental impacts, contributing to greenhouse gas emissions, nutrient pollution, land use change, and biodiversity loss (Poore & Nemecek, 2018; Nordhagen, 2020). While even the lowest-impact animal products take a greater environmental toll than substitute vegetable proteins, the meat of ruminants such as cows, goats, and sheep are known to have greater impacts than other types of meat (Clark et al., 2018; Poore & Nemecek, 2018). Consequently, the beef industry has an outsized impact on land, water, and climate in comparison to other agricultural products and is at the centre of key discussions related to sustainability. Many of these debates centre around trade-offs between the environmental and health impacts of the industry and its potentially positive contributions for nutrition and livelihoods, such as reducing micronutrient deficiencies and supporting poverty reduction, employment, and economic development (GAIN, 2020; Nordhagen, 2020). Trade-offs bear a different kind of consideration in high-income countries than in middle- or low-income

countries, as high-income countries such as Canada have different capacities and responsibilities when it comes to environmental action.

2.2 Environmental discourses

Drawing on discourse analysis and political ecology, an emerging body of literature can help us understand discourses around the environment and sustainability issues, and how they influence the social world. John S. Dryzek (2005) adopts a discourse approach to make sense of the “proliferation of perspectives on environmental problems” while paying particular attention to how these perspectives are intertwined with political practices and power (p. 9). Dryzek contends that attention to discourse is important, as the ways in which we discuss and interpret environmental problems have material implications for how we address them. Drawing on a variety of different types of texts, Richard Alexander (2010) similarly studies the discourse involved in discussions of environmental issues, exploring the use of language to argue for certain positions. Such approaches to examining how discourses around environmental issues affect approaches to addressing them have been adopted in a number of contexts, including to analyze sustainability issues in Alberta. For instance, several researchers have studied the proliferation of climate change discourses in Alberta, as well as their implications for climate actions and the power dynamics they reflect (e.g., Boulianne & Belland, 2019; Kraushaar-Friesen & Busch, 2020; Stevens & McCurdy, 2019). Kraushaar-Friesen and Busch (2020), for example, undertake a Critical Discourse Analysis of political speeches on the Trans Mountain pipeline expansion project, finding that the discourses employed by politicians serve to maintain the hegemony of fossil fuels.

2.2.1 Environmental discourses in agriculture

Despite mounting evidence of the beef sector’s heavy environmental impact, individual producers within the industry are known to express appreciation and concern for the environment and perceive themselves as stewards of their land (Carolan, 2006; Ellis, 2013; McGuire, 2013). Many researchers have found that narratives of “the good farmer” are commonplace within the beef industry, referring to discourses that portray farmers and ranchers as responsible stewards of the land who “would never hurt land or water, because productive land and clean water are the

first and essential conditions for continuity” (Silvasti, 2003, p. 149). Colter Ellis (2013) describes the perception of farmers and ranchers that their stewardship is a practice of balancing economic and environmental concerns, bringing together the interests of producers, animals, and the land. Michael Carolan (2006) studies the “epistemic nearness” that contributes to producers’ views of their work, as producers maintain a sense of nearness to the local elements while paying less attention to more distant elements of the industry, which can enable them to overlook environmental impacts that are not locally experienced (p. 238).

In the context of the Alberta beef industry, Kessler et al. (2016) have examined how producers in Alberta construct discourses of the industry’s sustainability despite evidence of its environmental harms. The narratives they identify weave together many of the strategies respectively identified by Ellis (2013), Carolan (2006) and McGuire et al. (2013) as they “balance [...] economic and environmental concerns, focus on environmental benefits that are epistemically near, draw on management discourses, and fragment their narratives about the beef industry by distancing themselves from others who are perceived to be environmentally harmful” (p. 173). Importantly, the work of Kessler et al. (2016) and most other researchers identified in my review around exploring the sustainability discourses of farmers and ranchers, only describe the narratives of the producers themselves, providing no insight into the discourses of the consumers or other stakeholders who support agricultural production. This gap in the literature means that little is known about how the sustainability discourses of consumers might resemble or differ from those of producers, both in Alberta and in other parts of the world.

2.2.2 Environmental discourses in food consumption

While little research focuses specifically on the discourses marshalled by consumers to justify meat consumption in particular, some research explores the ways in which discourse shapes the behaviour of consumers more broadly. Dennis Soron (2010) addresses the complexities of discourses that call for individuals to adopt environmentally friendly consumption practices, emphasizing how consumption practices are tied to identities. A study of Irish consumers sought to understand how consumers conceive of the relationship between consumption practices and environmental degradation by examining their discourse around commodities (Connolly & Prothero, 2003). The results of this study suggest that the consumers view environmental problems primarily in relation to supply rather than demand, focusing on issues such as recycling

as waste rather than consumption. Further research explores how consumers respond to discourse around the concept of “sustainable consumption”, referring to calls for people in high-income countries to shift their household consumption practices and reduce their environmental impacts (Hobson, 2002, p. 95). In sum, research in this area speaks to the complex ways in which discourse relates to the consumption habits of individuals as well as the extent to which they embrace the notion of sustainable consumption.

2.3 Understanding the dynamics of meat consumption

Beyond discourse analysis, a growing body of research attempts to explain the meat consumption habits of consumers. From a theoretical perspective, Peter Dauvergne (2010) advances the concept of the “ecological shadows of rising consumption” (p. 5) as an approach to understanding the direct consequences of consumption alongside its environmental spillovers, arguing that this approach accounts for the “micro-responsibilities of consumers” (p. xi) in contributing to global environmental damage, while still putting the bulk of the responsibility on those with wealth and power. Within this framework, he explores how markets for natural, organic, and grass-fed beef are expanding in many countries as producers aim to meet consumers’ demands for more environmentally friendly beef, despite concerns that such practices are only marginally better than conventional ones. Drawing on the Marxist concept of commodity fetishism, whereby marketplace exchange removes the circumstances of production from the meaning of meat, as well as Burke’s notion of associational clusters, Bettina Heinz and Ronald Lee (1998) examine the symbolic construction of meat consumption in the United States. They conclude that meat’s core cultural meanings are associated with “tradition”, “masculinity”, and “health”, as well as the associational clusters “product”, “food”, and “meal”, which speak to the perception of meat as a consumer product divorced from the living animal, which is thereby perceived as a type of human food and a core component of meals. Together, the theoretical works of Dauvergne, Heinz and Lee highlight how the decisions of consumers are complexly informed by production systems, cultural messages, and diffuse responsibility for environmental degradation.

Further research on the food value systems of consumers can provide insight into their consumption habits and reasons for eating or not eating meat. The list of eleven food values developed by Lusk and Briggeman (2009) highlights the different factors consumers consider

when deciding what to purchase or eat. Basing their work on previous literature on human values and food preferences, Lusk and Briggeman identify safety, nutrition, taste, price, naturalness, convenience, appearance, environmental impact, fairness, tradition, and origin as the eleven food values of consumers, of which safety, nutrition, taste, and price are generally considered to be the most important to consumers on average. Subsequent research has confirmed that these four values tend to resonate most deeply with consumers in a range of markets, while consumers are far more heterogeneous in the extent to which they attach importance to other attributes such as environmental impact (Hobbs, 2021). Some research has explored how these food values can be applied specifically to livestock products, finding that the general food values apply well (Lister et al., 2017). This research on food values associated with livestock products similarly highlights the importance of food safety and freshness for consumers, while consumers ranked concerns related to environmental impact, animal welfare, origin/traceability, and convenience as less important. Altogether, these findings suggest that concern for the environment has a minimal influence on the meat consumption habits of most consumers, despite growing evidence of the impact of meat production on the environment.

2.3.1 Moral dynamics of meat consumption

Beyond research on food values, some researchers have explored how ideational factors influence food choices through the framework of moral economies, first developed by E.P. Thompson, which is a core component of my theoretical framework for this thesis (Thompson, 1971). While Thompson popularized the term in his analysis of food riots among the English working class in the eighteenth century, further scholarship has advocated for the concept to be applied in modern contexts (Thompson, 1971; Götz, 2015). As Andrew Sayer notes, all economies, not merely pre-modern economies, are moral economies, as they all involve some moral values, although we might contest their morality based on our own understandings of what is right and wrong (Sayer, 2007).

Recent scholarship has considered modern food systems in the context of moral economies. Benjamin S. Orlove applies the concept to study the dynamics of a food riot in Santiago, Chile, which was driven by a sudden rise in food prices (Orlove, 1997). Other researchers have drawn on moral economies to understand the dynamics that surround the cold

chain, ready-made food, and food bank usage and obesity (Freidburg, 2015; Glaze and Richardson, 2017; Wheeler, 2017).

Meat, in particular, has been explored through moral economies by scholars via the notion of various dimensions through which ethical and moral issues related to meat are expressed: time, space, and notions of visibility and invisibility (Jackson et al. 2008). Other scholars have used the concept to analyze the drivers of red meat consumption domestically, such as by describing how eating red meat becomes linked to patriotism through the moral economy of Australia (Rachel Ankeny, 2007). Ankeny explores how comes to be understood as a moral imperative related to the desire to be loyal to one's country, as eating lamb is recognized as an important part of Australian tradition, highlighting how appeals to one's identity can construe meat as a moral good. Kevin Morgan suggests that food is well suited to analysis through the concept of moral economy because it is a manufactured product as well as being central to human health and well-being (Morgan, 2015). Consequently, Morgan proposes that "the ethical responsibilities of the moral economy are most pronounced in the case of food" (p. 294).

While the concept of a moral economy offers a distinct approach to understanding the drivers of meat consumption, many scholars adopting other approaches have studied how morality plays into rationales for eating or not eating meat through different theoretical lenses. Scholars identify a range of factors that influence choices around meat consumption, such as the influence of social norms, perceived benefits of meat consumption, perceived barriers to reducing meat consumption, and environmental concern (*sensu* Cheah et al., 2020). Other scholars have considered the role of psychological constructs and psychosocial aspects in influencing meat consumption (Carfora et al., 2020; Yeh and Hartmann, 2021). Piazza et al. (2015) outline four common rationalizations drawn on by consumers to justify meat consumption, which they refer to as the four Ns: the belief that eating meat is natural, normal, necessary, and nice. Some scholarship focuses on how guilt and pride factor in as drivers of meat consumption, or reductions in meat consumption, such as Mahasuweerachai et al. (2023), who describe how feelings of pride and guilt can motivate members of Generation Z to choose plant-based options at restaurants. This research expands on other work into how guilt and pride can motivate or dissuade pro-environmental behaviour (e.g., Aydin et al., 2022; Hurst and Sintov, 2022; Shipley and Riper, 2022). The concept of moral disengagement is also prominent in scholarship on meat

consumption, with scholars describing how practices of moral disengagement play a role in dissuading consumers from moving away from meat consumption (Graça et al., 2014; Schüßler et al., 2024).

Increasingly, research underscores the importance of considering culture in environmental fields, including land system science, food studies, and agriculture (Atkins & Bowler, 2016; le Polain de Waroux et al., 2021; Burton, 2020). Some of this research aims to explicitly understand the role of culture in shaping meat industries and economies. Hoelle (2015) explores the emergence of ranching and cattle culture in Western Amazonia, emphasizing the cultural practices and beliefs that have contributed to the industry's growth. Neo and Emel (2018) look at how culture has driven the spread of meat production around the world, including in the Americas. More and more literature speaks to the complexities of eating animals in light of the meat industry's environmental impacts, ranging from popular works such as Foer's *Eating Animals* (2011) to interviews with and essays by leading academics (King, S. et al., 2019; Potts, 2017). While much of this work aims to untangle the cultural importance of meat, the proliferation of literature on the question of meat eating further reflects its cultural importance.

2.4 The history and cultural importance of beef in Alberta

The beef industry, indeed, has a long history in Alberta. Maxwell Foran explores the legacy of beef in Alberta, tracing the history of the industry from its inception in the mid nineteenth century up to 1948 and arguing that the beef cattle industry was the province's first agrarian-based commercial industry (Foran, 2003). Likewise, Edward Brado explores how the ranching industry in Alberta became so prevalent, following the growth of cattle ranching in the West of the United States (Brado, 2004). A select amount of scholarship explores other aspects of the history of the beef industry in Alberta, such as the dynamics of class, gender, and culture in packinghouses during the mid-twentieth century (Loch-Drake, 2013).

Gwendolyn Blue has highlighted the important role of culture in the construction of the Alberta beef industry, proposing that Alberta beef has emerged as a defining feature of Albertan identity (Blue, 2008). Drawing on Benedict Anderson's concept of the nation as an imagined community, which describes the development of nationalist sentiments, Blue proposes that Alberta beef is profoundly bound up in with Alberta's regional identity (Anderson, 1991). She argues that the marketing of Alberta beef has incorporated it into the province's cultural

imaginary, highlighting key marketing campaigns that have connected the modern industry to Alberta's ranching history. These marketing campaigns connect beef to the vision of Alberta as a frontier province. Blue also emphasizes the importance of the 2003 Bovine Spongiform Encephalopathy (BSE) crisis, which effectively shut the Canadian beef market out of global trade, in connecting the Alberta beef industry with provincial identity. While Blue is among the only academics to have highlighted the connection between Alberta beef and Alberta's cultural identity, she cites many authors and journalists who have also observed this link. Meanwhile, other scholars have underscored the importance of food in the construction of regional identities, illustrating how food and culture are related (Mintz, 2007).

2.5 Literature review synthesis

As this literature review demonstrates, I draw on a wide range of different types of literature in my research, from fields that span the humanities, social sciences, and environmental sciences. I believe that it is important for me to situate my thesis in the context of these different bodies of work because, although my research primarily addresses the social dynamics around beef production, I adopt the view from Critical Discourse Analysis that discourse both shapes and is shaped by the larger world (van Leeuwen, 2006). As such, it is important for my thesis to be grounded in the most relevant research on the physical realities surrounding the Alberta beef industry, as well as the social phenomena that relate to it. The literature I have reviewed also focuses on different temporal and geographical scales. Some of the scholarship I consider addresses the contemporary dynamics of beef production, while others take a historical view of the beef industry. Likewise, I reviewed a mixture of articles that reflect on beef production at a global scale, as well as writing about the beef industry at the local level in Alberta. By considering an array of literature across these scales, I can concentrate my analysis on the contemporary beef industry in Alberta, while also contemplating issues such as how the industry has emerged historically and its place amidst the global dynamics of today.

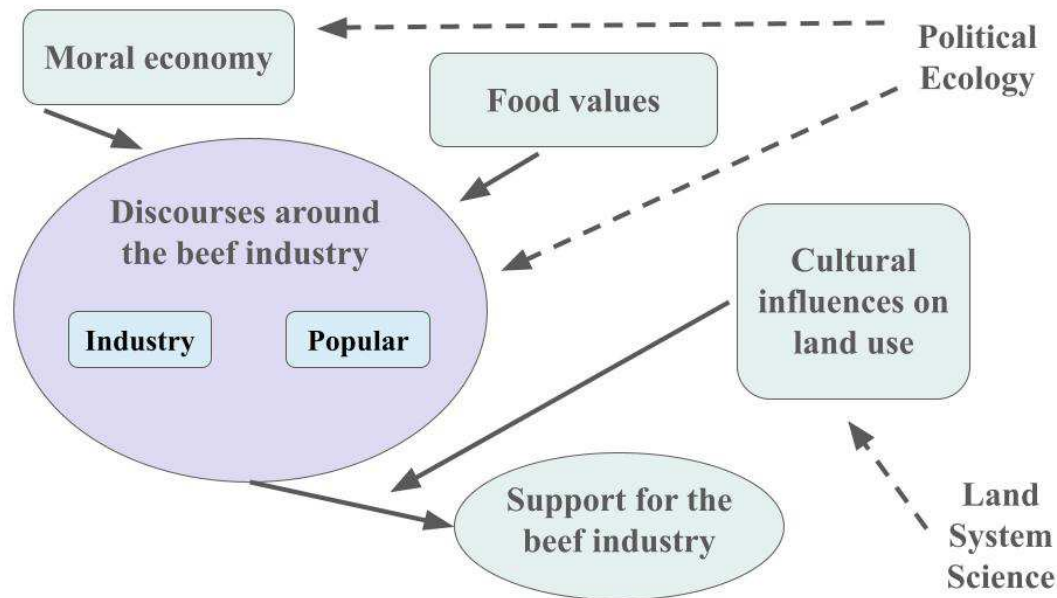
Some of the literature I have reviewed provides context for understanding the importance of the Alberta beef industry, both to the province, to Canada, and to the world more broadly. Scholarship on the sustainability of beef shows how beef production in Alberta affects the planet, while literature on the history and cultural importance of beef elucidates why beef is socially meaningful. Other literature described in this review supports the analytical work I carry out

throughout the rest of this thesis. Indeed, writing on various aspects of environmental discourses and the drivers of meat consumption are essential to my investigation of how discourses surrounding Alberta beef represent the industry's sustainability and morality and, in turn, influence the support it receives. This literature furthermore complements the groundwork provided by my theoretical framework, which is outlined in the next section.

2.6 Theoretical framework

My thesis is guided by a theoretical framework that serves to bring its different components, including the two distinct manuscripts, into a common conversation. The theoretical framework lays out the basic scholarly assumptions that underly my thesis and has guided my research questions and investigations. It draws from four main areas of research, which were introduced in my literature review: Land System Science, modern moral economies, literature on environmental discourses, and food values. While these four areas of research largely exist within disparate fields, touching on all four has helped me consider different aspects of the Alberta beef industry as well as different ways in which the industry shapes and is shaped by the broader context of the province. These four areas of research relate to how food systems dynamically affect different dimensions of human life, including our moral systems, our economic systems, our cultural systems, and our environmental systems. Figure 2.1 is a conceptual visualization that illustrates how I understand the different components of my theoretical framework to work together, with the fields of political ecology and Land System Science providing broad context for my research. The moral economy of Alberta beef, food values, and cultural influences on land use more directly influence discourses around beef and, in turn, support for beef production.

Figure 2.1 Conceptual visualization of the theoretical framework underlying my analyses.



2.6.1 Land System Science

While referred to less extensively in my manuscripts than other components of my theoretical framework, Land System Science is important to the theory than underpins my research. Land System Science has emerged as a field dedicated to understanding the terrestrial dimension of the Earth system, encompassing socioeconomic, technological, and organizational processes that relate to the human use of land (Verburg et al., 2013). Existing at the interface of social and natural sciences, with considerable input from geographers, Land System Science provides a platform to look at dynamic interactions between social and ecological systems that drive and result from land change. The field of Land System Science provides important conceptual context for my research, as it necessitates consideration of the interplay between social and ecological systems; Land System Science therefore invites me to continuously reflect on how the social dynamics I observe affect the actual land on which the production of beef takes place, and vice versa. The beef industry obviously has a significant impact on the regional land system in Alberta, as 35% of the province's farms are dedicated to beef production, which indicates that a significant amount of farmland must be dedicated to pasture, as must a large portion of farming inputs (St. Pierre and McComb, 2022). At the same time, drawing from Land System Science connects my research to the bigger picture of global environmental change. Although my research is very based in the context of Alberta, Land System Science is an important frame for

both manuscripts, which leads me to consider how my findings about the Alberta beef industry relate to the dynamics of meat production and consumption in other contexts, especially in similarly wealthy, privileged parts of the world.

Recent scholarship on the important role of culture in shaping land systems plays a key role in my theoretical framework as well (le Polain de Waroux et al., 2021). Attention to the cultural context that shapes beef production and consumption is fundamental to my research, as research into other contexts has highlighted the role that culture plays in cattle raising in other contexts, notably in South America. For instance, Jeffrey Hoelle has looked at how “cattle culture”, or a set of cultural beliefs and practices that portrays cattle raising as enviable and modern, has encouraged rural smallholders in the western Brazilian Amazon to move towards ranching (Hoelle, 2017). Similarly, my research aims to uncover factors that incentivize support for the beef industry, understanding this support as both *encultured*, meaning grounded in a particular cultural context, and *enearthed*, meaning rooted in a specific ecological environment, to employ the terms advanced by Schill et al. (2019) in human-environment systems research. Le Polain de Waroux et al. (2021) moreover advance a conceptual model for understanding how cultural systems, such as practices, values, taboos, and beliefs, affect land systems. This conceptual model makes a cyclical assertion that cultural elements can become codified in policies and markets, which might affect the cognition of individuals and, in turn, influence their behaviour. In the context of my research, this model helps describe the dynamic interplay between culturally mediated popular discourses about the industry, the discourses shared by the beef industry, and the behaviour of individuals who choose whether to support the industry.

2.6.2 *Moral economies*

The concept of a moral economy, used in political ecology, is also central to the theoretical framework of my thesis. As outlined in my literature review, the concept of a moral economy is fruitful for exploring my research questions, as it provides a framework for understanding the norms and sentiments that shape economic practices related to the beef industry, as well as for considering how they interact with economic pressures, such as public concern around the consequences of beef production. In this way, the concept enables me to explore how many different actors affect the context of the beef industry in Alberta while foregrounding consideration of both the ideational and economic factors that underpin the industry.

To clarify the interconnectedness of morality and economics, Sayer (2000) identifies three moral dimensions of economic life: the moral dimension of economic institutions; (im)moral sentiments, virtues, and vices; and ethical implications of the unintended consequences of economic actions. The second dimension is particularly relevant to my research question, as dominant discourses reflect notions of the morality of the beef industry, including its “virtues” and “vices”. The third dimension is also relevant to my research, as the sustainability, health, and social challenges related to beef production and consumption represent unintended consequences. Norbert Götz furthermore makes the case for applying the concept of a moral economy in modern contexts, arguing that it can “illuminate such key features of economic allocation as are ideational, rather than material expectations of gain” (Götz, 2015, p. 148). In this light, applying moral economy as a framework for analyzing the modern context of the Alberta beef industry can provide insight into the ideational sentiments that affect its economic activity. Ultimately, my research addresses ethical responsibilities related to the moral economy of beef, including its labour, health, and environmental concerns.

2.6.3 Environmental discourses

Literature on environmental discourses is also central to the theoretical framework of my thesis. As detailed in Chapter 2, my understanding of what discourse means is drawn from John Dryzek’s conception of discourse as systems of meaning and representation. Dryzek contends that “discourses construct meanings and relationships, helping define common sense and legitimate knowledge” (Dryzek, 2005, p. 9). Within the discipline of geography, a large body of research has emphasized the importance of understanding discourses. Building on the work of Foucault, many geographers have emphasized the productive role of discourse, stressing that discourse does not simply refer to things that already exist but serves to constitute them, effectively bringing them into being (Cresswell, 2009). According to the *Encyclopedia of Human Geography*, “discourses can thus be seen as establishing new networks of meaning and practice which delineate, produce, and reinforce relations between what it is possible to think, say, and do. Objects and subjects are not external to this process but are thoroughly constituted through it” (Cresswell, 2009, p. 211). Human geographers have furthermore emphasized that understanding discourses is important for the discipline of geography, as discourses simultaneously have spatial characteristics, being highly context- dependent, and play a key

productive role in determining the characteristics of places. Working within this geographical tradition, the theoretical framework of my research foregrounds the idea that the discourses that surround the beef industry play a role in shaping it, and that the industry cannot be understood separately from those discourses.

2.6.4 Food values

The final component of the theoretical framework of my thesis is based in food values research. As discussed in my literature review, an emerging body of literature assesses the values that shape consumers' food preferences, influencing the choices they make when deciding what foods to purchase or eat. Drawing on literature on human values and food preferences, Lusk and Briggeman (2009) have developed a list of eleven food values that motivate the behaviour of consumers. Further research has taken up the list of food values developed by Lusk and Briggeman and applied it in other research contexts, including research into the food values associated with livestock products (Lister et al., 2016). Food values research offers an important conceptual basis for my analysis when it comes to describing the popular discourses surrounding the beef industry, as it provides a framework for categorizing the values that underpin the choice to support the beef industry.

2.6.5 Preamble to Chapter 3

This theoretical framework provides scholarly context and grounding for my analysis of discourses around the Alberta beef industry. In the following two chapters, which are my analytical manuscripts, I apply theories and insights from this theoretical framework to examine the relationship between discourses and support for the industry.

CHAPTER 3: ENVIRONMENTAL STEWARDSHIP AND THE ALBERTA BEEF INDUSTRY: A CRITICAL DISCOURSE ANALYSIS OF PUBLIC DOCUMENTS FROM ALBERTA BEEF PRODUCERS (ABP)

3.1 Abstract

Tension exists between the socio-economic importance of the Alberta beef industry and increasing recognition of the environmental impacts of beef production. Concerns over these impacts place increased pressure on the beef industry and the Government of Alberta to justify the industry's practices. We examine how Alberta Beef Producers (ABP), as the voice of the beef industry in Alberta, discursively navigates concerns about the beef industry in public documents. We identify a central narrative employed by ABP to frame beef producers as environmental stewards. We also describe four key discourses employed by ABP to portray beef producers as such: technological advancement, grassland conservation and traditional use, industry-defined sustainability, and social contributions. By advancing this discourse of environmental stewardship, ABP selectively emphasizes favourable moral dimensions of the beef industry, avoid confronting the harmful impacts of beef production, and rationalize continued support for potentially unsustainable practices despite the moral imperative of the climate crisis. Discourses of environmental stewardship justify the status quo, providing a rationale for the industry to continue its ordinary practices while receiving broad public support.

3.2 Introduction

While oil and gas might be many people's first association with the Canadian province of Alberta, the beef industry is also a social and economic powerhouse in the province. Ranching and cattle production have a long history in Alberta. Beef features prominently at cultural events throughout the province, such as the Calgary Stampede, where it appears as key component of provincial heritage—which is common across many other festivals, music shows, and sporting events. The beef industry has been a cornerstone of the agricultural economy in Alberta since the late nineteenth century (Foran, 2003). According to Statistics Canada, the beef and feedlot industries in Alberta directly employed 14,267 people as of 2018 (Toor and Hamit-Haggar, 2021). As of 2020, Alberta accounted for 40.2% of cattle in Canada reporting a total of 1,464,000 beef cows. The beef industry in Alberta generates around \$18 billion in total economic activity, according to ABP (ABP, 2019b).

The beef industry is socially, culturally, and economically important for Alberta, but it is not without its challenges. The Alberta beef industry faces increased public scrutiny due to its environmental impact and other factors, such as animal welfare and health concerns (Duhatschek, 2023; Edwardson, 2019). A growing number of studies have shown that meat production has a large environmental impact. Meat makes considerable contributions to greenhouse gas emissions because of its high feed-to-edible protein conversion ratios, the prevalence of land clearing related to animal agriculture, the emissions generated by ruminant animals during their lifespans, as well as emissions created through manure management, meat processing, and food waste (Godfray, 2018; Poore & Nemecek, 2018). While production of all types of meat generally exceeds the environmental impact of substitute plant proteins, production of ruminant meats such as beef has the greatest environmental impact (Clark et al., 2018; Poore & Nemecek, 2018). Meat production also contributes to nutrient pollution and, in some areas, makes substantial demands on scarce freshwater resources (Springmann et al., 2018). While most Canadians consume meat regularly, awareness of the environmental impact of meat production has encouraged many consumers to reduce their meat intake (Charlebois et al., 2016; Charlebois et al., 2018; Valdes et al., 2020).

Our study examines how Alberta Beef Producers (ABP), an organization that has served as the collective voice of beef producers in Alberta since 1969, discursively navigates tensions between concerns about the beef industry and its social, economic, and cultural importance for

the province. ABP represented 18,000 producers across the province as of 2023 (ABP, 2023). Its mandate and organization are determined by the Government of Alberta as set out in the *Alberta Beef Producers Plan Regulation*, under the *Marketing of Agricultural Products Act* (Government of Alberta, 2023). The regulation enables ABP to carry out activities for purposes such as to “expand market awareness and demand for cattle and cattle products”, to “generally develop and promote the cattle industry”, and to “advise and lobby government on matters concerning the cattle industry”. While ABP’s mandate and composition are determined by the provincial government, it is largely an independent organization, determining its own leadership and strategic priorities. As of 2023, ABP’s core priorities include to increase demand and market access for Alberta beef, to ensure long-term access to land and water resources in Alberta, and to enhance the competitiveness of the Alberta beef industry by influencing government legislation and policy (ABP, 2023).

We look at how, by wielding discourses of environmental stewardship in communications with the public and the provincial government, ABP can respond to increased scrutiny over the beef industry by promoting a positive public image while also presenting a compelling case to lobby the provincial government for its priorities, such as increased access to land and compensation for ecosystem services. We start by describing the discourses we identify in ABP documents and explaining how ABP mobilizes these discourses in its relations with the provincial government. Then, we explore the discourses employed by the provincial government itself in documents that address the Alberta beef industry, highlighting similarities between how ABP and the Government of Alberta frame the beef industry, and assessing the extent to which government discourses reinforce industry discourses. Finally, we consider how and to what ends discourses around the Alberta beef industry frame it as sustainable and moral.

3.2.1 Discourses of environmental stewardship in agriculture

The study of environmental discourses offers one pathway for better understanding complex environmental challenges by contending that language matters, as the way we discuss and interpret issues has real consequences on how we address them. This approach considers how human actors construct discourses to provide a means of addressing environmental issues and how those discourses can, in turn, motivate actions that affect the environment (Dryzek, 2005). As Dryzek notes, “discourses are important and condition the way we define, interpret, and

address environmental problems” (p. 11). This means of inquiry operates in the scholarly tradition of Foucault, which assumes that discourse has a productive function, as it serves to constitute objects of knowledge, effectively bringing them into being in the minds of people (Cresswell, 2009). While some post-modernist approaches to environmental discourses suggest that the environment itself is a social construction, the study of environmental discourses can take a balanced approach, considering how discourses influence people’s understandings of the environment as well as how discourses induce action that affects the environment, which exists within human understanding and beyond it.

In the context of agriculture and food systems, studying environmental discourses can yield insight into how producers, consumers, companies, governments, and other key actors discursively represent the environmental impacts of food production. Within this broad field, a body of scholarship has explored how agricultural producers in diverse contexts understand themselves to practice responsible stewardship of the environment. Much of this scholarship engages with the concept of the “good farmer”, which refers to the collection of ideals by which farmers understand themselves to be responsible and competent producers (Burton et al., 2020). While these ideals are culturally dependent and subjective, many studies explore how discursive constructions of “good farmers” involve conservationist ideals, by which farmers conserve environmental resources (McGuire et al., 2013; Naylor et al., 2016; Thomas et al., 2019). On the one hand, notions of the “good farmer” can be beneficial, in that they encourage agricultural producers to adopt environmentally responsible practices to preserve their self-perception as good farmers, meaning that they protect the earth their livelihoods depend on. On the other hand, the concept of the “good farmer” might also dissuade producers and other actors from recognizing how agricultural production can cause environmental harm. Several studies describe how producers can continue to view themselves as environmental stewards and “good farmers”, even when evidence exists of the environmental harm of some agricultural practices (Kessler et al., 2016; Silvasti, 2003). In the context of beef production, these discourses are particularly complex, as many producers adopt responsible management practices to minimize the environmental impacts of their operations, although the nature of beef production inevitably requires large amounts of land and other resources (Cusack et al., 2021).

Kessler et al. (2016) examine how beef producers in Alberta draw on discourses to support their self-perceptions as environmental stewards, as well as how producers use those

discourses to rationalize their involvement in an industry that causes environmental degradation. Drawing on interviews with cow and calf producers in Alberta, Kessler et al. (2016) determine that producers maintain an image of sustainability in the Alberta beef industry by employing discourses of balance between environmental and economic priorities, focusing on local environmental impacts rather than abstract, global impacts, and distancing themselves from other actors who are perceived as being less environmentally responsible. The authors conclude that, when presented evidence of environmental deterioration, beef producers in Alberta respond with calls for better environmental management, rather than “more significant and transformational changes to the food system” (Kessler et al., 2016, p. 192). This previous work on the discourses employed by individual beef producers in Alberta provides important context for our study on the discourses utilized by the industry’s collective voice. Kessler et al.’s findings on the discourses of Alberta beef producers resemble those uncovered by researchers studying livestock producers in other contexts, including an analysis of the self-perception of beef and sheep farmers in Wales by Hyland et al. (2015).

3.2.2 Climate justice and beef production

A second important lens through which to examine the Alberta beef industry is the concept of climate justice. Climate justice involves many different dimensions, including gender, land use rights, and the rights of Indigenous Peoples and local communities (Okereke and Coventry, 2016). A body of literature has emerged around the relevance of climate justice in food systems, which is sometimes referred to as food justice literature (Gonzalez and Razzaque, 2015). The concept of climate justice can be applied to analyze food systems at different spatial and geographical scales. Climate justice can shed light on how food systems perpetuate injustices both within and between nations, including by the Global North to benefit from unsustainable economic and environmental practices while the Global South experiences the worst environmental consequences. In this global climate context, wealthy countries have a greater responsibility to transform their food production systems to mitigate climate change. Given the contributions of livestock production in general, and beef in particular, to greenhouse gas emissions, meat industries have an important place in conversations about climate justice (Crippa et al., 2021). This complex global picture is further complicated by differences in meat consumption patterns around the world. People in higher-income countries generally consume

far more meat than those in lower-income ones (Ritchie et al., 2021). Meanwhile, increased meat consumption can bring some benefits to people in lower-income countries, including supporting food security and the nutrition of the world's poorest, as well as providing livelihood opportunities that can contribute to poverty reduction and economic development (Tilman & Clarke, 2014; GAIN, 2020; Nordhagen et al., 2020). Excessive meat consumption in richer countries thus drives environmental degradation, while increased meat consumption in poorer countries can contribute to development objectives.

In response to this global context, some scholarship has explored the potential of reducing meat consumption in wealthy countries as a means of mitigating climate change without hindering the potential contributions of meat production and consumption to development in poorer countries (Nordgren, 2012; Revell, 2015). High income countries, such as Canada, have an opportunity to reduce emissions and fulfill their climate justice obligations by reducing meat consumption without hindering the nutrition of their populations. In the context of a climate crisis that demands transformational, systemic change, wealthy places like Alberta arguably have a greater moral responsibility to limit environmentally intensive agricultural practices, such as beef production. These debates raise questions about the moral and environmental obligations of livestock industries in high-income contexts, which relates to how the industries discursively represent their morality and sustainability.

3.3 Methods

We employ Critical Discourse Analysis (CDA) to analyze public documents from Alberta Beef Producers, which were downloaded from the website of Alberta Beef Producers (albertabeef.org) on 18 July 2023. The documents offer a sample of the discourses shared by Alberta Beef Producers about its own operations and the broader context of the beef industry. CDA is an interdisciplinary approach to understanding discourses and their relations with the social practices in which they are embedded (van Leeuwen, 2006). This approach provides an entry point into understanding how discourses employed by Alberta Beef Producers, as a key actor in the beef industry, at once influence how the beef industry operates and are influenced by the broader social context in which they exist.

Our study comprises 73 public documents obtained from the Alberta Beef Producers website, totaling 1,713 pages. We focused on documents published between 2000 and 2023,

constituting most of the publicly available documents on the Alberta Beef Producers website. Some documents were excluded based on criteria defined in Table 3.1 below. See Appendix Table A1 for more details on which documents were and were not included in the analysis. These documents target various audiences: while some are intended to communicate information to the provincial government, others are public informational documents, intended to present the Alberta beef industry to the public in Alberta. As described in Table 3.1, the documents we analyzed include guidelines on best practices, educational resources materials, public information sheets, policies and regulations, annual reports, and meeting reports. Some documents are intended to teach children between kindergarten and Grade 5 about the industry (8 of the 73 documents we examined comprised these educational resources).

Table 3.1 Description of criteria used to exclude irrelevant documents from analysis as well as other details of interest regarding the inclusion of relevant documents.

Criteria for exclusion of documents	Documents that primarily contain business and financial insights, such as economic/financial benchmarks, trade reports, etc. These documents do not provide much information into discourses.
	Documents published prior to 2000.
	Documents that are fillable documents or forms for use by producers.
	Documents that detail ongoing research and development programs that are funded in part by ABP. These documents do not contain much information beyond providing insight into the organization's research priorities, so it makes sense to exclude them given capacity limitations. Many of these initiatives are only funded in part by ABP as well.
	Documents that are recipes or cooking instructions.
	Documents that have been published by organizations other than ABP.
Further details on the inclusion of relevant documents	For long documents (over 100 pages), the first author coded executive summaries or similar summary documents where possible.
	Several documents on the website were published by the Beef Cattle Research Council. ABP is a key member of this research consortia, so these documents were included in the analysis.

After building the initial corpus of documents, we completed a first round of coding on all 73 documents in MAXQDA, in which the lead author read through all documents and assigned qualitative codes to segments of text. Most of the codes were developed inductively, although some were developed prior to the coding process based on preliminary research. Following this initial round of coding, 14 documents were deemed not sufficiently relevant to the analysis and were excluded from the second round of coding. At this time, the lead author also reviewed the codes with the two co-authors to ensure a rigorous analysis and a common understanding of the emergent themes (Cope, 2010). We then completed a second round of coding, after which the lead author re-read all the coded segments a third and final time to produce summaries of all the segments grouped under each code, identifying common themes and discourses within each code. The summaries provided a basis for our conceptualization of key discourses employed by the industry and our broader analysis.

3.4 Results

3.4.1 The overarching narrative of environmental stewardship

Across the documents we examined from ABP, the most prominent discourse that emerged related to the Alberta beef industry's environmental impacts portrays Alberta beef producers as environmental stewards, describing their responsible stewardship practices and good management of natural resources in Alberta. We identified such discourses on environmental stewardship across 48 of the 73 unique documents. To support this discourse, ABP makes general statements about how Alberta beef producers take good care of natural resources, describes connections between producers and the land they manage, emphasizes the importance of beef producers as environmental stewards, and details some of the stewardship strategies employed by producers – as well as the beneficial environmental outcomes they are said to yield.

General statements about the environmental stewardship of Alberta beef producers are found primarily across public information documents, including in the educational resources for children. Throughout the educational resources, ABP asserts that cattle farmers and ranchers take care of the land and protect the environment, oftentimes referring to specific ranching families as examples of environmental stewards. Similarly, the educational resources emphasize the

connections beef producers in Alberta feel toward the land, depicting farmers and ranchers as fundamentally connected to the land and places on which they work. This concept of land connectivity reinforces the narrative of environmental stewardship as it implies cattle producers and the land are interdependent, necessitating responsible stewardship. In public information documents intended for adults, ABP makes similar, if more complex, statements about beef producers striving to be environmental stewards, adopting best management practices to enhance their environmental stewardship. This narrative suggests that the Alberta beef industry is an exceptional industry because Alberta beef producers understand themselves to be environmental stewards, whose “values have stood the test of time and are reflected in how they treat the land, their livestock and the excellent product they produce” (ABP, 2008).

ABP has, in fact, designated “enabling proper stewardship” as one of its strategic objectives (ABP, 2021; ABP, 2022). ABP repeatedly refers to the importance of the environmental stewardship of beef producers for sustaining healthy ecosystems in Alberta. ABP contends throughout the documents we analyzed that beef producers' stewardship practices are critical for maintaining healthy rangelands and riparian areas and for sustaining other ecosystem services. In turn, multiple documents refer to environmental stewardship as essential for public support of the beef industry, in that by demonstrating sound stewardship of natural resources, the industry can secure support for generations to come. ABP even presents an annual Environmental Stewardship Award with the aim of informing consumers “on how the beef industry conducts itself in an environmentally sound manner” (ABP, 2009). Other documents refer to communicating the industry’s stewardship practices to the provincial and federal governments as a means of sustaining government support. ABP lists many environmental stewardship practices employed by producers, including both specific techniques such as rotational grazing and reducing food loss and waste, as well as general principles like making “balanced decisions about land and quality of life” (ABP, 2020d). ABP repeatedly asserts that the stewardship of beef producers broadly benefits the environment. In their words, “the benefit of a strong beef industry is not only economical in nature but also environmental” (ABP, 2016a).

3.4.2 Supporting discourses of environmental stewardship

ABP documents employ more specific discourses that support this notion of environmental stewardship. We identify four key discourses drawn on by ABP to reinforce the narrative of

environmental stewardship in the Alberta beef industry: *technological advancement, grassland conservation and traditional use, industry-defined sustainability, and social contributions.*

3.4.2.1 Technological advancement

Discourse about the technological advancement of the Alberta beef industry abounds throughout the documents we analyzed. This discourse encompasses three assertions: that the beef industry in Alberta is sustainable in general owing to advances in technology employed by producers; that, for that same reason, it is more sustainable than beef industries in other locales; and that sufficient investment in research and innovation will result in further technological developments that can mitigate any harmful environmental impacts caused by the industry.

The technological advancement discourse lauds the beef industry in Alberta for adopting technological solutions to combat environmental challenges. It contends that technological improvements in the efficiency of cattle production have reduced cattle, land, feed, water, fuel, and fertilizer requirements, reducing the industry's overall environmental impact. Evidence does indeed suggest that the Alberta beef industry has made important gains over several decades in reducing its production inputs and outputs: ABP cites a study in *Animal Production Science* that found that between 1981 and 2011, technological advancements enabled the Canadian beef industry to produce the same amount of beef with 29% less breeding stock, 27% fewer slaughter cattle, and 24% less land (Legesse et al., 2016). The same study reported that these advancements in technology and management also reduced the industry's greenhouse gas emissions footprint by 15%. Indeed, ABP also makes repeated reference to how improvements in the efficiency of cattle production have lowered greenhouse gas emissions. ABP portrays such enhanced efficiency as a win-win for the industry and the environment, as "many of the same things that improve productivity on the farm, ranch or feedlot also contribute to a smaller environmental footprint for the beef industry" (BCRC, 2023).

While doing this, ABP simultaneously deflects blame to beef industries in other places by implying that they are less sustainable. ABP portrays the Canadian and Alberta beef industries as global leaders on climate change and environmental sustainability. ABP positions the Canadian and Alberta beef industries in contrast to beef industries in the Global South, making reference to a 2013 report from the United Nations Food and Agriculture Organization (FAO) that found that the North American beef industry generates less methane than beef produced in Latin America,

China, or India (FAO, 2013). ABP advocates for the widespread adoption of technological advancements, emphasizing the potential of reducing the livestock industry's global greenhouse gas emissions by "addressing the gap between producers and production systems with the highest emission intensity and the lowest emission intensity, meaningful reductions are possible" (BCRC, 2023).

ABP also presents further technological advancements as a primary solution for the Alberta beef industry to meet emissions reduction targets. ABP identifies the potential of technological advancements such as "future improvements in feed resources, nutritious diet supplements, improvement of animal health technologies, and manure management" for enabling further reductions in greenhouse gas emissions and broadly reducing the industry's environmental impact (ABP, 2016b). ABP appeals to the Government of Alberta to maintain or increase funding for research related to the beef industry and to support on-farm and industry programs related to implementing technological solutions.

3.4.2.2 Grassland conservation and traditional use

The discourse around grassland conservation and traditional use centers around two interconnected assertions: that raising cattle is effectively a traditional practice in Alberta, as grazing ruminants have long occupied the region's grasslands and are essential for maintaining the health of Alberta's grasslands, and that the use of Alberta's grasslands by the beef industry serves an important role in preventing grasslands from being converted to other uses. The discourse we describe supports the framing of Alberta beef producers as environmental stewards by presenting them as "Guardians of the Grasslands", whose practices are vital to the land and part of its traditional use (ABP, 2019a).

ABP frames the cattle industry in Alberta as the successor to the bison population that once thrived on the same lands, naturalizing the industry's use of the lands by implying that the presence of grazing cattle is effectively a continuation of the presence of grazing bison. ABP largely does not differentiate between the ecological effects of bison and cattle, suggesting that just as bison have fulfilled critical ecological roles in the region, cattle are similarly essential for maintaining ecological balance. In the educational materials for children, ABP states that "grazing bison keep grasslands healthy and growing for centuries. Cattle grazing has the same effect on the land" (ABP, 2020d). This discourse furthermore frames the beef industry as serving

a key role in ensuring that traditional grasslands are maintained, rather than being converted to other land uses. Across many of the documents we reviewed, ABP contends that if grasslands in Alberta were not used for grazing cattle, they would be at risk of conversion to other uses, such as cropland. ABP warns that the conversion of grasslands would harm the biodiversity that depends on this ecosystem and result in the release of carbon that is currently sequestered in the land.

Across the documents we analyzed, ABP also skirts recognition of how the history of cattle in Alberta is imbricated in Canada's colonial legacy. ABP describes some of the history of the cattle industry in Alberta, with the importation of the first cattle in 1876 and the subsequent establishment of cattle ranches in the late 1800s. The timeline presented by ABP refers to how "early ranchers believed that Alberta's environment made it a good place to raise cattle" (ABP, 2020b; ABP 2020c) but omits how ranching and farming throughout Canada emerged out of the structure of settler colonialism. ABP sometimes refers to the agricultural traditions of Indigenous peoples who exist in what is now known as Alberta, drawing a comparison between "Indigenous ways of living with the land and the sustainability practices that cattle farmers and ranchers are implementing" (ABP, 2020e), but does not explain how the histories of settler colonialism and ranching in Alberta are interlinked.

3.4.2.3 Industry-defined sustainability

The theme of ABP's 2012 Annual Report was "Defining Sustainability". This report provides insight into how ABP understands the beef industry's position within broader discourse around sustainability and sustainable development, and how ABP frames its own discourse around sustainability. The report refers to sustainability as a "trendy" term that is "very difficult to define and understand, making it an elusive target" (ABP, 2012). By implying that sustainability is a fully subjective term, ABP opens the door for the industry to construct its own definition of sustainability, rather than relying on externally determined scientific standards. In this report, ABP indeed asserts that it needs to "ensure that sustainability is defined by [the beef] industry, not defined for [the] industry by large companies, governments, or non-governmental organizations" (ABP, 2012). While ABP doesn't often refer explicitly to its attempts to define the concept of sustainability as it applies to the beef industry, we find that in practice ABP constructs its own discourse around the sustainability of the Alberta beef industry. ABP asserts

that the Alberta beef industry is “sustainable” because it balances economic and environmental priorities.

The discourse we identify centers around the notion that economic and environmental sustainability go hand-in-hand, contending that the beef industry balances economic and environmental priorities without significant trade-offs. As ABP phrases it, “...we think that the cattle and beef industry is economically, environmentally, and socially sustainable already” (ABP, 2012). Throughout the documents we analyzed, ABP offers examples of how economic and environmental priorities appear to be compatible, largely in the context of improving the efficiency of beef production. In the context of greenhouse gas emissions, ABP states that it has both economic and environmental drivers for reducing the footprint of beef production, as greenhouse gas emissions represent a loss of valuable inputs (ABP, 2023b). In other instances, ABP refers to the potential for “sustainable intensification” to offer “multiple-win solutions in economic, climate, environmental, and social aspects of animal production” (ABP, 2016b). In framing economic and environmental priorities as compatible, this discourse of sustainability presents a win-win situation for beef producers and the environment, rather than confronting situations where trade-offs between economic gain and environmental protection might be inevitable.

An essential component of this discourse of sustainability is the notion that individual beef producers are, indeed, environmental stewards, who make responsible choices to balance environmental and economic goals. This discourse, subsequently, supposes that there is little need for the beef industry to be subjected to sustainability requirements imposed “through pressure from organizations outside the industry”, as beef producers can be counted on to make sustainable choices on their own, given that doing so will be both profitable and environmentally beneficial (ABP, 2012). ABP portrays producers as continually making improvements to their production practices to enhance their stewardship and advance environmental and economic priorities. At the most, producers should be further motivated to pursue positive environmental outcomes through compensation schemes such as carbon credits or Payment for Ecosystem Services programs. ABP therefore uses this type of discourse to advance one of its priorities, which is to avoid red tape and limit regulation affecting the beef industry. While most beef producers might be generally responsible and rational people, capable of making wise decisions,

this discourse falsely suggests that they won't encounter situations where they must choose between economic and environmental motives.

3.4.2.4 Social contributions

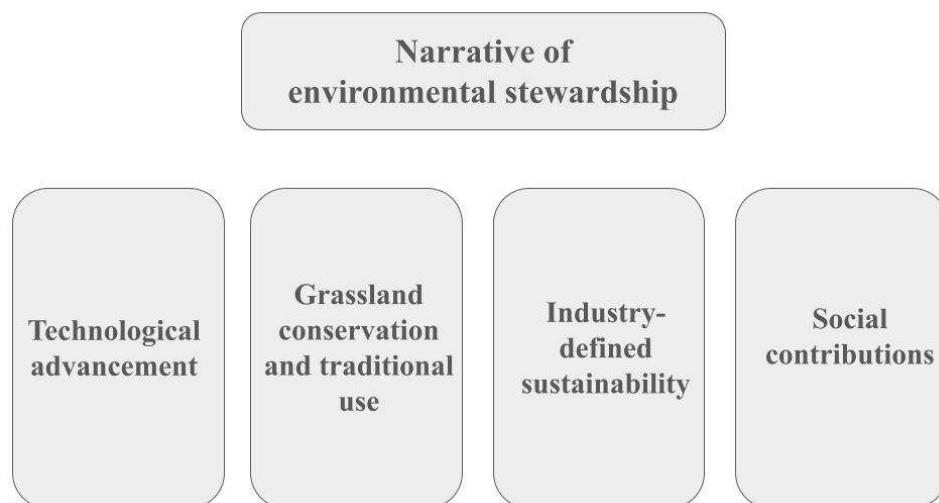
The fourth discourse we identify emphasizes the social contributions of the Alberta beef industry to the province, which exist in connection with its practices of environmental stewardship. ABP portrays the beef industry as a vital component of life in Alberta in two ways: by strengthening the economy through the provision of jobs and generation of economic activity; and by supporting the health of consumers in Alberta and beyond through the provision of a safe, nutritious protein source. Through these messages, ABP supports the positive image of the Alberta beef industry by framing it as necessary for the province due to its contributions to human livelihoods and well-being. Moreover, these discourses contribute to the overarching narrative of the environmental stewardship of the industry by presenting a holistic story, in which the industry's contributions to the environment, the economy, and health are all interrelated through the work of cattle farmers and ranchers.

ABP frames the beef industry as vital for Alberta's economy. On the one hand, ABP refers to how beef cattle production generates economic activity and provides economic revenue. On the other hand, ABP refers throughout the documents we analyzed to how the Alberta beef industry supplies people throughout the provinces with jobs, supporting their livelihoods. In such messages, ABP sometimes enumerates the different types of people who are employed directly or indirectly by the beef industry, such as feedlot operators, veterinarians, machinery dealers, truckers, and meatpacking plant workers (ABP, 2020b). ABP therefore, represents the economic importance of the Alberta beef industry as a social contribution, as it supports livelihoods and human well-being.

In addition to viewing the industry as economically important, ABP overwhelmingly refers to beef as a nutritious and healthy food source, emphasizing how the beef industry contributes to human health by providing a food source that is safe and nutritious to Albertans as well as consumers around the world. These messages emphasize beef's nutritional qualities, including the protein, vitamins, and minerals it contains (ABP, 2020b). While research has warned against the overconsumption of red meat, which can contribute to health outcomes such as cardiovascular disease, type 2 diabetes, and some cancers (Clark et al., 2019), ABP only

acknowledges these warnings in order to minimize them and reemphasize beef's role in a healthy diet (ABP, 2023c). They suggest that beef is an almost essential component of a healthy diet, as some messages imply that diets that do not include beef, such as plant-based diets, are highly unlikely to provide consumers with adequate amounts of protein and essential nutrients (ABP, 2020b). In this way, ABP portrays the beef industry in Alberta as particularly adept at producing a healthy, nutritious, and safe food product, describing beef in Alberta as high-quality and produced through a world-renowned food safety system. Altogether, this discourse portrays the beef industry as making essential social contributions by supporting people's health and nutrition.

Figure 3.2. Conceptual summary of the central narrative of environmental stewardship (top) and the four supporting discourses nested within it.



3.4.3 Mobilizing discourses in public and governmental relations

The documents we reviewed show how ABP strategically employs the narrative of environmental stewardship to strengthen public perception of the beef industry, responding to the increased public scrutiny it has faced in recent years, while also integrating the narrative into its marketing strategies. They also show how the producer organization incorporates the central narrative and its supporting discourses into its efforts to lobby the Government of Alberta for its priorities, namely in the context of competition over land use in the province and the development of compensation schemes for good environmental management.

3.4.3.1 Talking to the public: proactive and reactive strategies

While the ABP generally frames criticism of the industry as unsubstantiated and unreasonable, referring to “misinformed critics”, “myths and rumours”, and “negative public misunderstandings”, it nevertheless demonstrates a clear awareness of increased public scrutiny over the industry’s treatment of animals, health consequences, and environmental impacts (ABP, 2007; ABP, 2008; ABP, 2020a). Subsequently, ABP recognizes the importance of promoting a positive public image of the industry to enhance its reputation and maintain public support.

The documents we reviewed outline a two-pronged strategy used by ABP to mobilize the environmental stewardship narrative to promote the discourse on the Alberta beef industry’s environmental stewardship and counter criticism. On the one hand, ABP adopts a proactive strategy of promoting a positive environmental image. It does so, for example, by providing media training to producers to help them present themselves as stewards, noting that “every successful interview or story boosts consumer confidence and positively promotes the cattle industry” (ABP, 2008). ABP also invests in initiatives that are specifically intended to strengthen public confidence by portraying the industry as environmentally responsible, such as mini documentaries that describe its stewardship activities, the annual Environmental Stewardship Award, which aims to inform the public “on how the beef industry conducts itself in an environmentally sound manner”, and sustainability-focused advertising campaigns, such as the “Get Both Sides” campaign, which describes how consumers can love “Canadian beef and the environment too” (ABP, 2009; ABP, 2010; ABP, 2019a; ABP, 2022).

On the other hand, ABP sometimes adopts a reactive strategy with more aggressive tactics, directly challenging companies and organizations that have implied the beef industry is unsustainable, including the restaurant chain Earls, the Weather Network, the Royal Ontario Museum, Maple Leaf Foods, and the United Nations (ABP, 2016a; ABP, 2019a; ABP, 2020a; ABP, 2020g; ABP, 2022). In these instances, the producer organization responded to messages that addressed the environmental impact of beef production by opening dialogue with the organization and sharing messages that portray the industry as sustainable. Through these proactive and reactive strategies, ABP attempts to supersede narratives that critique beef production with its own narrative on the environmental stewardship of the Alberta beef industry.

ABP employs the narrative of environmental stewardship as a central component of its proactive strategy, which includes marketing efforts intended to improve the industry’s public

image. It has supported or developed numerous marketing initiatives that centre around promoting the environmental stewardship of the beef industry. Some campaigns focus on beef producers as stewards driven by their values, such as the “Raised Right” campaign, which pays tribute to cattle producers in Alberta for “their unflagging, day-to-day commitment to raising a safe, world class beef product” and the “tremendous pride and care” they take in their livelihood (ABP, 2008). Similarly, ABP draws on this narrative to promote messages that distinguish the sustainability claims of the Alberta beef industry as a key marketing feature. These messages refer to apparent environmental advantages of Alberta and Canadian beef, such as the industry’s strong sustainability efforts, climate efficient production practices, clean and “environmentally-friendly production system,” and the “pristine and natural environment” in which cattle are raised (ABP, 2008; ABP, 2010; ABP, 2016b; ABP, 2019b).

3.4.3.2 Government lobbying: requesting resource access and compensation

The environmental stewardship narrative, in documents that target the government, represents the beef industry and its producers as both integral to the province and trustworthy partners, encouraging the provincial government to support the industry and meet its asks. We find that ABP draws on the narrative of environmental stewardship to lobby the provincial government for two of its key objectives: supporting beef producers in securing access to land and water resources and enhancing the ability of beef producers to receive compensation for voluntarily adopting best management practices, such as through the carbon offset market or the Payment for Ecosystem Services (PES) market. These objectives align with ABP’s strategies priorities, which include ensuring long-term access to land and water resources in Alberta and strengthening the competitiveness of the Alberta beef industry (ABP, 2023).

ABP uses the narrative of environmental stewardship in its communications with the provincial government around the emerging carbon offset and PES markets. In recent decades, the Government of Alberta has developed a carbon offset market, which is a component of the province’s strategy to reduce greenhouse gas emissions (Government of Alberta, 2024).

Alberta’s carbon offset market aims to counterbalance the emissions created by large industrial operations by incentivizing smaller scale farmers to adopt practices that reduce their carbon emissions. In return for following emissions reduction protocols, farmers receive carbon offset credits, which allow them to earn extra income. Beef producers can also be compensated for

conserving biodiversity and ecosystems through PES programs, which make use of various mechanisms for compensating producers, including direct financial payoffs, tax considerations, assistance with farm improvements, or other schemes. Some PES programs are managed or supported by the Government of Alberta, while others are run through other organizations, such as conservation non-profit organizations like Ducks Unlimited and the Nature Conservancy. According to ABP's framing, the carbon offset program administered by the Government of Alberta is a type of PES program.

ABP employs the environmental stewardship narrative to encourage the Government of Alberta to increase its support for PES programs, arguing that such programs "recognize the value of the ecosystem services that ranchers and farmers provide to society" (ABP, 2017b). At the same time, ABP stresses that these programs encourage producers to enhance their stewardship practices, resulting in an array of environmental benefits, including the conservation of natural resources, reduced greenhouse gas emissions, increased benefits from ecosystem services for society, maintenance of existing rangelands and wetlands, and increased resiliency for the agricultural sector. ABP contends that PES programs should be "incentive-based, community delivered, and voluntary", hinting that these programs are useful in that they enable producers to be rewarded for their environmental stewardship without increasing the environmental regulations they are subject to. In the case of the carbon offset market and PES programs, therefore, ABP draws on the narrative of environmental stewardship to lobby the provincial government for the financial benefit of producers, without burdening them with increased environmental regulation or oversight.

The system of grazing dispositions is another key feature of the cattle industry in Alberta. Beef producers often do not own the land on which cattle graze, but instead lease public land from the provincial government under grazing disposition agreements. These leases stipulate that beef producers are responsible for stewarding the land to promote functional ecosystems, reflecting the Government's multiple priorities for these lands: livestock production, but also biodiversity, watershed health, and wildlife habitats (Environment and Parks, 2019). ABP generally supports the grazing disposition system. Nevertheless, this system invites a degree of competition over land use in the province, as the tenure of producers over grazing land is not always secure, and the provincial government attempts to balance between multiple priorities in allocating use of public lands, such as supporting the beef industry as well as the timber industry

and the oil and gas industry, enhancing conservation, facilitating access to recreation, and advancing the interests of private landowners. In some instances, ABP encourages the provincial government to streamline administrative processes related to grazing dispositions, or else to incorporate plans to issue grazing leases into the development of new public parks, or to explore increased grazing opportunities on public lands in various parts of the province.

The narrative of environmental stewardship is central to ABP's appeals to the provincial government about grazing dispositions, contending that giving beef producers easy access to grazing dispositions and secure tenure supports their stewardship practices. ABP's messaging in these communications frames beef producers as stewards whose practices yield multiple environmental benefits, supporting the provincial government in achieving its environmental targets. These environmental benefits include enhancing conservation outcomes, managing ecosystem health, and curbing forest and brush encroachment. ABP also encourages the government to augment the tenure security of beef producers, arguing that strong tenure improves the stewardship of cattle farmers and ranchers. According to ABP, "security of tenure provides a strong incentive for leaseholders to manage the land sustainably" (ABP, 2015b), resulting in the proper management of land, water, and biodiversity under grazing dispositions.

3.5 Discussion

Our study shows that ABP, as the voice of the beef industry in Alberta, is clearly cognizant of increased public scrutiny over the impacts of beef production and responds discursively by framing the beef industry in a positive light. ABP advances a narrative of the beef industry's environmental stewardship, which portrays the industry as environmentally and socially responsible. Discourses constructed by ABP do not merely minimize the beef industry's environmental impact but position the beef industry as an environmental leader on a global scale, as well as a guardian of natural resources in the province. The narrative of environmental stewardship thus presents the beef industry in Alberta as moral and rational. In our discussion, we further explore how this narrative reflects the evolving social context of beef production, in which public concern about its environmental impacts poses new challenges for the beef industry. Beyond responding to increased concerns, ABP draws on environmental stewardship discourses to enhance its public image, market beef to consumers, and advocate for its priorities with the Government of Alberta. For the purposes of this study, we use the terms "discourses"

and “messages” interchangeably to refer to individual instances of communication about the beef industry, whereas “narratives” refer to the broader stories about the beef industry communicated through the accumulation and interplay of discourses.

3.5.1 Framing the Alberta beef industry as sustainable and moral

The narrative of environmental stewardship enables ABP to discursively construct the beef industry as moral within the moral economy of Alberta by selectively emphasizing its favorable dimensions, while obscuring less favorable ones (Götz, 2015; Sayer, 2007). These discourses present the beef industry as environmentally, socially, and economically good because the stewardship of beef producers both protects the environment and sustains the health and livelihoods of people. While many beef producers genuinely strive to protect the environment and make positive social contributions, such framing overlooks the more negative aspects of beef production. Our intention is not to criticize the practices of individual beef producers, but rather shed light on how the whole industry represents itself.

The way that ABP advances an image of itself as sustainable is similar to images of the “good farmer” described in other contexts. The “good farmer” collects multiple ideals that collectively represent what it means for a farmer to be responsible and make meaningful contributions to society. In the context of farmers in Germany and Scotland, Burton et al. (2008) describe how many producers balance self-identities as conservationists, who protect and steward the land, and farmers who use the land to feed the world. Westerink et al. (2021) describe the self-perception of farmers in the Netherlands who understand themselves as good farmers who care for land, soil, and livestock. In the case of the Alberta beef industry, ABP frames beef producers as good farmers who fulfill multiple contributions at once: they support the economy and livelihoods, they steward the land and environment that are necessary for production, and they supply an important food source. Altogether, this discourse reinforces the central narrative of environmental stewardship in the Alberta beef industry by advancing the image of beef production as simultaneously supporting the well-being of human and environmental health, in the tradition of the “good farmer”.

The narrative of environmental stewardship in the beef industry can be characterized as a form of greenwashing. While ABP is not a large, international firm like many companies often

associated with greenwashing, it employs discursive techniques associated with greenwashed marketing, including omitting information necessary to evaluate the validity of claims and making overly vague claims, as described by Viera de Freitas Netto et al. in their systematic review of concepts and forms of greenwashing (Parguel et al., 2015; Vieira de Freitas Netto et al., 2020). Based on the information included in ABP's public documents, it is impossible to truly verify their claims of environmental stewardship, as it only includes examples of responsible management, while largely omitting reference to documented examples of environmental harm and poor management. Similarly, ABP's claims about the environmental stewardship of producers are consistently vague, as environmental stewardship is a relatively abstract, fluid concept. Thus, while the stewardship efforts of beef producers might in some respects be legitimately admirable, they are marshalled by ABP to refute evidence of environmental degradation and promote a straightforward, positive public image of the industry.

3.5.2 Strategic obfuscation of negative impacts

To frame itself positively, the Alberta beef industry furthermore relies on strategic obfuscation of its impacts. In discussing moral economies of food, Jackson et al. (2008) refer to three dimensions along which the impacts of food systems are obscured. The dimension of time addresses how people selectively remember the historical processes through which food is produced. In our case, this dimension relates to the discourse of traditional use that overlooks how the Alberta beef industry is part of a legacy of colonial violence. The discourses employed by ABP portray a selective memory of the history of cattle, which serves to construe the industry as moral without acknowledging how it is rooted in a legacy of injustice. The dimension of space speaks to how people selectively recognize how food systems are connected and disconnected across scales and spatial locales. It can help us understand how the beef industry in Alberta disconnects itself from the consequences of beef production in other places. Indeed, ABP focuses on the impacts of beef production on the environment in Alberta, but largely ignores how beef production in Alberta can affect other locales through its contributions to global emissions. The third dimension, that of visibility, denotes how certain foods and their associated production processes are made visible or invisible through the simultaneous mobilization of the dimensions of space and time. While it is certainly also relevant to the Alberta beef industry – one might consider, for instance, how ABP constructs an image of the beef industry that centers around

cattle ranchers and farmers from Alberta, while rarely acknowledging the temporary foreign workers whose labour is vital for the industry – this dimension is not as prevalent in discourses related to environmental stewardship.

ABP's association of cattle with the history of grazing by bison is another instance of strategic obfuscation, as well as a beneficial comparison that emphasizes the morality of the beef industry (Schübler et al., 2024). ABP presents the beef industry as sustainable through the discourse of grassland conservation, insisting that grazing cattle are essential to the health of ecosystems in Alberta, providing the same ecological benefits as grazing bison. These messages suggest that the beef industry provides a critical environmental service by ensuring that ruminants continue to graze in Alberta. This discourse allows ABP to overlook evidence that shows cattle are not effective surrogates for bison to present the industry in a favourable light (Freese et al., 2007). Bison grazing can induce a far coarser and more dynamic pattern of vegetation than cattle grazing, particularly when bison management is combined with fire (Steuter, 1999). Cattle have a proclivity for staying closer to bodies of water than bison, causing different effects on streams and riparian areas and resulting in different grazing patterns (Freese et al., 2007). Moreover, the discourse that represents the cattle industry as a natural continuation of the historic bison population fails to acknowledge a difference in scale. Whereas researchers estimate that in the mid-17th century around 168,000 wood bison ranged from what is now northern Alberta, north-eastern British Columbia, southern Yukon, the interior of Alaska and the south-western Northwest Territories, there are currently about 1.46 million beef cows in Alberta alone (Alberta Wilderness Association, 2024; Toor and Hamit-Haggar, 2021). The inherent difference between cattle and bison as distinct species, and the disparity in population sizes, suggests that the cattle industry cannot fully fulfill the same ecological role in the grasslands as bison historically have.

As described earlier, ABP also overlooks how the history of cattle in Alberta is interwoven with the province's colonial legacy, marking another instance of strategic obfuscation. In Alberta, like in the rest of Canada, Indigenous peoples were dispossessed of the land that was given to the white European families who developed farms and ranches as part of settler colonial expansion (Rotz, 2017). Furthermore, the near extermination of bison in Alberta, which paved the way for the establishment of cattle ranching, was an act of colonial violence, which enabled the settler colonialization of the region (Mamers, 2019). Framing cattle ranching

as a natural practice in the land now known as Alberta thus represents a whitewashed version of history.

A climate justice perspective invites consideration of how strategic obfuscation might limit the Alberta beef industry's ability to advance truth and reconciliation in response to Canada's colonial legacy. The climate crisis is fundamentally imbricated in the legacy of colonialism, with Indigenous Peoples around the world disproportionately experiencing the effects of climate change, making the crisis a justice issue (Ghosh, 2016; Reyes-García et al., 2024; Whyte, 2017). Climate action that advances the self-determination, rights, and leadership of Indigenous Peoples is critical for creating climate futures that disrupt, rather than continue, historic and ongoing practices of colonialism and capitalism (Whyte, 2017). In this context, the beef industry in Alberta has an opportunity to live up to its image of morality and stewardship by working with Indigenous Peoples to ensure that its action benefit Indigenous communities. The industry can begin a process of reconciliation by opening meaningful dialogue with Indigenous communities who are or have been affected by the beef industry, as well as undertaking a review of the beef industry's obligations to reconciliation, such as responding to the Calls to Action from the Truth and Reconciliation Commission (Truth and Reconciliation Commission, 2015).

3.5.3 Rationalizing the status quo

Rather than considering a future that reimagines the Alberta beef industry, the narrative of environmental stewardship rationalizes maintenance of the status quo by portraying beef production as already sustainable and depicting beef producers uniformly as rational environmental stewards. In this way, ABP largely overlooks the potential for beef producers to harm the environment. While ABP occasionally refers to risks that cattle ranching and farming can pose to the environment, these messages nevertheless bolster the image of beef producers as environmental stewards by portraying them as aware and capable of mitigating potential risks (ABP, 2020d; ABP, 2020e). Such messaging assumes that producers are fully capable of optimizing the environment within the constraints of their operations, failing to acknowledge the possibility that economic or ecological factors might leave producers with little choice other than to degrade the environment. Other researchers have identified similar narratives of balance between production and conservation, which present farmers as making balanced choices between profitability and the environment (Ellis, 2013; McGuire et al., 2013). Kesser et al.

(2016) observe this narrative in their interviews with beef producers in Alberta, finding that producers “draw on narratives of balance between economic and environmental concerns” (p.173).

The notion that economic and environmental priorities do not necessitate serious trade-offs is core to the narrative of environmental stewardship, underpinning the argument in favour of maintaining the status quo. By assuming that economic and environmental sustainability are necessarily compatible, ABP envisions a future in which the industry continues as usual, maintaining its profitability without degrading the environment. This idea resembles broader discourse around sustainable development, which supposes that economic growth and environmental sustainability can indeed be mutually reinforcing (Robinson, 2004). Scholars have criticized global discourse of sustainable development for sustaining economic growth while rationalizing continued environmental degradation, pushing forward the dominant economic paradigm of global capitalism rather than engendering a meaningful shift in values (Banerjee, 2003; Imran et al., 2014). Discourses of sustainable development can thus provide a framework through which industry and other actors can allege that they are balancing economic and environmental priorities, while ignoring evidence to the contrary. Kessler et al. (2016) describe how such discourse manifested in their interviews with Alberta beef producers, as producers maintained “their self-perception as stewards by asserting they could not be successful if they were anything other than good to the environment” (p. 182) even in light of evidence showing that environmental degradation occurred at least in part due to the practices of individual beef producers. Likewise, our analysis shows how ABP contends that economic and environmental sustainability are mutual, enabling the industry to refute evidence of its environmental harm.

The discourse of technological advancement offers another means for the beef industry to justify business as usual. Contending that technological advancements will enable the industry to reach environmental targets enables the industry to foresee itself successfully into the future without envisioning any fundamental changes to the food system or the industry’s practices. While strengthening the capacity of beef producers to implement technology that reduces emissions and environmental degradation would contribute to improved environmental outcomes, ABP wields this argument to advance priorities that make relatively minor adjustments to the industry’s practices. While the continued and improved application of technological solutions might reduce the environmental harm caused by the beef industry in

Alberta and elsewhere, research has not shown that technological advancements can render beef production “sustainable”, as the Alberta beef industry proports (Kumar et al., 2021).

Messages from the Alberta beef industry resemble narratives employed by the oil and gas industry, in Alberta and in other areas of the world (e.g. Breeze, 2012; Jaworska, 2018; Noga and Walbring, 2014; Supran and Oreskes, 2017). Major oil companies are known to present themselves as leaders in developing technologies to address climate change, reinforcing the message that “climate change can be tackled, if at all, by developing new technologies” (Jaworska, 2018, p. 211). Both the beef sector and the oil and gas sector thus employ language to obscure their harmful environmental impacts and condition public perception to believe that the industries are compensating for their climate footprints and, in the case of the Alberta beef industry, serving as an effective environmental steward. Large oil companies also legitimate the oil and gas sector by framing it as morally good, providing social benefits such as access to energy and economic growth (Breeze, 2012). This framing resembles the discourse of social contributions employed by ABP, which frames the beef industry as vital for human nutrition as well as economic growth. The oil and gas industry in Alberta is likewise recognized for using language to bolster public support for the sector, emphasizing the economic benefits oil and gas bring to Canadians (Noga and Walbring, 2014). In this regard, clear parallels exist between the discursive practices of the oil and gas industry and the beef industry in Alberta, as both sectors use discourse to frame their practices in a positive light, obscuring the environmental harm they cause to garner support from the public and ensure that the industries can thrive into the future.

3.5.4 The impacts of discourse and the necessity of changing the narrative

Critical Discourse Analysisists contend that discourses have real world impacts, as language influences the actions and opinions of actors (van Leeuwen, 2006). Within this tradition, there is space to consider how the narrative of environmental stewardship in the Alberta beef industry can affect the actual land on which beef production takes place, as well as the broader environment. We cannot directly assess the extent to which this narrative has a causal effect on the land, directly determining that land will be used for grazing. Many factors have and continue to shape the choice to allocate large swaths of land in Alberta to beef production, resulting in a regional land system where 35% of the province’s farms are dedicated to beef production (St. Pierre and McComb, 2022). Nevertheless, we can infer that the narrative of environmental

stewardship contributes to decisions on land use by serving as rationale. The beef industry justifies the use of land in Alberta for beef production by developing discourses that frame beef production as an environmentally responsible practice. The narrative of environmental stewardship reasserts the beef industry's claim to land in Alberta by rationalizing the industry's activities as good for the environment, good for the economy, and good for society. The narrative sheds light on how economic factors, such as the desire to make profit and provide livelihoods, as well as social and cultural factors, such as the impetus to respond to public pressure around concern for the environment, affect the use of land in the province.

Beyond affecting how much land is allocated for beef production, the narrative of environmental stewardship likely also influences the practices of beef producers, which in turn affect the land and the larger environment. While we cannot measure the extent to which concern about public opinion drives beef producers to adopt practices that minimize environmental harm, it is reasonable to conclude that concern about public perception motivates ABP to encourage the stewardship practices of beef producers. At the same time, the narrative of environmental stewardship feeds back into public perception, communicating to the public that the beef industry is environmentally responsible. This discourse, therefore, contributes to a culture of public approval for the beef industry, which gives the industry social license to continue using land in the province.

Imagining pathways forward for the Alberta beef industry is challenging, both in terms of the actions it should take and the discourses it should employ. Going beyond an incremental approach to addressing the negative impacts of beef production would present an existential threat to the beef industry. It might be unreasonable to expect the beef industry to enact changes that address the fundamental issues with beef production, as doing so would directly undermine its profitability. More transformational changes to beef production in Alberta, if they do occur, are likely to come from actors outside the industry, such as the provincial or federal governments. However, the beef industry can continue to improve its practices to bring incremental, positive change. At the very least, the beef industry in Alberta has an obligation to invest heavily in emissions reductions tools to minimize its contributions to climate pollution. ABP can also envision new opportunities for the future of the industry that recognize the importance of reducing beef production and consumption for addressing climate change (Clark et al., 2018). The industry can consider diversifying, investing in more sustainable investments

such as some forms of plant-based agriculture or renewable energy. Alongside such practical measures, the industry might shift its discourse: rather than avoiding recognition of the Alberta beef industry's contributions to climate change through a focus on environmental stewardship, the industry could adopt discourses that acknowledge the environmental implications of beef production as well as informing consumers about the ways that these impacts can be minimized, enabling consumers and other stakeholders to make more informed decisions.

3.6 Conclusions

The narrative of environmental stewardship constructed by ABP conceals real moral complexities related to the beef industry in Alberta. While it goes beyond the scope of this study to assess whether the Alberta beef industry really is more sustainable than the beef industry in other places, the industry makes reasonable claims about protecting grasslands and adopting management practices that reduce environmental harm, suggesting that it is to some extent environmentally responsible. At the same time, all beef production inherently makes a disproportionate contribution to greenhouse gas emissions, and possibly to other environmental impacts as well. Given the Alberta beef industry's position within a wealthy, industrialized nation, this raises complicated questions of climate justice and the industry's obligations to own up to and mitigate its environmental impacts. While many beef producers make commendable efforts to render their practices more sustainable, and the beef industry does yield real benefits for the province, discourses that minimize the industry's environmental externalities may serve to perpetuate the problem rather than imagine more sustainable solutions.

ABP marshals a narrative of environmental stewardship to rationalize a way forward for the beef industry in Alberta that maintains the status quo. This narrative, which contends that the beef industry is already environmentally sustainable, serves as justification for a future in which the beef industry only adopts gradual technological improvements, rather than enacting systemic change. In essence, the narrative of environmental stewardship enables the beef industry to address contemporary concerns about beef production without challenging the viability of the industry or imposing burdensome environmental restrictions. While our study is limited in scope to discourses around the beef industry, it provides insight into how the Alberta beef industry uses language to obscure its environmental impacts while promoting a positive self-image.

Our study focuses on the beef industry in Alberta, but our findings are relevant for industries in other places. Understanding the discursive practices of the beef industry in Alberta can provide insight into how environmentally intensive industries in various contexts discursively frame themselves as responsible and sustainable, with a view to advancing their priorities with powerful actors and bolstering their public image. Our research further speaks to the challenges agricultural industries face within the global climate transition, of needing to minimize their environmental impacts while continuing to offer social benefits such as enhancing nutrition and supporting livelihoods. In the context of global climate injustice, our findings shed light on some of the moral responsibilities environmentally intensive industries in wealthy countries face to disclose their impacts and adapt their practices, rather than concealing them. The calls to action we identify for the beef industry in Alberta can likewise be applicable for other industries facing similar challenges around the world, as they encourage greater transparency and accountability.

CHAPTER 3 BIBLIOGRAPHY

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PREAMBLE TO CHAPTER 4

In my first manuscript (Chapter 3), I look at how Alberta Beef Producers, the voice of the beef industry in Alberta, discursively frames the Alberta beef industry. My findings show that the industry draws on discourses of environmental stewardship to portray the industry as environmentally and socially responsible, which is particularly important considering the increased public scrutiny it experiences. In my next manuscript, in Chapter 4, I shift perspective to consider how popular discourses represent the industry in light of the challenges it faces. By analyzing newspaper articles about the beef industry published in Alberta newspapers, I categorize and describe popular discourses around Alberta beef. The second manuscript allows me to paint a broader picture of the Alberta beef industry and understand in greater detail how the discourses of various actors in the province frame the beef industry and, in turn, can incentivize support for Alberta beef. Taken together, the two manuscripts also enable me to investigate similarities between the discourses wielded by the beef industry and those that circulate popularly.

CHAPTER 4: PRIDE IN ALBERTA BEEF: AN ANALYSIS OF POPULAR DISCOURSES AROUND ALBERTA BEEF THROUGH NEWSPAPER ARTICLES

4.1 Abstract

The beef industry faces increasing pressure over concerns about the social and environmental impacts of beef production and consumption. Although this is a tension for the beef industry globally, it is particularly acute in the Canadian province of Alberta, where the beef industry holds considerable cultural and economic importance. In this context, we ask how popular discourses negotiate tensions between moral concern around the beef industry and recognition of its importance. We identify and characterize these discourses from different actors writing from within Alberta about the province's beef industry, analyzing how they frame the sustainability and morality of Alberta beef. We take a mixed methods approach, applying quantitative topic modelling to thousands of newspaper articles about the beef industry, then undertaking a qualitative Critical Discourse Analysis of a subset of articles. We demonstrate the ubiquity of discourses of pride in the industry, which portray the industry as moral and sustainable, and symbolically connect the beef industry to the province of Alberta. Pride in the industry drives two main responses: a reactionary doubling down on the desire to preserve the status quo and prevent the industry from changing and, in contrast, a willingness to imagine alternative futures for the industry that seek to make it more sustainable and ethical. Nevertheless, even interlocutors who are willing to imagine alternatives advocate for largely superficial changes, indicating a general reticence to truly transform the industry. Our findings can be relevant to research into the food choices of consumers and the moral economies that develop around industries.

4.2 Introduction

In recent years, the global beef industry has been subject to increased scrutiny over its environmental and social impacts (Maye et al., 2021). In a global sense, beef production disproportionately contributes to greenhouse gas emissions, nutrient pollution, and land-use change compared to other foods, leading some consumers to avoid eating beef out of environmental concern (Clark et al., 2018; Godfray, 2018; Poore & Nemecek, 2019).

Consumption of processed and unprocessed red meat, such as beef, is furthermore associated with increased risk for multiple diseases, including coronary heart disease and diabetes (Clark et al., 2019). The meat processing industry in North America is also frequently associated with poor working conditions, as meatpacking is dangerous, grueling work that often employs immigrant workers, raising concerns about labour practices (Ramos et al., 2020; Wagner and Hassel, 2016).

Increasing public scrutiny places pressure on beef industries to demonstrate that they are socially and environmentally responsible, leading to the prominence of initiatives such as roundtables for sustainable beef production, sustainable voluntary certification schemes, and communications strategies focused on the sustainability of beef (Buckley et al., 2019; Carvalho Burnier et al., 2020; Migliore et al., 2015). At the same time, increased scrutiny over the impacts of beef production has also resulted in backlash, as demonstrated by public outcries over governmental action to reduce meat consumption or the development of plant-based meat analogues (Michielsen and van der Horst, 2022; Patrick, 2021). In Brazil, the United States, and other contexts around the world, these dynamics are further complicated by cultural attachment to the beef industry, which is often motivated by the importance of beef as a strong driver of regional industries (Hiltner, 2022; Hoelle, 2015).

The province of Alberta, Canada offers a fruitful context for understanding the tension between concern over the impacts of beef production and attachment to the beef industry. On one hand, the beef industry has a large amount of public support in the province, with the expression ‘we love Alberta beef’ serving as a common refrain in public discourse. The beef industry occupies a large space in the province’s cultural identity: deeply involved in annual events such as the Calgary Stampede, where Alberta beef features prominently on the menu, and inherently intertwined with the province’s agricultural tradition. On the other hand, the beef industry in

Alberta increasingly faces challenges due to environmental, health, and labour concerns related to beef production and consumption.

In Alberta, a handful of recent events have brought increased attention to these challenges and the pressures they place on the beef industry. In 2016, the Vancouver, British Columbia-based restaurant chain Earls announced its decision to move away from serving Alberta beef in favour of sourcing its beef from a US-based supplier that certified meat and dairy products as being humanely raised (Bell, 2016). The move sparked a firestorm of backlash that ultimately caused Earls to reverse its decision and commit to using Alberta beef, but the incident also demonstrated how the Alberta beef industry is under pressure to market itself as ethical and environmentally, socially, and economically responsible. In 2020, amidst the onset of the COVID-19 pandemic, the Alberta beef industry faced a major labour challenge, as the Cargill meat processing plant in the province saw devastating outbreaks of COVID-19 amongst workers (CBC News, 2020). At the time, these outbreaks were the worst in Canada, with the Cargill outbreak being linked to more than 950 cases and three deaths, and the JBS Canada outbreak being connected to 650 cases and one death. The outbreaks brought increased attention to the need for better safety measures in the plants as well as greater care for workers, both in the context of the pandemic and beyond.

We consider discourses around the Alberta beef industry in the context of the province's moral economy. The concept of a moral economy assumes that ideational factors can motivate economic activities, rather than assuming that economic choices are solely driven by rationality and utility maximization (Götz, 2015). Moral economies allow us to consider how ethical and moral issues affect economic activity, alongside more traditionally recognized considerations such as markets. The concept of a moral economy is particularly useful for understanding economic choices surrounding food, as ethical concerns are particularly pronounced in the agri-food sector (Jackson et al., 2008; Morgan, 2015). On top of being an important economic sector with key implications for human livelihoods and the environment, food is also essential to human health and well-being. Globally, the ethical components of food issues are wide-ranging, encompassing questions related to hunger, food insecurity, equitable access to nutrition, animal welfare, environmental impact, worker rights, food sovereignty, and much more (Barnhill et al., 2018). Discourse around the Alberta beef industry engages with many of these ethical considerations, particularly around access to nutrition, animal welfare, environmental impact,

and worker rights. Understanding ‘popular’ discourses around the Alberta beef industry provides insight into how different actors negotiate trade-offs between the cultural and economic importance of the industry, on one hand, and increasing concerns about the industry, on the other hand. Studying discourses about the industry can also shed light on potential futures for an industry that has a high level of importance in Alberta, both in terms of its economic significance and its environmental impact.

In this study, we examine discourses about the Alberta beef industry employed in newspaper articles published in the province. We take newspaper articles as a sample of public discourse, recognizing that newspapers serve as important conduits for the exchange of information and opinions. In this regard, we add to a large body of scholarship that has explored and described public discourse as it is mediated through newspaper articles, such as Hakam’s (2009) Critical Discourse Analysis of English-language Arab newspaper discourse and Drewski’s (2015) content analysis of German and Spanish newspaper editorials on the Euro crisis. Newspapers provide a vehicle for different voices to share their perspectives on timely issues: in addition to the writing of journalists, one can expect to encounter discourses shared by other key actors in public life, such as ordinary citizens writing letters to the editor or government officials quoted in articles. While the polyvocality of newspapers can create some confusion, as it can be challenging to disentangle voices and identify who is sharing which perspectives, this polyvocality ultimately allows an array of public discourses to emerge, offering a productive sample for analysis (Milner, 2013).

What are popular discourses around the Alberta beef industry and what frames do they employ? Our study uses newspaper articles to examine this overarching question to uncover key topics related to the beef industry that are addressed in public discourse, as well as to characterize popular discourses surrounding the industry. We focus on articles published during the period from 2015 to mid-2023 to provide a recent sample of discourse. In this study, we first use a quantitative topic modelling approach to explore what is being talked about in relation to the beef industry in Alberta newspapers, including which issues and events cause it to be talked about in public discourse. We then qualitatively analyze discourses amongst the articles to identify common themes and trends that characterize popular discourses about the industry. While the topic modelling provides a quantitative, big picture view of the types of discourses that circulate around the beef industry, our qualitative Critical Discourse Analysis (CDA) of a subset

of articles offers a deeper dive into how discourses frame the industry and the challenges it faces (Fairclough, 2013). We then discuss our findings, situating them within the historical context of the beef industry in Alberta, explore how popular discourses position the industry within Alberta's moral economy, and imagine some potential pathways forward for the industry.

4.3 Methodology

We use a mixed methods approach to analyze discourses around the Alberta beef industry published in Alberta newspapers. Specifically, our approach combines a quantitative topic modelling of a large dataset containing hundreds of newspaper articles with a focused, qualitative Critical Discourse Analysis (CDA) of a 'representative' subset of those articles.

4.3.1 Corpus development

We first built a corpus of newspaper articles by searching for the term "Alberta beef" in the ProQuest Canadian Newsstream Database. This initial search yielded more than 60,000 results, which we narrowed down by using several criteria to exclude articles based on relevancy. First, we limited the results to articles published between 1 January 2015 and 26 April 2023, when the initial search was made, focusing on this period to 1) sample recent discourse and 2) examine how discourse addresses key events that affected the beef industry, such as the Earls boycott in 2016 and the outbreaks of COVID-19 in meatpacking facilities in 2020. Second, given our focus on 'popular' discourses from within the province of Alberta, we excluded any articles that were published outside of the province (based on the article metadata and the names of the publications). Third, we excluded duplicate articles, where the same articles were published in multiple outlets. This filtration process reduced our dataset to around 4,300 articles. At this point, the lead author screened for relevancy by manually reading through all the articles to assess whether they were relevant to the research topic, as is a common practice in discourse analyses of newspaper articles (Alaazi et al., 2021; Michelini, 2021). The lead author sorted each article into 'relevant' and 'non-relevant' categories according to the following criteria: all relevant articles made more than a passing reference to Alberta beef and referred to actual news 'stories', meaning that they did not simply make announcements such as upcoming events or recent deaths. After screening for relevancy, our final dataset included 892 articles.

4.3.2 Latent Dirichlet Allocation

We applied quantitative topic modelling to the entire corpus of relevant articles to provide an overview of the types of topics addressed across the corpus. We chose Latent Dirichlet allocation (LDA), a popular algorithm for topic modelling, which is used for unsupervised classification of documents (Silge and Robinson, 2024). LDA helps to unearth themes in a corpus, revealing observable topics that emerge throughout the corpus while categorizing a large body of documents into a smaller number of topics (Qiao and Williams, 2022). Rather than assuming that each document only belongs to one topic, LDA treats each document as a mixture of topics, which can overlap with each other, and assigns gammas to indicate the probability that each document is associated with each topic (Silge and Robinson, 2024). LDA is guided by the principle that each topic is a mixture of words, meaning that each topic is associated with a series of words that commonly appear within the topic, with the potential for words to be shared between topics.

We conducted the LDA using R v. 4.3.1 (R Core Team, 2023) via a Jupyter Notebooks interface running in Windows on a virtual machine hosted via ProQuest's 'TDM Studio' platform. We first prepared a corpus with the texts of the 892 articles as input for the LDA. We then followed a series of standard pre-processing steps to ready the corpus. Text preprocessing and the LDA implementation were conducted with the *topicmodels* package for R (Grün et al., 2024). The pre-processing steps included converting all characters to lowercase, removing punctuation, removing numbers, removing stop words, and removing white space, as is common practice in studies using LDA (Maier et al. 2018). We next lemmatized the corpus, which is a process by which the surrounding contexts of words are examined to transform the inflected forms of words into their lemmas (Qiao and Williams, 2022). We chose lemmatization over stemming, an alternative approach often used to prepare text for LDA, as lemmatization is generally recognized to be more precise and easier to interpret (Schütze et al., 2008). From there, we applied LDA to our corpus and determined a suitable number of topics for the model to generate, as LDA allows the user to select any number of topics to be modelled. Drawing on Gan and Qi (2021)'s four characteristics of the optimal number of topics in LDA topic models, we selected ten topics for our corpus. Ten topics best generated results where terms were logically aligned with the topics without being redundant, meaning that there were minimal repetitions

amongst the topics. These topics represent themes that emerge repeatedly in newspaper discourse on the Alberta beef industry.

4.3.3 Sampling and coding a subset of articles

The topic modelling broadly defined major topics addressed in newspaper discourse about Alberta beef, which allowed us to then select articles for sampling that would be illustrative of the most common topics, and thus of the most common types of discourse. To do so, we randomly selected ten articles for qualitative coding from within each of the ten topics, rationalizing that this approach would yield a subset of articles that would be representative the topics while also reflecting some discursive diversity within each topic. To select articles that had a high probability of belonging to each topic, we referred to the gammas assigned to each article by the LDA. The gammas represent per-document-per-term probabilities, meaning that they are an estimation of the proportion of words from each document that are generated from each topic (Silge and Robinson, 2024). In other words, the gammas are a useful proxy for estimating the extent to which a given article is representative of a given topic generated by the model. We only performed the random selection on articles with gammas of 0.75 or higher, which would indicate that the words in those articles had a 75% probability of belonging to the given topic (Silge and Robinson, 2024).

The random selection process yielded a set of 100 documents for qualitative coding, with ten documents belonging to each of the ten topics. The lead author read the 100 documents and undertook an initial round of qualitative coding in MAXQDA. This coding was primarily inductive, although some codes were developed based on preliminary research. At this time, the lead author also wrote descriptions of each of the topics generated by the model, theorizing why the articles under each topic were clustered together by the model, assigning shorthand names to each topics, and detailing common themes amongst the articles to inform our analysis. The lead author then completed a second round of qualitative coding, reading through the set of 100 articles a third time. This final round of qualitative coding provided a basis for our analysis by identifying common themes and discourses that appeared across documents.

4.3.4 Critical Discourse Analysis (CDA)

Our qualitative analysis employs Critical Discourse Analysis (CDA), an interdisciplinary approach that emphasizes the relationality between discourses and the social practices within which they are embedded, to draw insights from the qualitative codes (van Leeuwen, 2006). Based on the common themes and discourses identified through our qualitative coding, we interpreted the data to characterize popular discourses make inferences about the relations between these discourses and the social practices within which they are embedded.

4.4 Results

The results of our topic modelling are detailed in Table 4.2 below. The titles in Column B and the topic summaries in Column D were developed by the leader author during analysis, while the key words in Column C were generated by the Latent Dirichlet Allocation. These topics provide insight into how the Alberta beef industry is discussed in public discourse, offering an overview of the main issues and aspects of the industry that lead to it being written about in Alberta newspapers.

Of the topics generated by the model, Topics 1 and 2 are primarily discursive, offering an array of perspectives and reflections on the Alberta beef industry. Topic 1 captures a wide array of public discourse on the beef industry, as all the articles collected under this topic are either opinion pieces or letters to the editor. As most of the articles were written by members of the public, Topic 1 offers important insight into popular discourses around the beef industry, beyond those employed by journalists, politicians, or industry professionals. Most Topic 1 articles address political issues related to Alberta beef, with many interlocutors responding to the decisions of politicians or governments that affect the beef industry. Topic 2 brings in articles about the branding of the Alberta beef industry as well as the values that drive consumer food choices. The articles provide insight into how the beef industry uses discourse to garner public support.

Topics 3 through 7 bring in discourse around the industry in the context of reporting on issues or events related to the beef industry. These topics respectively address the outbreaks of COVID-19 in meat processing plants in Alberta, the growing conditions in which cattle and their feed are raised, the programs and assistance offered to the beef industry, and the business activities of the beef industry. Topics 8 through 10 are less connected to public affairs, as they

primarily provide information about the industry intended for beef producers or other industry professionals. The topics offer information about market and operational trends in the beef industry, issues related to food safety and cattle health, and technical guidance for producers on best practices in business and livestock care.

In the following sub-sections, we explore key themes and discourses identified through our Critical Discourse Analysis. We describe discourses of pride in the Alberta beef industry, which connect the industry symbolically to the province itself. We then outline discourses that reflect the popular sentiment that the beef industry is under pressure. Finally, we explain how different interlocutors respond divergently to the challenges facing the beef industry, characterizing two main types of response.

Table 4.2 Results of the topic modelling via LDA. Asterisks indicate where key words are stemmed.

Topic number	Topic title	Key words	Description
1	Public discourse on political issues	people, good, time, govern*, climat*, carbon, think, chang*, take, want, much, know*	<p>Overview: Generally communicate support for the beef industry and desire for regular access to beef.</p> <p>Key subjects: Concerns over health impacts of beef, concerns over environmental impacts of beef</p> <p>Type(s) of article: Letters to the editor, opinion pieces</p> <p>Type(s) of interlocutor: Members of the public</p> <p>Tone: Typically colloquial</p>
2	Branding and values	product, industry, produc*, consum*, earl*, good, restaur*, sustain*, compani*, plantbas*, market, protein	<p>Overview: Address issues related to the branding of the beef industry and the values that drive food choices.</p> <p>Key subjects: Branding initiatives, consumer concerns about sustainability and ethics, Earls boycott</p> <p>Type(s) of article: News reporting, editorials</p> <p>Type(s) of interlocutor: Journalists, editorials</p> <p>Tone: Mostly journalistic and neutral, sometimes more opinionated</p>
3	Outbreaks in meat-processing plants	plant*, worker, cargill, covid, work, case, outbreak, employe*, health, facil*, high process	<p>Overview: Address the outbreaks of COVID-19 in meat-processing plants in Alberta.</p> <p>Key subjects: Union activities, government action, labour rights, disruptions to food chain</p> <p>Type(s) of article: News reporting, tribute journalism</p> <p>Type(s) of interlocutor: Journalists</p> <p>Tone: Mostly journalistic and neutral, sometimes more emotive</p>

4	Influence of govts and institutions	trade, market, export, produc*, china, countri*, product, industri*, govern*, pork, label, health	<p>Overview: Describe how governments and major institutions affect the beef industry.</p> <p>Key subjects: Ground beef labelling incident, trade disputes with China, negotiation of USMCA</p> <p>Type(s) of article: News reports, opinion pieces</p> <p>Type(s) of interlocutor: Journalists and editorialists</p> <p>Tone: Journalistic, semi-formal, neutral</p>
5	Growing conditions and feed	crop, produc*, good, forag*, condit*, cent*, farmer, high, plant*, pastur*, spin-dri*, drought	<p>Overview: Address growing conditions in which cattle and their feed are raised, or the feed itself.</p> <p>Key subjects: Droughts, guidance for producers</p> <p>Type(s) of article: News reporting, guidance for producer</p> <p>Type(s) of interlocutor: Journalists, industry experts</p> <p>Tone: Journalistic, semi-formal, neutral, technical</p>
6	Programs and assistance	produc*, industry*, program, govern, farm, agricultur*, research, support, product, farmer, help, million	<p>Overview: Describe programs and assistance that have been offered to the beef industry in Alberta.</p> <p>Key subjects: Programs to bolster industry competitiveness, loans, research grants, tax credits</p> <p>Type(s) of article: News reporting</p> <p>Type(s) of interlocutor: Journalists</p> <p>Tone: Journalistic, semi-formal, neutral</p>

7	Business activities	plant*, countri*, water, good, clinic, work, conserv*, grassland, develop, concern, land, process	Overview: Describe activities of beef processing plants and abattoirs in Alberta. Key subjects: Government relations, public interest in plants and abattoirs Type(s) of article: News reporting Type(s) of interlocutor: Journalists Tone: Journalistic, semi-formal, neutral
8	Beef industry trends	price, market, suppli*, produc*, high, product, slaughter, increas*, industri*, sell, come, last	Overview: Describe trends in the industry (e.g. profitability, sales, operations, size of cattle herds) Key subjects: effects of COVID-19 Type(s) of article: News reports Type(s) of interlocutor: Journalists Tone: Journalistic, semi-formal, neutral
9	Diseases	produc*, cfia, diseas*, test, case, program, govern, quarantin*, industri*, bovin*, herd, risk	Overview: Address diseases affecting the cattle industry, relating to food safety and cattle health. Key subjects: BSE crisis, Bovine TB, Chronic Wasting Disease Type(s) of article: News reports Type(s) of interlocutor: Journalists Tone: Journalistic, semi-formal, neutral
10	Technical guidance for producers	produc*, calf, pound, good, calv, weight, bull, product, herd, percent, oper*, average	Overview: Technical guidance for producers on best practices in caring for livestock and operations. Key subjects: Livestock care, size of cattle herds Type(s) of article: Guidance for producers Type(s) of interlocutor: Industry expert Tone: Technical, neutral

4.4.1 Pride in Alberta beef

Pride in the Alberta beef industry is apparent throughout many of the newspaper articles we reviewed, particularly from Topics 1 and 2. Interlocutors express pride in multiple aspects of the industry (Figure 4.3), through various means, including: (1) by praising the work of ranchers and producers, (2) lauding the supposed superiority of Alberta beef compared to beef produced elsewhere in the world, and (3) portraying the Alberta beef industry as an industry that is traditional, ethical, and sustainable. These interlocutors represent multiple stakeholder groups involved in public discourse, including members of the general public, journalists, and a select number of politicians or other public figures. The work of producers proved to be a key source of pride in the industry, with several interlocutors describing producers as hardworking Albertans who are key drivers of the economy and produce an exceptional product (Topic 6 Article 3; Topic 6, Article 6). Several messages allege that Alberta beef is among the best in the world, referring to the supposedly superior quality of Alberta beef (Topic 2, Article 7; Topic 6, Article 3).

Figure 4.3 Tally of the sources of pride and references to challenges in each of the 10 topics.

	Pride								Challenges										
	General		Pride in dimensions of industry						Operational challenges				Marketing challenges						
	Provincial symbolism	Support and concern for industry	Producers	Tradition	Superiority of AB beef	Environmental stewardship	Sustainability and ethics	Economic contributions	Preference for domestic beef	Effects of shocks	Labour issues	Trade relations	Extreme weather	Financial difficulties	Health impacts	Environmental concerns	Labour concerns	Animal health	Plant-based diets
Topic 1																			
Topic 2																			
Topic 3																			
Topic 4																			
Topic 5																			
Topic 6																			
Topic 7																			
Topic 8																			
Topic 9																			
Topic 10																			

Along similar lines, multiple interlocutors refer to positive features and contributions of the Alberta beef industry that they believe merit pride, such as the industry's humane treatment of animals, its contributions to grassland conservation and carbon sequestration, its important role in food production, and its driving role in Alberta's economy. Alberta Beef Producers' Chairman Bob Low refers to the industry's dedication to animal welfare, stating in one article that "99.9 per cent of ranchers are already using ethical animal handling practices that meet or exceed the standards set out by the Certified Humane program" used by some retailers (Topic 2, Article 7). Other articles praise multiple dimensions of the Alberta beef industry simultaneously, with one article referring to the industry's belief that "it has a positive story to tell about animal care, carbon sequestration, and grassland preservation (Topic 2, Article 2). Other articles emphasize the importance of marketing positive, moral features of the industry to garner public support. For example, some articles refer to the work of the Canadian Roundtable for Sustainable Beef, which is dedicated to "ensuring beef production is environmentally sound, socially responsible and economically viable" as well as communicating to retailers and consumers that "choosing Canadian beef is an ethical, environmentally responsible thing to do" (Topic 2, Article 9).

Messages of pride in the Alberta beef industry oftentimes align with messages in support of the industry, with one commentator writing in *The Calgary Herald* that "the Canadian beef industry deserves our unwavering support" (Topic 2, Article 7). Other interlocutors detail initiatives in support of the Alberta beef industry, such as efforts led by the Government of Alberta to strengthen the ability of the beef industry to grow economically, to withstand shocks such as the COVID-19 pandemic and extreme weather events, and to be competitive in a changing food market (Topic 2, Article 3; Topic 6, Article 6; Topic 8, Article 3). In communications about the beef industry, politicians or other representatives of the government, whose statements appear frequently throughout the articles we analyzed, oftentimes voice explicit support for the beef industry. For example, one article quotes Jason Kenney, then the Premier of Alberta, who referred to himself as "someone who supports Alberta's farmers and ranchers – and enjoys a good steak from time to time" (Topic 1, Article 1).

While many articles express pride in the beef industry, very few articles express disregard or disdain. Even articles that voice concerns about the beef industry oftentimes still communicate a baseline sense of pride in the Alberta beef industry. One article, written in the context of the

outbreaks of COVID-19 among workers at Cargill's High River Protein Processing Plant, quotes Thomas Hesse, the president of the union representing the workers as saying "Cargill has really brought a lot of shame to Alberta and Alberta beef... We want to see this industry operate; we want to see the ranchers prosper; I want to eat beef; workers want to work safely" (Topic 3, Article 4). While this quote reflects situational shame in Cargill's response to the pandemic, Hesse also expresses a desire to see the industry prosper, suggesting that under normal circumstances he would feel pride in the industry.

Even critical voices express forms of pride, albeit differently. A letter to the editor, written in response to Danielle Smith's appeal to double beef consumption, encourages readers to adopt more plant-based diets to improve their health and the health of the environment (Topic 1, Article 2). Although this article does not express support for the Alberta beef industry, it nevertheless shows how central pride is to discourse on the Alberta beef industry. The letter notes that "lest anyone think that veganism is unpatriotic, remember that Canada is one of the world's greatest suppliers of pulses, a category that includes antioxidant-rich peas, beans, chickpeas, and lentils. Perhaps we need a new slogan: I heart Alberta beans". This proposed slogan riffs on the popular refrain "I heart Alberta beef", suggesting that Albertans can and should show pride in the Alberta pulses industry, the way they do for the Alberta beef industry.

4.4.2 Provincial symbolism

The beef industry is also symbolically interwoven with the province, with many interlocutors expressing the notion that the beef industry is central to life and culture in Alberta. Several discourses emphasize Alberta's legacy as an agricultural province. In one article, Alberta's Minister of Agriculture and Irrigation, Nate Horner, writes that "as Alberta's oldest industry, agriculture is foundational to the province's economy and identity" (Topic 6, Article 10). Other interlocutors similarly refer to the long history of the beef industry, with one journalist writing that "the beef industry is as synonymous with Alberta as oil and gas, with an even longer history" (Topic 2, Article 2). The notion that the beef industry is "synonymous" with the province shows that the industry is an important provincial symbol and a synecdoche for Alberta itself. The symbolic connection between the beef industry and the province reinforces beef's cultural importance in Alberta.

Nationalist sentiments are frequently at play in discourses that symbolically link the beef industry to Alberta. Nationalist discourses about the beef industry are likely to be quite reactionary, expressing concern for the industry in response to perceived “attacks” against it, with several interlocutors framing actions that cause difficulties for the beef industry as affronts to the province itself. In a letter to the editor of *The Calgary Sun* about Health Canada’s move to label ground beef as high in saturated fat, which was later reversed, one interlocutor remarks that “Health Canada 'knows' that food products that are primarily produced in Quebec are obviously far healthier than those produced in Alberta” (Topic 1, Article 4). This comment reflects the belief that the Trudeau government shows favoritism towards the province of Quebec, implying that Health Canada’s proposal sought to support producers in Quebec while harming industries in Alberta. In an editorial on the Earls incident, another interlocutor writes that “the company’s move away from [Alberta] beef was properly perceived as an attack on an important symbol of our province” (Topic 2, Article 7).

4.4.3 Perceptions of an industry under threat

Despite widespread pride and support for the Alberta beef industry, most of the articles we reviewed detailed challenges being faced by the industry, reflecting a sense that the industry is under pressure. Articles grouped under almost all topics described challenges faced by the beef industry, although the nature of the challenges varied by topic (Figure 4.4). These challenges can be broadly divided into two categories: operational challenges affecting beef production and challenges related to the marketing of beef as a food product.

Most topics refer to challenges related to the marketing of beef as a food product, conveying the notion that the beef industry is under increased pressure to appeal to consumers. The articles demonstrate growing public awareness of environmental and health concerns associated with beef production and consumption, which place pressure on the beef industry to evolve and adapt and create a sense that the industry is at a crossroads. Interlocutors refer to the challenge of promoting beef considering increasing awareness of how red meat can be harmful to human health (Topics 1, 2, 4, 7), as well as mounting concern over the environmental impacts of beef production (Topics 1, 2, 7). Concerns about both the health and environmental impacts of beef surface together in discourse on plant-based diets (Topics 1, 2, 7).

Operational challenges affecting beef production also surface across most topics. Some of these challenges originate from outside of the industry, such as operational challenges related to trade relations, extreme weather, and the effects of shocks such as the COVID-19 pandemic (Topics 1, 3, 4, 5, 6, 8, 9). Other operational challenges stem from the practices of the industry itself, including challenges related to labour concerns, animal health, nuisance impacts of beef production, and financial trends (Topics 3, 5, 6, 7, 8, 9).

4.4.4 Divergent responses to challenges facing the industry

Interlocutors respond in different ways to the challenges facing the Alberta beef industry: some double down in support for the industry to maintain business as usual, while others demonstrate some openness to change. Commentators who show resistance to change frequently use reactionary messaging, responding to perceived threats against the industry with appeals to leave it alone. Some interlocutors mock or dismiss concerns about the negative impacts of beef production and consumption in apparent attempts to invalidate criticism, thereby alleviating some of the pressure on the beef industry. In a letter to the editor of *The Calgary Sun* on Health Canada's move to label ground beef as high in saturated fat, one interlocutor writes that "if Ottawa could get away with it, there is no doubt, toxic, or poison would be on the label as well. But just Alberta beef", suggesting that concerns about the health impacts of beef consumption are unjustified (Topic 1, Article 9). In an opinion piece, Danielle Smith imagines a future in which a reduction in cattle herds leads to "out-of-control grassland fires burning all over the prairies, releasing carbon dioxide as they incinerated" (Topic 5, Article 6). Smith implies that concerns about the environmental impacts of beef are invalid by skirting acknowledgement of the beef industry's emissions and framing the beef industry as an important contributor to carbon sequestration.

Conversely, other interlocutors show a willingness to imagine alternatives for the beef industry in response to the challenges it faces. These interlocutors largely acknowledge concerns about the industry and its environmental impacts, advocating for changes to the industry in Alberta that ensure it is as "sustainable" as it can be. Importantly, most of these interlocutors recommend changes that are quite superficial, and primarily tied to marketing and branding. In an article on the Canadian Cattlemen's Association's plans to rebrand itself, an industry professional expresses the belief that conveying the industry's professionalism and social

responsibility is essential for maintaining consumer support, stating that “it’s important that when people start Googling and looking into who we are, that we can demonstrate that we really are a first-class professional entity, not just a bunch of hick farmers in the background” (Topic 2, Article 2). In an article on the presence of ranchers at the Calgary Stampede, a member of the Stampede Beef Cattle Committee states that “the most important part of beef production [is] educating the people who buy beef on what they do” (Topic 2, Article 8). This commentator suggests that the industry should focus on assuaging consumer concerns but does not advocate for any other changes to the industry. Broadly put, these interlocutors encourage changes to the industry that *market it* as being sustainable and ethical, rather than bringing large-scale changes that might more legitimately address concerns about beef production and consumption.

Only one article encourages a reduction in the size of the beef industry, urging consumers to adopt plant-based diets and support Alberta beans rather than Alberta beef (Topic 1, Article 2). While other interlocutors advocate for some changes to the status quo of the industry, they nevertheless envision a future in which the beef industry thrives in Alberta. In one article, Bob Lowe, the president of the Canadian Cattlemen’s Association states that “he believes his industry is facing a crossroads” but that it has to “maintain relevancy, however that is” (Topic 2, Article 2). Ultimately, while these interlocutors are willing to engage with concerns about beef production and make some changes to the industry, they appear mostly unwilling to consider fundamental changes to the industry.

4.5 Discussion

Understanding discourses of pride in the Alberta beef industry is important to considerations of how the beef might evolve to address contemporary challenges. We first contextualize discourses of pride in the Alberta beef industry, showing how they resemble discourses in other agricultural contexts as well as discourses surrounding the oil and gas industry, and exploring how pride in the Alberta beef industry partly stems from the 2003 BSE crisis. Next, we explore how discourses of pride function to reaffirm support for the beef industry within the moral economy of the province. We then consider how discourses of pride might be reimagined to advance support for sustainable transformations to the food system, rather than reifying a popular desire to maintain the status quo. Finally, we reflect briefly on discourses that did not surface in our analysis.

4.5.1 Pride in agriculture

Discourses of pride in the work of farmers can be observed in agricultural contexts across the world, which resemble those around the Alberta beef industry. Writing about farmers in the Netherlands, Bosma and Peeren (2021) argue that farmers discursively meet an ideal of authenticity due to “the notion of farming as in and of itself an authentic activity” (p. 117), which can garner them public support and pride. In their interviews with smallholder farmers in Puerto Rico, Marrero et al. (2022) find that farmers express pride in their ability to work hard and provide nourishment to themselves and their communities. Likewise, discourses about the Alberta beef industry frequently refer to Alberta’s history as an agricultural province, expressing pride in the legacy of farmers who have worked in the province since it was settled. In this way, the history of the beef industry in Alberta partly explains the prevalence of discourses of pride in Alberta beef.

4.5.2 Parallel discourses: agriculture and oil and gas

Messages of pride in the beef industry resemble and relate to messages of cultural identification with another key sector in Alberta: the oil and gas industry. Deep similarities exist between the symbolism that surrounds the beef industry and the oil and gas industry in Alberta, as both industries draw on romanticized mythologies of the province as a frontier filled with cowboys (Miller, 2004). The Calgary Stampede exemplifies this shared symbolism, as a spectacle that celebrates Alberta’s agricultural and energy heritage through symbols of western frontiers and cowboys (Brunton, 2022). According to Brunton, the Stampede both playfully and sincerely communicates “Western values” – such as optimism, community spirit, and hospitality – through stories and spectacles of western heritage. Brunton contends that the oil and gas sector is a central component of Western cultural identification. Likewise, in our analysis, interlocutors connect the beef industry with notions of the West, with several articles framing the beef industry as central to Western cultural events such as the Stampede. We can thus understand that discourses surrounding the oil and gas industry and the beef industry in Alberta are interwoven as components of a broader narrative about what it means to be from “the West” in Canada.

Researchers have explored how the Alberta oil and gas industry and its supporters mobilize discourses of pride and cultural identification to encourage public support (Gunster et al., 2021; Tian and Ge, 2023). These researchers identified discourses of “petro-nationalism”, wherein proponents of the industry portray it as a national public good and frame opposition to extractivism as anti-Canadian or anti-Albertan. Petro-nationalism is a subset of resource nationalism, which is a mode of discourse that contends that the people of a given nation – in this case, Canada, or sometimes just Alberta – should benefit from the resources of a territorially-defined state, rather than private corporations or foreign entities (Koch and Perreault, 2018).

While beef might not traditionally be understood as a resource in the same way that oil and gas are, we observe notable parallels in the nationalistic discourses that surround the Alberta beef industry and those identified by other scholars around the oil and gas industry. Across the articles we analyzed, several interlocutors portray criticism or lack of support for the Alberta beef industry as anti-Albertan, such as commentators who framed Earls’ move away from Alberta beef as an attack on a provincial symbol. In her opinion piece, Danielle Smith implies that concerns about the Alberta beef industry stem from foreign interests and are intended to undermine the industry in Alberta. We can, therefore, conceive of discourses surrounding the Alberta beef industry as part of broader nationalistic discourses surrounding industry in the province, which position criticism of key sectors as affronts to the province.

4.5.3 The long legacy of BSE

In part, discourses of pride in Alberta beef have their roots in the 2003 bovine spongiform encephalopathy (BSE) crisis, which led more than thirty countries to place trade restrictions on Canadian beef (Government of Alberta, 2024). Gwendolyn Blue explains that beef’s popularity increased in Alberta and the rest of Canada amidst the BSE crisis, as domestic support for the beef industry surged (2008). Blue highlights impressive examples of support from this period, including government funds, the organization of a cross-country barbeque, increased promotion of by tourism entities and local businesses, and the popularity of symbols of support such as “I Love Alberta Beef” bumper stickers. As Blue contends, this increase in public support for the industry marked a reversal of an earlier trend, in which Canadians had been decreasing their beef consumption due to environmental, health, and ethical concerns. Blue posits that the cultural identification of Albertans with the Alberta beef industry partly explains the increase in support

for Alberta beef during the BSE crisis. Our study confirms that the shadow of the BSE crisis continues to hang over the beef industry in Alberta, with interlocutors remembering the gravity of the situation. Several commentators continue to connect the legacy of BSE with support for the domestic beef industry in Canada, describing how the crisis increased consumer awareness about Canadian beef. Just as the legacy of the BSE crisis continues to affect the beef industry, so too does the sense of pride in Alberta and Canadian beef that the crisis stoked remain apparent.

4.5.4 Moral economies and moral justification

Discourses of pride in the Alberta beef industry serve to justify and encourage support for the beef industry within the moral economy of Alberta. Many interlocutors associate positive moral values with the Alberta beef industry, constructing beef production and consumption as morally good within the moral economy. As noted in our results, many interlocutors refer positively to moral dimensions of the industry and associate consumption of Alberta beef with loyalty to the province, suggesting that ‘good Albertans’ have a moral responsibility to support the beef industry. In this way, discourse around the Alberta beef industry resembles discourse around the consumption of lamb in Australia, which imply that “any ‘good’ Australian has a moral duty for love of country to consume lamb” (Ankeny, 2007, p. 24).

The framing of the Alberta beef industry as morally good reinforces discourses of pride in the industry by presenting the industry as ethical and therefore deserving of pride. Indeed, several interlocutors suggest that the positive moral attributes of the Alberta beef industry should motivate consumers and other actors, such as the provincial government, to support the industry. Interlocutors who emphasize positive moral values of the Alberta beef industry generally refrain from engaging with evidence of negative moral dimensions of the industry, which would count against the industry within the moral economy.

Moral dimensions are present in both the responses we identify to challenges facing the beef industry. Interlocutors who have a reactionary response and double down on support for the status quo tend to mock or minimize moral concerns about the beef industry, presenting the industry as obviously moral. At the same time, we find that even interlocutors who are willing to imagine alternative futures for the industry generally avoid raising concerns about its morality of, supporting a similarly positive moral framing. Thus, even though we observe variation in terms of how interlocutors respond to challenges and concerns about the beef industry, popular

discourse in Alberta consistently frames the industry as moral. This positive moral framing of the industry, coupled with the general resistance to addressing its negative moral aspects, creates a kind of loop that reinforces discourses of pride in the industry. The reinforcing pattern of discourses of pride in the Alberta beef industry resembles other systems surrounding the relationship between discourse, culture, and industry, such as the patterns of cultural “lock-in”, wherein cultural factors establish systems that are deeply resistant to change (Burton and Farstad, 2019; Hodel et al., 2024).

Many of the discursive techniques employed by the Alberta beef industry and its supporters to frame the beef industry as moral resemble those used by actors in other contexts to portray meat industries as morally good. Schüßler et al. (2024) draw on Bandura’s (1991) theory of moral disengagement to explore how individuals rationalize or justify meat consumption, despite awareness of the concerns associated with meat production. Analyzing discourse surrounding meat industries in Germany, Switzerland, and Austria, Schüßler et al. find that individuals rationalize meat consumption through moral disengagement mechanisms such as responsibility shifting, beneficial comparisons, social justifications, and references to existing standards.

In popular discourse surrounding the Alberta beef industry, we observe frequent social justifications and references to existing standards. Social justifications of meat encompass a variety of messages, but principally refer to the notion that meat consumption is necessary for a healthy, nutritious diet (Piazza et al., 2015). This argument appears throughout many articles, with interlocutors contending that beef is or can be a key component of a healthy diet. References to existing standards, a form of “euphemistic labelling” by which interlocutors refer to standards as evidence that the meat industry is meeting the challenges it faces, also appear throughout our corpus (Schüßler et al., 2024). The multiple references to the Canadian Roundtable for Sustainable Beef illustrate this form of moral justification, as the development of a verification scheme for ethical practices suggests that the industry is moral. In this way, we can observe that interlocutors in Alberta draw on many of the same discursive mechanisms and techniques as interlocutors in other places to depict the beef industry in a morally positive light.

4.5.6 Reimagining pride as a driver of transformation

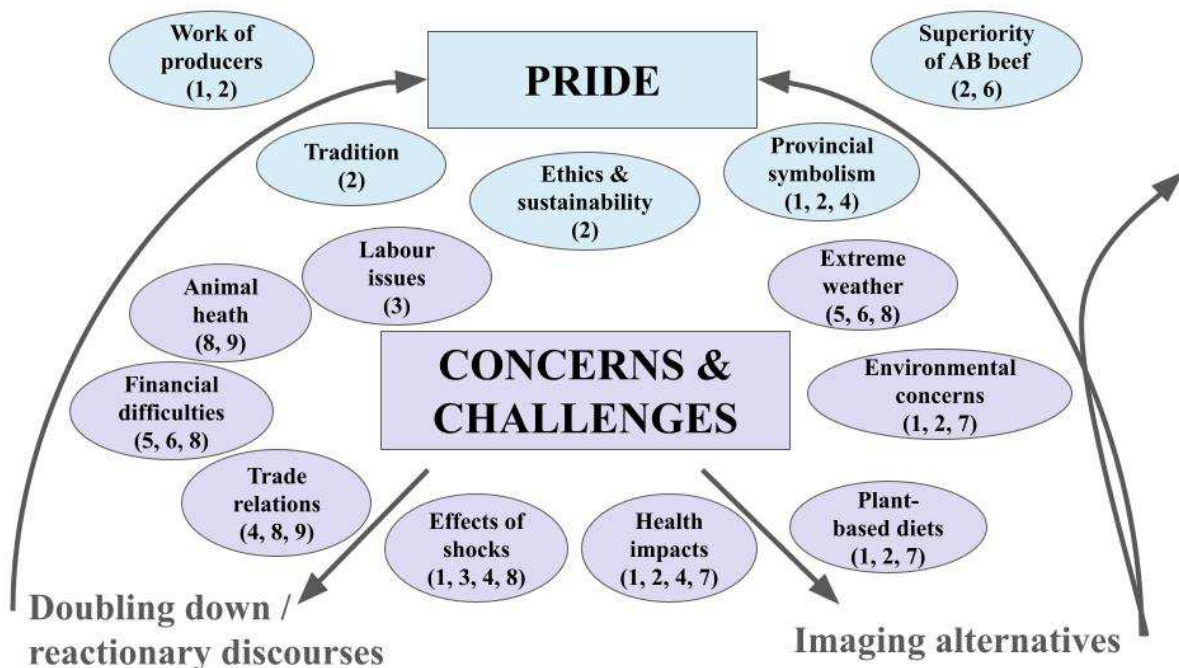
We have thus far explored how discourses of pride in the Alberta beef industry reinforce support for the beef industry and its practices. In some instances, discourses of pride can encourage a willingness to imagine alternative futures for the industry, but most alternative futures only envision moderate, superficial departures from business-as-usual. One might imagine, however, that discourses of pride could help to imagine a future for agriculture and industry in Alberta that is less tied to activities that cause environmental damage. Indeed, a body of research explores how feelings of pride and guilt influence pro-environmental behaviour and intentions, demonstrating that pride can, to some degree, motivate individuals to make choices that support positive environmental outcomes (Aydin et al., 2022; Hurst and Sintov, 2022; Shipley and Riper, 2022). At the same time, it might be difficult to imagine exactly how the discourses of pride that currently surround the Alberta beef industry might be reimagined to support activities that do not cause environmental harm. As we have demonstrated, pride in the Alberta beef industry is deeply engrained and largely resistant to change, despite increasing evidence of the environmental, health, and labour concerns associated with beef. Nevertheless, certain messages associated with discourses of pride hint at the possibility of reimagining these discourses to encourage more sustainable food systems.

It might also be possible to drive support for a food systems transformation by reimagining discourses of pride to more greatly highlight the work of producers of agricultural products that are less associated with negative environmental outcomes. As we have shown, pride in the work of local agricultural producers is apparent throughout the articles we examined, with interlocutors repeatedly praising the work of farmers and ranchers in Alberta. However, as one interlocutor points out, beef is by no means the only agricultural industry in Alberta, as the province is also an important supplier of lower-impact protein sources, such as pulses (Alberta Pulse Growers, 2024). No other agricultural industry in Alberta is as widely praised as the beef industry, but encouraging Albertans to take greater pride in other kinds of agricultural producers might reduce the perceived importance of protecting the beef industry over all else, increasing the willingness of Albertans to imagine alternative agricultural futures. Moreover, we might also imagine that it is, to some extent, possible to separate pride in the work of Alberta farmers and ranchers from uncritical pride in the beef industry. Disentangling pride in the work and legacy of

Alberta farmers from pride in the industry as a whole might open up some potential to critically examine the practices and negative implications of the beef industry.

To some extent, it may be possible to redirect discourses of pride in Alberta agriculture to support activities that benefit the environment and advance social well-being. Support for the Alberta beef industry is deeply entrenched in popular discourse in the province, as is desire to maintain its status quo. Nevertheless, most interlocutors show high levels of awareness that the challenges facing the beef industry will not soon abate. Amidst unprecedented pressure for the beef industry to respond to concerns about its environmental, health, and social implications, there is an opportunity to imagine new futures for the industry. We theorize (Figure 4.4) that it is possible for recognition of the challenges facing the beef industry to spur alternative imaginings of the industry's future that do not simply reinforce existing discourses of pride but envision food system solutions that support the well-being of people and the planet. Rather than abandoning feelings of pride, these alternative imaginings can draw from and mobilize the most positive aspects of the discourses of pride that surround the Alberta beef industry.

Figure 4.4 Conceptual diagram of the relationship between pride in the Alberta beef industry and concern for its practices, as well as popular responses to these dynamics. The topic numbers in this diagram correspond with those in Table 4.2.



4.5.7 Discourses that did not surface

Across the articles we reviewed, a few discourses stood out as notably absent, given the topics generated by the model. Prior to commencing this analysis, our preliminary research identified several key events and issues that affected the beef industry, which we expected to see referenced in public discourse, including the outbreaks of COVID-19 among meatpacking workers in 2020 and the frequent droughts affecting agriculture in the province. Based on our awareness of these prominent events, we hypothesized that in general public discourse around the Alberta beef industry we might notice discourse about the overall labour practices of the industry, as well as how the industry is being affected by climate change, which is linked to increased frequency of drought (IPCC, 2023).

We observed that none of the 100 articles we coded referred to labour concerns outside the context of the COVID-19 pandemic. Even the articles that addressed the industry's labour practices during the pandemic did not explore how concerns about labour practices might affect the industry's reputation or marketing. Moreover, despite multiple references to extreme weather events such as droughts and wildfires that posed challenges for the beef industry, no articles connected these events to human-induced climate change. Collectively, the articles avoided presenting the beef industry as contributing to climate change, through its emissions, and as being negatively affected by the effects of climate change, such as extreme weather.

4.6 Conclusions

Our study reveals two main insights into popular discourses surrounding the Alberta beef industry: first, that pride in Alberta beef is a dominant discourse; and second, that there is widespread awareness of the challenges being faced by beef industries in Alberta and elsewhere. The mythologization of Alberta as a Western frontier and its historical context as an agricultural province affected by BSE partly explain the prevalence of discourses of pride in the industry. Deep rooted sentiments of pride in the industry, coupled with its discursive framing as 'morally good', encourage broad support for beef, as well as a hesitancy to imagine futures of transformative change. Nevertheless, despite the challenges of imagining alternatives futures for agriculture in Alberta, it might be possible to draw on discourse of agricultural pride to advance positive social and environmental outcomes. Moreover, increasing awareness of the challenges associated with beef production and consumption might make it harder to conceive of the beef

industry and moral and deserving of pride, without large-scale changes to its practices. While beef has a long legacy in Alberta, contemporary challenges and tensions could force the industry to chart new pathways.

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CHAPTER 5: THESIS DISCUSSION

5.1 Common themes across industry and popular discourses

A common sentiment that emerges between my two manuscripts is the notion that the Alberta beef industry is at a crossroads, facing unprecedented challenges that largely stem from an increase in public scrutiny. These findings affirmed one of the hypotheses I made as I began this research project: that concerns about the environmental and social impacts of beef production produce tensions that affect the beef industry. In my first manuscript, I show that ABP responds to pressure to improve the sustainability of its operations, driven by concerns about the environmental and health impacts of beef, by attempting to represent itself in a favorable light. Likewise, my second manuscript depicts how public interlocutors address concerns about beef production, with some writers demonstrating a willingness to engage with the concerns, while others adopt a more reactionary approach and dismiss them. While most of the documents I reviewed from both the industry and the newspapers simply refer to concerns about beef production, rather than actually raising them, the ubiquity of these references suggests that the industry is, indeed, under pressure. At the same time, I identify multiple tactics used by the industry and the public to deflect or defuse concerns. ABP employs its narrative of environmental stewardship to enhance its public image while marketing beef to consumers. Some public interlocutors acknowledge concerns about beef but present the industry as responsible and rational, advocating for it to adopt incremental changes to its operations. Meanwhile, more reactionary public interlocutors dismiss concerns about the beef industry, doubling down on their support for the status quo.

I furthermore observed in my first manuscript that ABP seeks to influence public opinion through its narrative of environmental stewardship. Given the general alignment between industry and popular discourses, it seems like to some extent they are successful in this. Popular discourses resemble some of the discourse employed by the industry, with public interlocutors praising the work of producers as traditional, ethical, and sustainable. These discourses echo many of the messages expressed through ABP's narrative of environmental stewardship, which similarly represents beef production in Alberta as a traditional and ethical practice that is not just sustainable, but essential for the conservation of grasslands. While I was not able to explore government discourses in the same depth, I noted clear parallels between how the Government of Alberta addresses the environmental stewardship of producers and how the industry addresses it.

Overall, the similarities between how the Alberta beef industry is framed through popular, government, and industry discourses point to the dominance of positive messages about Alberta beef, which frame it as both moral and sustainable. As discussed in the next section, positive framing of the industry helps engender support for it from a variety of actors.

5.2 Widespread support for the beef industry

A central assumption of my thesis, drawn from the field of Critical Discourse Analysis, is that discourse matters: language influences opinion and actions, leading to real world impacts (van Leeuwen, 2006). Although the scope of my thesis cannot evaluate the extent to which discursive support, as identified in my research, translates into material support for the industry, Critical Discourse Analysis contends that both types of support are inherently interlinked. Indeed, the combined findings of my two manuscripts show how positive discourse about the Alberta beef industry induces support for the industry. In this regard, the general alignment between the discourses shared by ABP, the Government of Alberta, and the public around the Alberta beef industry is important, as it suggests that all three actors mutually support the beef industry by framing it as sustainable and moral, which can encourage broader support for the sector. Across all the documents I reviewed, I observed only a handful of documents that communicated a lack of support for the industry, which indicates that support for the beef industry in Alberta is widespread. In turn, the widespread support for the beef industry speaks to the cultural attachment of Albertans to Alberta beef, as described by other scholars such as Gwendolyn Blue (Blue, 2008). With the culmination of my thesis research project, what I have found allows me to conclude that Alberta beef holds considerable meaning to the culture of the province.

At the same time, it is important to consider that much of the support I identify for the beef industry is reactionary, responding to the challenges that the beef industry faces around public scrutiny. In this regard, the fact that such widespread support for the industry becomes apparent in response to concerns that the industry is under threat indicates that there is a desire throughout the province to see the beef industry continue and thrive, even amidst recognition of the concerns about beef production. These observations have bearings on the future of the beef industry in Alberta, as they speak to how the beef industry is likely to continue receiving widespread support despite increasing awareness of the downsides of beef production and consumption (Clark et al., 2018; Nordhagen, 2020; Poore & Nemecek, 2018). While my research

identifies some willingness amongst both the industry and the public to bring incremental changes to the industry that further improve its sustainability, there is little indication of an openness to anything more than superficial changes. Overall, there appears to be a low desire to transform the Alberta beef industry or fundamentally reimagine its place in the food system. Rather, I observe a desire to maintain the status quo, preserve the tradition of Alberta beef, and see the beef industry continue well into the future.

5.3 The challenge of imagining futures for Alberta beef

A challenge I encountered throughout this thesis was how to balance the collective actions of the Alberta beef industry with the work and dedication of individual producers. There are clear indications throughout my research that beef producers put real care into maintaining and stewarding the environment around them, and that they are genuinely willing to adapt their practices to minimize their environmental impact. At the same time, the nature of beef production means that, as a collective, the Alberta beef industry necessarily has a large impact on the environment, through its contributions to greenhouse gas emissions and its use of land (Poore & Nemecek, 2018; Nordhagen, 2020). My thesis focuses on interrogating the Alberta beef industry as a whole, considering how it portrays its own practices, as well as how its practices are portrayed by other actors. Nevertheless, just as we have to acknowledge that beef production has negative consequences, it is important to keep in mind that the beef industry is made up of people who put real care into their work. Other approaches to pursuing my research topics, such as undertaking interviews with small-scale producers, might have demonstrated the personal, genuine commitments of many farmers to sustainability and stewardship.

Subsequently, it is challenging to imagine pathways forward for the Alberta beef industry that fully balance environmental and social priorities. The Alberta beef industry presents clear tradeoffs: on the one hand, reducing the scale of beef production in the province would likely yield environmental benefits; on the other hand, a contraction of the beef industry would hinder the province's economy, undermine the livelihoods of beef producers, limit access to a culturally significant product, and potentially bring environmental harm, if lands dedicated to grazing were converted to other uses. In other words, while the continuation of business-as-usual for the beef industry will perpetuate negative environmental consequences, I cannot simply advocate for an end to beef production in Alberta. In Chapter 4, I outline some potential alternatives for the

Alberta beef industry inspired by my observations of deeply rooted pride in the industry. I suggest that it might be possible to redirect feelings of pride and attachment to the beef industry to increase support for producers of agricultural products that are less environmentally impactful as well as to reimagine discourses of pride in the industry to specifically support agricultural initiatives that advance environmental and social well-being.

The Alberta beef industry, like other high-emitting industries such as oil and gas, faces a difficult path forward in a world that must transform its production systems to cut emissions and meet environmental goals. As my research shows, some positive incremental changes are already being implemented by the industry, such as continued adoption of technological advancements that minimize the negative consequences of beef production. Additionally, I argue that the Alberta beef industry and its stakeholders can make further improvements by changing the discourse that surrounds Alberta beef to directly address the tradeoffs that are inherent to it. It is challenging to envision how the Alberta beef industry fits into a more sustainable, climate-resilient future, yet to do so all stakeholders must be engaged in the conversation. My thesis demonstrates that a range of actors in Alberta care deeply about the beef industry – from the public to the government to the industry itself. As Alberta adapts to meet the challenges of environmental change, all these stakeholders must reimagine the role of such complicated industries.

5.4 Limitations of my research

My two manuscripts provide an overview of how the Alberta beef industry, as represented by Alberta Beef Producers, and the public, as understood through newspaper discourse, frame the sustainability and morality of the industry. Nevertheless, there are a number of limitations to my work and things I could have done differently. To begin with, and as noted previously, my analysis is limited to how discourses around the beef industry generate *discursive* support for the beef industry, and cannot directly demonstrate how discursive support leads to material support or action. Furthermore, my sampling of discourses shared by the industry and the public are incomplete. My first manuscript takes Alberta Beef Producers to be the voice of the beef industry, but doing so overlooks the perspectives of individuals working in the industry. Had I approached this project differently, I could have done interviews or focus groups with beef producers or meat processing workers to directly understand their perspectives on the beef

industry. Such research would resemble the approaches of scholars who have sought to understand the social dynamics around agricultural industries through the perspectives of people working in them (Csizmady et al., 2021; Kessler et al., 2016; Pilgeram, 2011).

Likewise, I could also have taken different approaches to analyzing popular discourses surrounding the industry. While newspapers are common sources for gathering public discourses, serving as mediums for the public exchange of opinions and information, an obvious limitation is that not everyone communicates their perspectives through newspapers (e.g. Shortell, 2011; Wallaschek, 2020). While features such as letters to the editor expand the representation of voices beyond those of journalists and editorialists, newspapers inevitably reflect a limited amount of public discourse. I might have accessed public discourses differently, such as by undertaking a sentiment analysis of social media posts about the Alberta beef industry (Drus and Khalid, 2019). The polyvocality of newspapers presents another limitation, as it can be challenging to disentangle and attribute perspectives, given that perspectives can be represented clearly as opinions, or more indirectly through quotes or attempts at impartial reporting. While still drawing on news articles, I might have taken other approaches to addressing this polyvocality, such as limiting my corpus to letters to the editor or opinion pieces (e.g. Cunningham, 2023; Joharry and Turiman, 2020).

Rather than primarily focusing on industry and popular discourses, I could also have focused more on the discourses surrounding the Alberta beef industry that are marshaled by other stakeholders. Early on in my research, I focused more greatly on analyzing discourses of the Government of Alberta but reduced this area of inquiry due to the volume of discourse I had from the industry and the newspaper articles, as well as the limited amount of discourse about the industry I found on the Government of Alberta's Open Data website (open.alberta.ca). Future research, however, could analyze governmental discourses in greater detail, such as by reviewing the speeches of provincial politicians that address the beef industry (e.g. Erjavec and Erjavec, 2009; Hornmoen, 2012). Moreover, other scholars might wish to pay greater attention to the discourses of other actors who have stakes in the Alberta beef industry, such as the federal government or environmental groups.

5.5 Concluding remarks

In this thesis, I demonstrate how industry and popular discourses frame the Alberta beef industry as sustainable and moral amidst the tensions the industry faces from increased public scrutiny over its practices. My first manuscript answers the first of three research questions I pose in the introduction, finding that Alberta Beef Producers constructs a narrative of environmental stewardship around the Alberta beef industry. In my second manuscript, I describe popular discourses surrounding the Alberta beef industry, which reflect a deeply entrenched pride in the industry and a belief in its sustainability and morality. Across both manuscripts and in my discussion section, I identify alignment between industry and popular discourses that frame the Alberta beef industry as deserving of widespread support, even amidst the tensions it faces from concerns about its social and environmental impacts. My thesis adds to an existing body of research into how ideational factors, such as cultural attachment and morality, influence consumption decisions and public support for industries, as well as to research on how discourse can serve to justify and ultimately perpetuate the practices of an industry.

At the end of almost two years of research, I have not found any easy answers to my questions about the future place of the beef industry in the province I call my home. My initial hunches coming into this project – that support for the industry is deeply entrenched in the province, and that most stakeholders won't want to see major changes to the industry – are proven correct through my research. As I conclude this project, I am left with conflicting feelings about the importance of transforming food systems to meet environmental obligations as well as respect for cultural attachment to this industry. Indeed, my journey with this research has given me greater insight into the history and culture of the province. I learned that the legacy of the Alberta beef industry is a complicated one: a blend of a mythology about a Western frontier, carried on through performative traditions such as the Calgary Stampede, and a lived history that carries into the present day. The entangled mythology and reality of the beef industry is part of what makes it such a powerful symbol of Alberta, but I believe to forge a more sustainable future for the industry, all stakeholders must begin to separate myths about the industry from the effects it has on the real world.

Through my thesis research, I have also developed a greater respect for the challenge of imagining alternatives to the systems that are familiar to us. Over the past two years, I am grateful to have had so many conversations about my research with my friends, colleagues, and

new acquaintances. When I mentioned my research topic, I saw a wide range of responses, from enthusiasm to learn more to a kind of reactionary skepticism that I was attacking the beef industry. I learned to describe my research carefully, in recognition of the attachment many people feel to the industry, and to have level-headed conversations about how to bring about transformations in our food systems to meet the needs of current and future generations, while also preserving culture and traditions. As I describe throughout this project, all food production brings trade-offs for society and the environment, and the beef industry is no different, in Alberta and elsewhere.

I might have chosen to study any number of things in graduate school, but taking the Alberta beef industry as my research topic gave me the opportunity to learn more about the place I come from, and to consider how that province might adapt moving forward. I am grateful to have chosen a topic like agriculture that is simultaneously so place-based and specific, yet also interwoven with global systems. In my opinion, the Alberta beef industry is a fruitful topic for future research, offering an intriguing example of an economically and culturally important industry under pressure to adapt to a changing world. While this thesis concludes my research into the Alberta beef industry for now, I look forward to seeing how the beef industry evolves in the future, responding to the pressures it faces. In many ways, I believe that the future of the Alberta beef industry is powerfully intertwined with the future of the province itself.

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Appendix

Table A1. Overview of which documents were and were not included in my analysis of documents from ABP in Chapter 3, as well as the rationale for including or excluding them.

Source	Title	Included?	Publication year	Rationale
ABP	Daily cattle reports	No	N/A	These are just reports on trade numbers, price indexes, etc.
ABP	Checkoff downloads	No	N/A	These are refund request forms for service charges
ABP	Cattle practices - Miistakis Survey Full Report	No	N/A	Not included because the full report is over 100 pages. Report summary included instead.
ABP	Cattle practices - Deadstock Brochure	No	N/A	This document is almost 300 pages - I believe it was mistakenly labelled as the brochure. Will code "Handling deadstock" instead.
ABP	Cattle practices - Body Condition Scoring	No	N/A	This is a calculator tool.
ABP	Cattle practices - BSE	No	N/A	Link is broken - no document available
ABP	Cattle practices - Overview of Canada's BSE Safeguards	No	N/A	Publication from Government of Canada
ABP	Cattle practices - BSE Testing Update	No	N/A	Link leads to general webpage from Government of Alberta, not from ABP
ABP	Cattle practices - Canadian beef processing and inspection	No	N/A	Publication from Government of Canada
ABP	Cattle practices - Wildlife predator compensation	No	N/A	This is a compensation form
ABP	Cattle practices - FMD	No	N/A	Publication from Government of Canada
ABP	Cattle practices - Food irradiation	No	N/A	Publication from Government of Canada
ABP	Cattle practices - Livestock on waterways: a literature review	No	N/A	This is a literature review, will code the actual report instead
ABP	Cattle practices - Cattle transport record	No	N/A	This is a fillable document
ABP	Cattle practices - Code of practice for handling and care of beef cattle	No	N/A	Published by National Farm Animal Care Council
ABP	Cattle practices - Pest and predator control	No	N/A	Document is just a list of links
ABP	Research and development documents	No	N/A	See exclusion criteria below
ABP	Environment - Canadian Roundtable for Sustainable Beef	No	N/A	Leads to web page of CRSB. See note in "other notes" section.
ABP	Educational resources - All for the beef	No	N/A	Mostly just recipes and instructions about cooking.
ABP	Producer Meeting Resolution Reports	No	N/A	These resolution reports provide minimal information into the logic behind the decisions made, making them minimally useful for discourse analyses
ABP	Policy and regulations - AF Appointed Meat inspector List	No	N/A	List of names related to the industry

ABP	Policy and regulations - Wildlife Act Wildlife Regulation	No	N/A	Document is over 300 pages and is a companion document to Wildlife Act, which I will code instead
ABP	Cattle practices - Ecosystem Services Programs in Alberta	Yes	No date	Relevant to environmental issues - about ecosystem services
ABP	Cattle practices - Miistakis Survey Report Summary	Yes	2015	Relevant to environmental issues - about impact of wildlife on beef production
ABP	Cattle practices - Dealing with wildlife issues	Yes	2015	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Cattle practices - Anthrax	Yes	No date	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Cattle practices - Trichomoniasis	Yes	No date	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Cattle practices - Anaplasmosis	Yes	No date	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Cattle practices - Handling deadstock	Yes	2013	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Cattle practices - Managing Effects of Livestock on Waterways on Public Land	Yes	2019	Relevant to environmental issues
ABP	Cattle practices - Beef industry competitiveness Executive Summary	Yes	2019	Provides insight into the industry, full report is over 100 pages so I will only code executive summary
ABP	Cattle practices - Rancher's guide to predator attacks on livestock	Yes	2018	Guide for producers, providing insight into the guidance they receive from ABP
BCRC	Cattle practices - Explaining growth promotants	Yes	2013	Provides insight into health issues related to industry
BCRC	Cattle practices - Feed testing and analysis for beef cattle	Yes	2019	Guide for producers, providing insight into the guidance they receive from ABP and the BCRC consortia
ABP	Environment - Environmental Stewardship Webpage	Yes	2023	Information on this webpage is not included in any of the documents.
BCRC	Environment - Environmental Footprint of Beef Production Webpage	Yes	2022	Related to environmental issues.
BCRC	Environment - Canadian Beef Industry 2030 Goals	Yes	2023	Related to environmental issues.
ABP	Educational resources - Finding Alberta Beef - K/G1	Yes	2020	Related to environmental issues and their framing by ABP.
ABP	Educational resources - Finding Alberta Beef - K/G1 Learning Pages	Yes	2020	Related to environmental issues and their framing by ABP.
ABP	Educational resources - Finding Alberta Beef - G2/G3	Yes	2020	Related to environmental issues and their framing by ABP.

ABP	Educational resources - Finding Alberta Beef - G2/G3 Learning Pages	Yes	2020	Related to environmental issues and their framing by ABP.
ABP	Educational resources - Finding Alberta Beef - G4	Yes	2020	Related to environmental issues and their framing by ABP.
ABP	Educational resources - Finding Alberta Beef - G4 Learning Pages	Yes	2020	Related to environmental issues and their framing by ABP.
ABP	Educational resources - Finding Alberta Beef - G5	Yes	2020	Related to environmental issues and their framing by ABP.
ABP	Educational resources - Finding Alberta Beef - G5 Learning Pages	Yes	2020	Related to environmental issues and their framing by ABP.
ABP	Wondering About - Antibiotics	Yes	No date	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Wondering About - GHG	Yes	No date	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Wondering About - Nutrition	Yes	No date	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Wondering About - Hormones	Yes	No date	Guide for producers, providing insight into the guidance they receive from ABP
ABP	Policy and regulations - ABP Policy Position on Climate Leadership Plan	Yes	2016	Relevant to environmental issues
ABP	Policy and regulations - ABP letter to Ministers Carlier and Gray expressing concern over limited dispensing options for prescription only medically important antibiotics	Yes	2018	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - ABP Economic Future Submission - Growing Alberta Agribusiness Sector 2017	Yes	2017	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - ABP Follow up Submission - Alberta's Economic Future	Yes	2017	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - ABP-ACFA Government Advocacy Priorities Summer 2019	Yes	2019	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - ABP Red Tape Reduction	Yes	No date	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Letter to Minister Dreeshen re: AAFC Business Risk Management	Yes	2020	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - ABP OH&S Briefing Note	Yes	2016	Relevant to labour issues and government-industry relations
ABP	Policy and regulations - AILCA Access to Labour Letter	Yes	2018	Relevant to labour issues and government-industry relations
ABP	Policy and regulations - ABP's Bighorn Country Parks and Public Land Use Zones briefing document	Yes	No date	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - ABP's Bighorn Country Proposal Public Consultation submission	Yes	2019	Relevant to environmental issues and government-industry relations

ABP	Policy and regulations - ABP's Castle Park Letter	Yes	2017	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Castle Park Submission	Yes	2017	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Castle Park Management Plan Executive Summary	Yes	2018	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Alberta Environment and Parks Letter to ABP Regarding Castle Park Management Plan	Yes	2017	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Livingstone-Porcupine Recreation Management plan Executive Summary	Yes	2018	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - ABP's Livingstone-Porcupine Hills Management Plans Comments	Yes	2018	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - ABP Letter to Minister Phillips - Grazing Leases	Yes	2015	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Meat Inspection Act	Yes	2010	Relevant to labour issues and health issues
ABP	Policy and regulations - Meat Inspection Regulation in Alberta	Yes	2017	Relevant to labour issues and health issues
ABP	Policy and regulations - ABP's On-farm Inspection for Salvage Meat Recommendations	Yes	2018	Relevant to labour issues and health issues
ABP	Policy and regulations - Report on Traceability costs for Alberta's cow/calf sector	Yes	2010	Relevant to labour issues and health issues
ABP	Policy and regulations - CCA and ABP Response to the Invitation for Written Submissions – Inquiry into the Impact of the Canada-United States-Mexico Agreement (CUSMA) on Alberta agriculture.	Yes	2019	Relevant to government-industry relations
ABP	Policy and regulations - TPP11 Letter to Minister Bilous 2018	Yes	2018	Relevant to government-industry relations
ABP	Policy and regulations - Wildlife Act	Yes	2018	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Alberta Livestock Industry Wildlife Regulation and Act Recommended Changes	Yes	2018	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Alberta Livestock Industry Wildlife Regulations Letter March 2020	Yes	2020	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - overview of the Livestock Identification and Commerce Act	Yes	2008	Relevant to environmental issues and government-industry relations
ABP	Policy and regulations - Livestock Identification and Commerce Act Communique	Yes	2009	Relevant to environmental issues and government-industry relations
ABP	2020-Semi Annual General Meeting Report	Yes	2020	Provides overview of priorities and activities of the industry

ABP	Annual Report 2022	Yes	2022	Provides overview of priorities and activities of the industry
ABP	Annual Report 2021	Yes	2021	Provides overview of priorities and activities of the industry
ABP	Annual Report 2020	Yes	2020	Provides overview of priorities and activities of the industry
ABP	Annual Report 2019	Yes	2019	Provides overview of priorities and activities of the industry
ABP	Annual Report 2018	Yes	2018	Provides overview of priorities and activities of the industry
ABP	Annual Report 2017	Yes	2017	Provides overview of priorities and activities of the industry
ABP	Annual Report 2016	Yes	2016	Provides overview of priorities and activities of the industry
ABP	Annual Report 2015	Yes	2015	Provides overview of priorities and activities of the industry
ABP	Annual Report 2014	Yes	2014	Provides overview of priorities and activities of the industry
ABP	Annual Report 2013	Yes	2013	Provides overview of priorities and activities of the industry
ABP	Annual Report 2012	Yes	2012	Provides overview of priorities and activities of the industry
ABP	Annual Report 2011	Yes	2011	Provides overview of priorities and activities of the industry
ABP	Annual Report 2010	Yes	2010	Provides overview of priorities and activities of the industry
ABP	Annual Report 2009	Yes	2009	Provides overview of priorities and activities of the industry
ABP	Annual Report 2008	Yes	2008	Provides overview of priorities and activities of the industry
ABP	Annual Report 2007	Yes	2007	Provides overview of priorities and activities of the industry

Table A2. Descriptions and metadata associated with newspaper articles analyzed in Chapter 4.

Topic # and Article #	Document number	Gamma	Article ID	Title	Publication	Publication Date	Author	Type	Location
Topic 1, Article 1	348	0.99907045	1992338951	Nelson: NDP tweets itself in the foot	Calgary Herald (Online)	Jan 11, 2018	Nelson, Chris	News	Calgary
Topic 1, Article 2	500	0.8763706	2301342995	Have A Cow	The Calgary Sun	Oct 6, 2019	Lucas, Robert	News	Calgary
Topic 1, Article 3	505	0.82418536	2381554783	Letters, March 22: 'Protect the vulnerable ones we love'	The Calgary Sun (Online)	Mar 22, 2020	N/A	Letter	Calgary
Topic 1, Article 4	784	0.90431319	2676501639	Letters, June 14: 'Rachel won't do any heavy lifting for Alberta'	The Calgary Sun	Jun 14, 2022	Hudson, Martin	Letter	Calgary
Topic 1, Article 5	789	0.99915939	2595032447	Letters Nov. 8: Alberta's time change referendum asked the wrong question	The Edmonton Sun (Online)	Nov 8, 2021	Huculak, Chad	Letter	Edmonton
Topic 1, Article 6	375	0.81976743	2174229108	Thursday's letters: Eat Alberta beans to help save planet	Edmonton Journal (Online)	Jan 31, 2019	N/A	Letter	Edmonton
Topic 1, Article 7	478	0.99900875	2266190797	Weather Network caught in angry downpour; Channel would do well to stick to what we want to chat about: rain, sun, cloud	Calgary Herald	Jul 29, 2019	Nelson, Chris	Commentary, Opinions	Edmonton
Topic 1, Article 8	829	0.99881626	2678682489	Letters, June 20: 'Council, just stop trying to heal the world already'	The Calgary Sun (Online)	Jun 20, 2022	Hudson, Martin	Letter	Calgary

Topic 1, Article 9	866	0.90614674	2678282433	Letters, June 19: 'Get our EMS system working already'	The Calgary Sun (Online)	Jun 19, 2022	Hudson, Martin	Letter	Calgary
Topic 1, Article 10	726	0.98769664	2599844191	Letters, Nov. 20: 'We now expect to see councillors on public transit'	The Calgary Sun (Online)	Nov 20, 2021	Hudson, Martin	Letter	Calgary
Topic 2, Article 1	433	0.92279247	2248082952	Alberta beef producers caught up in China issue with pork	Calgary Herald	Jun 27, 2019	French, Janet	News	Calgary
Topic 2, Article 2	868	0.80937936	2682200689	Opinion: What's the beef with warning labels on ground meat?	Edmonton Journal (Online)	Jun 29, 2022	Mah, Bill	Opinion	Edmonton
Topic 2, Article 3	238	0.87071171	1870830963	R-Calf is at it again	The Brooks Bulletin	Feb 21, 2017	N/A	Editorial	Brooks
Topic 2, Article 4	832	0.899551	2682624558	Foreign workers at Brooks meat plant focus of live documentary; 'Victories and tragedies' in interviews to be portrayed by cast of four actors	Calgary Herald	Jun 30, 2022	Hobson, Louis B	Interview	Edmonton
Topic 2, Article 5	444	0.98059047	2312309784	China to resume imports of Canadian beef and pork	Calgary Herald (Online)	Nov 5, 2019	N/A	News	Calgary
Topic 2, Article 6	759	0.99920418	2679463952	Province skewers Ottawa over proposed ground beef warning labels	Vulcan Advocate	Jun 22, 2022	Kaufmann, Bill	News	Vulcan
Topic 2, Article 7	465	0.9992167	2351667722	CUSMA	Calgary Herald (Online)	Feb 5, 2020	N/A	News	Calgary

Topic 2, Article 8	173	0.8710502	1727645025	Eat beef in moderation, dietitians, ranchers say; World Health Organization issues report warning of cancer link to meat	Calgary Herald	Oct 27, 2015	Richards, Gwendolyn	News	Calgary
Topic 2, Article 9	506	0.90092688	2332284688	This is no time to Cool our jets on new Nafta; We must remain vigilant and look ahead on U.S. trade, Carlo Dade says	Edmonton Journal	Jan 3, 2020	Dade, Carlo	Opinion	Edmonton
Topic 2, Article 10	412	0.99830606	2235503029	China has a beef with Canada; Puts the squeeze on Canadian exports	The Calgary Sun	Jun 5, 2019	Lilley, Brian	News	Calgary
Topic 3, Article 1	272	0.99916175	1768352769	Countercultural role in beef production	East Central Alberta Review	Feb 25, 2016	Ringwall, Kris	News	Coronation
Topic 3, Article 2	118	0.942716	1658627225	When to intervene in delivery of the calf	East Central Alberta Review	Feb 26, 2015	Arnold, Michelle	News	Coronation
Topic 3, Article 3	117	0.99921049	1768352779	What's in the current bullpen?	East Central Alberta Review	Feb 25, 2016	N/A	News	Coronation
Topic 3, Article 4	314	0.99925574	1855747362	Bull selection and understanding the bullpen	East Central Alberta Review	Jan 5, 2017	Ringwall, Kris	News	Coronation
Topic 3, Article 5	16	0.99909026	1658626980	Buy wisely and spend thriftily	East Central Alberta Review	Feb 26, 2015	Ringwall, Kris	News	Coronation
Topic 3, Article 6	63	0.93176792	1666930003	Can profitable beef operations go broke?	East Central Alberta Review	Mar 26, 2015	N/A	News	Coronation

Topic 3, Article 7	370	0.95673167	2174091260	Say 'I can,'not 'I can't'	East Central Alberta Review	Jan 31, 2019	N/A	News	Coronation
Topic 3, Article 8	20	0.99827674	1656243103	Buying bulls with RFI	East Central Alberta Review	Feb 19, 2015	Markus, Susan	News	Coronation
Topic 3, Article 9	359	0.99927029	2007290846	Bull selection for moderate growth?	East Central Alberta Review	Feb 22, 2018	Ringwall, Kris	News	Coronation
Topic 3, Article10	319	0.99929107	2007291017	Developing sire genetic benchmarks	East Central Alberta Review	Feb 22, 2018	Ringwall, Kris	News	Coronation
Topic 4, Article 1	123	0.99793049	1663288618	Calgary Bull Sale shatters record	Calgary Herald	Mar 12, 2015	Stephenson, Amanda	News	Calgary
Topic 4, Article 2	518	0.94160278	2397924954	Opportunity knocks; Anxious Alberta consumers increasingly opting for direct-from-farm; purchases in lieu of trip to the grocery store	The Calgary Sun	May 4, 2020	Stephenson, Amanda	News	Calgary
Topic 4, Article 3	568	0.94085106	2402283436	'There's Lots of Beef-If Packing Plants Can Kill It, Put It; On the Counter We'll Have No Problem'-Provost; Livestock Exchange	The Provost News	May 13, 2020	N/A	News	Provost
Topic 4, Article 4	138	0.786764	1814365805	Slight increase in Canadian beef herd	Weekend Regional	Aug 25, 2016	Gietz, Michelle	News	Brooks
Topic 4, Article 5	810	0.76390759	2787457684	Cattle by the Numbers	The Provost News	Mar 15, 2023	N/A	News	Provost

Topic 4, Article 6	806	0.76153968	2769915121	Despite 2022 challenges, cattle markets improved, prices at their highest since 2014-2015	East Central Alberta Review	Jan 26, 2023	N/A	News	Coronation
Topic 4, Article 7	779	0.88437357	2562742804	Lack of moisture and excessive heat pressure the West	The Capital	Aug 18, 2021	Roberts, Martha	News	Three Hills
Topic 4, Article 8	202	0.83225767	1830252274	How quickly things change	The Provost News	Oct 19, 2016	N/A	Column	Provost
Topic 4, Article 9	550	0.76107222	2394631784	Cattle battle; Industry looks to avoid market collapse	Edmonton Journal	Apr 25, 2020	Stephenson, Amanda	News	Edmonton
Topic 4, Article 10	700	0.88217302	2520064751	Beef demand robust and increasing	The Peace Country Sun	Apr 30, 2021	N/A	News	Grand Prairie
Topic 5, Article 1	361	0.95543868	2023849068	New meat plant approved east of Fort Macleod	Claresholm Local Press	Apr 11, 2018	Gleason, Lawrence	News	Claresholm
Topic 5, Article 2	224	0.97195396	1869520830	Balzac beef plant set to reopen this month	Calgary Herald	Feb 17, 2017	Stephenson, Amanda	News	Calgary
Topic 5, Article 3	644	0.96427988	2439827162	Provincial board turns down feedlot application	Claresholm Local Press	Sep 2, 2020	Vogt, Rob	News	Claresholm
Topic 5, Article 4	161	0.99928938	1664977103	Balzac-area beef plant stalled; Mayor asks for permit denial, but hasn't visited plant in person	Calgary Herald	Mar 20, 2015	Stephenson, Amanda	News	Calgary
Topic 5, Article 5	687	0.99842237	2519635188	Commission approves abattoir by Fort Macleod	Claresholm Local Press	Apr 28, 2021	Vogt, Rob	News	Claresholm

Topic 5, Article 6	384	0.82099231	2171231112	Smith: If you care about the planet, eat more beef	Calgary Herald (Online)	Jan 25, 2019	Smith, Danielle	News	Calgary
Topic 5, Article 7	38	0.99887848	1713770077	City warned against abattoir stall; Rock View County reeve fears 'chilling' effect on businesses	Calgary Herald	Sep 18, 2015	Howell, Trevor	News	Calgary
Topic 5, Article 8	70	0.9990375	1712763347	Notley urged to settle beef; Calgary wants province involved in Rockey View slaughterhouse plan	Calgary Herald	Sep 16, 2015	Howell, Trevor	News	Calgary
Topic 5, Article 9	744	0.99672956	2627018015	County council raises water, traffic concerns with proposed CFO expansion	Vulcan Advocate	Feb 9, 2022	Tipper, Stephen	News	Vulcan
Topic 5, Article 10	139	0.96192466	1675095270	Appeal board hears concerns from residents, business owners about abattoir	Claresholm Local Press	Apr 22, 2015	Fox, Alicia	News	Claresholm
Topic 6, Article 1	552	0.84357498	2396530251	Ripe for reopening; Spikes in Alberta's infection rates can be attributed to meat plants	The Edmonton Sun	Apr 30, 2020	Gunter, Lorne	News	Edmonton
Topic 6, Article 2	540	0.9985866	2393699714	Labour group calls for criminal investigation into Cargill beef plant COVID-19 death	Calgary Herald (Online)	Apr 22, 2020	N/A	News	Calgary
Topic 6, Article 3	604	0.99834363	2397186858	Union trying to stop Alberta meat	The Medicine Hat News	May 2, 2020	Krugel, Lauren	News	Medicine Hat

				plant with COVID-19 outbreak from reopening					
Topic 6, Article 4	594	0.99945126	2398407220	Grim parade; Fearful rank-and-file head back to work at Cargill	The Edmonton Sun	May 5, 2020	Corbella, Licia	News	Edmonton
Topic 6, Article 5	640	0.99897119	2438358290	New infections soar in Calgary region; COVID-19; Province reports 158 cases as outbreak flares back up at meat-processing plant	Calgary Herald	Aug 29, 2020	Herring, Jason	News	Calgary
Topic 6, Article 6	589	0.99903438	2392823845	Cargill idles Alberta facility; High River meat-packing plant temporarily pauses ops after worker dies of COVID-19	The Calgary Sun	Apr 21, 2020	Hudes, Sammy	News	Calgary
Topic 6, Article 7	608	0.87479722	2402554748	Twenty-one Alberta meat-plant inspectors have tested positive for COVID-19, union says	Calgary Herald (Online)	May 13, 2020	N/A	News	Calgary
Topic 6, Article 8	679	0.9985164	2478289879	Cargill undermined protection efforts: union; April outbreak at beef plant saw nearly half of workers test positive for COVID-19	Calgary Herald	Jan 16, 2021	Nicholson, Marcy	News	Calgary

Topic 6, Article 9	577	0.99883017	2392911770	JBS plant in Brooks trying to stay open; Facility has 67 cases of COVID-19 connected to it	The Medicine Hat News	Apr 22, 2020	Slade, Gillian	News	Medicine Hat
Topic 6, Article 10	586	0.99878248	2394640859	Union urges more protections for essential food workers	Calgary Herald	Apr 25, 2020	Smith, Alanna	News	Calgary
Topic 7, Article 1	132	0.91189732	1773790334	BSE Surveillance and age verification programs under-used; More active involvement needed by cattle producers	The Mountaineer	Mar 15, 2016	Martinson, Matt	Column	Rocky Mountain House
Topic 7, Article 2	273	0.81672765	1769000656	XL Foods settlement approved by Alberta court	The Brooks Bulletin	Feb 23, 2016	Stanway, Sandra M	News	Brooks
Topic 7, Article 3	838	0.76616221	2696366562	Researchers earn RDAR support to find viable solutions to mitigate Bovine Respiratory Disease	Cardston Temple City Star	Jul 21, 2022	N/A	News	Cardston
Topic 7, Article 4	40	0.83980691	1654546946	BSE Surveillance is everyone's responsibility; Dr. Claudia Metz On Behalf Of Animal Health Branch, Alberta Agriculture And Rural Development	The Valleyview Valley Views	Feb 11, 2015	N/A	News	Valleyview

Topic 7, Article 5	761	0.85415703	2540043969	Chronic Wasting Disease an under-attended problem	The Medicine Hat News	Jun 12, 2021	Mccuaig, Alex	News	Medicine Hat
Topic 7, Article 6	113	0.93478816	1656244024	Cow with BSE died in Spruce Grove; Food Inspection Agency confident enhanced feed ban reducing risk	Edmonton Journal	Feb 19, 2015	Zabjek, Alexandra	News	Edmonton
Topic 7, Article 7	329	0.99922282	1844593554	Politicians wade in on TB issue	The Brooks Bulletin	Nov 29, 2016	Gietz, Michelle	News	Brooks
Topic 7, Article 8	191	0.98788054	1843424469	TB-affected cattle to move to approved quarantine site	Calgary Herald	Nov 26, 2016	Stephenson, Amanda	News	Calgary
Topic 7, Article 9	735	0.99926308	2625648379	Province's plan to lift restrictions 'a win, 'protesters say, but blockade continues; Truckers at border crossing say decision by Kenney a small part of bigger battle	Edmonton Journal	Feb 5, 2022	Aldrich, Josh	News	Edmonton
Topic 7, Article 10	249	0.90871423	1760955970	The Fieldman's Files - Reinstate the BSE incentive program	Smoky River Express	Jan 20, 2016	Boulet, Normand	News	Falher
Topic 8, Article 1	714	0.9523996	2631753080	Dry winter conditions have farmers on edge; Growers, beef producers need moisture to avoid crisis worse than 2021 drought	Calgary Herald	Feb 22, 2022	Aldrich, Josh	News	Calgary

Topic 8, Article 2	154	0.99820422	1799139369	It's not too early for the first cut of hay	East Central Alberta Review	Jun 23, 2016	Lindquist, Karin	News	Coronation
Topic 8, Article 3	439	0.99893449	2277863495	Nitrate accumulation in hauled out crops	The Bassano Times	Aug 20, 2019	N/A	News	Bassano
Topic 8, Article 4	532	0.99922484	2387606653	Annual forages for grazing, silage or greenfeed	The Bassano Times	Apr 6, 2020	N/A	News	Bassano
Topic 8, Article 5	321	0.83148333	1864062208	May the forage be with you and your herd; Ducks Unlimited/CPS forage program offers financial break for grassland conversions	The Pipestone Flyer	Feb 2, 2017	Ducks Unlimited	News	Millet
Topic 8, Article 6	410	0.76082366	2235079386	Alberta farmers' incomes plummet 70 per cent in 2018	The Daily Herald-Tribune	May 31, 2019	Stephenson, Amanda	News	Grande Prairie
Topic 8, Article 7	165	0.97497931	1848850236	Mycotoxins and Cattle Feed	Consort Enterprise	Dec 14, 2016	Yaremcio, Barry	News	Consort
Topic 8, Article 8	61	0.99917105	1696125379	Beaver County farmers threatened with drought-like conditions nearing disaster; Rain in the forecast this week but damage already done	The Weekly Review	Jul 14, 2015	Anderson, Kerry	News	Viking
Topic 8, Article 9	225	0.99755832	1774005176	Warm conditions may have significant consequences	Strathmore Times	Mar 14, 2016	Ostermann, Miriam	News	Strathmore

Topic 8, Article 10	743	0.75913784	2625454460	Tough 5year 49 for cattle producers, says industry expert	Rimbey Review	Feb 1, 2022	Henderson, Jennifer	News	Rimbey
Topic 9, Article 1	131	0.99909577	1787276837	There is more to the Earl's story; It's all about marketing	The Stettler Independent	May 4, 2016	Verboven, Will	News	Stettler
Topic 9, Article 2	691	0.97657574	2506687158	Ranchers wrangle with change; Beef industry launches \$875,000 rebranding effort	The Calgary Sun	Mar 29, 2021	Stephenson, Amanda	News	Calgary
Topic 9, Article 3	635	0.79832523	2434728204	Feds invest \$2.6-million to help Alberta farmers turn their plants into protein	Standard (Online)	Aug 17, 2020	Short, Dylan	News	Vermilion
Topic 9, Article 4	409	0.98636606	2229546139	Please Stop pretending it's meat; You gave it up, vegans. Why do you want to imitate it? L.D. Cross asks	Calgary Herald	May 23, 2019	N/A	Commentary, Opinions	Calgary
Topic 9, Article 5	527	0.97139705	2336418297	Producers must catch up to consumer-led revolution in what we eat, says expert coming to Edmonton	Edmonton Journal (Online)	Jan 12, 2020	N/A	News	Edmonton
Topic 9, Article 6	869	0.91671187	2777244210	Do primary producers pay for merchandising... it's complicated, but mostly yes	The Brooks Bulletin	Feb 15, 2023	Verboven, Will	News	Brooks
Topic 9, Article 7	162	0.83528623	1788166583	Help Grow Beef Biz	Calgary Herald	May 11, 2016	N/A	Opinion	Calgary

Topic 9, Article 8	177	0.78964146	1803015693	Alberta beef farmers look to reputation; Work must be done to let consumers know industry uses humane practice	Calgary Herald	Jul 11, 2016	Stephenson, Amanda	News	Calgary
Topic 9, Article 9	136	0.99865046	1785267998	Alberta beef industry 'disappointed' with Earls decision	Calgary Herald	Apr 28, 2016	Stephenson, Amanda	News	Calgary
Topic 9, Article 10	456	0.90840095	2306710487	Demand for plantbased protein	The Peace Country Sun	Oct 18, 2019	N/A	News	Grande Prairie
Topic 10, Article 1	203	0.90892848	1761140519	Cattlemen have priority	Lloydminster Source	Jan 28, 2016	N/A	News	Lloydminster
Topic 10, Article 2	397	0.99857988	2174102640	Recycling pilot tackles agricultural waste; Alberta Agriculture and Forestry is helping fund a three-year pilot program that will recycle agricultural plastics	The Bassano Times	Jan 29, 2019	N/A	News	Bassano
Topic 10, Article 3	208	0.99848633	1822082602	Province increases Feeder Association Loan Guarantee Program	The Capital	Sep 21, 2016	Carlier, Oneil	News	Three Hills
Topic 10, Article 4	703	0.83233794	2532434325	Peace region benefits from \$5.7M RDAR funding	The Signal	May 25, 2021	N/A	News	Rycroft

Topic 10, Article 5	837	0.93184394	2560118048	Government of Canada announces \$100 million in AgriRecovery funding to further support farmers facing continued extreme weather	The Bassano Times	Aug 9, 2021	N/A	News	Bassano
Topic 10, Article 6	772	0.85157741	2554167817	Backing alberta beef	Fort Saskatchewan	Jul 22, 2021	Armstrong-Homeniuk, Jackie	News	Fort Saskatchewan
Topic 10, Article 7	771	0.99835277	2563960999	AgriRecovery funding increased to \$500M	The Signal	Aug 24, 2021	N/A	News	Rycroft
Topic 10, Article 8	317	0.99901203	2021616319	Federal/Provincial partnership supports innovation in Alberta	The Capital	Apr 4, 2018	N/A	News	Three Hills
Topic 10, Article 9	856	0.99780906	2789927726	Report on resiliency in Alberta's beef processing industry; Alberta beef producers	The Vauxhall Advance	Mar 23, 2023	N/A	News	Vauxhall
Topic 10, Article 10	854	0.9595824	2775848879	Agri-processing tax credit capitalizes on value-added agriculture	The Weekly Anchor	Feb 13, 2023	N/A	News	Edson