

Spring 2015

# Transportation, Energy, Fossil Fuels: What About Animal Agriculture? Seeking Vegan Advocacy on the Websites of International Environmental NGOs

Regina C. Galbick

Follow this and additional works at: [http://pilotscholars.up.edu/cst\\_gradpubs](http://pilotscholars.up.edu/cst_gradpubs)



Part of the [Agriculture Commons](#), and the [Communication Commons](#)

---

## Citation: Pilot Scholars Version (Modified MLA Style)

Galbick, Regina C., "Transportation, Energy, Fossil Fuels: What About Animal Agriculture? Seeking Vegan Advocacy on the Websites of International Environmental NGOs" (2015). *Communication Studies Graduate Publications and Presentations*. 3.  
[http://pilotscholars.up.edu/cst\\_gradpubs/3](http://pilotscholars.up.edu/cst_gradpubs/3)

This Capstone Project is brought to you for free and open access by the Communication Studies at Pilot Scholars. It has been accepted for inclusion in Communication Studies Graduate Publications and Presentations by an authorized administrator of Pilot Scholars. For more information, please contact [library@up.edu](mailto:library@up.edu).

# SEEKING VEGAN ADVOCACY ON THE WEBSITES OF ENVIRONMENTAL NGOS

Transportation, Energy, Fossil Fuels: What About Animal Agriculture?

Seeking Vegan Advocacy on the Websites of International Environmental NGOs

Regina C. Galbick

University of Portland

I understand that in the interest of shared scholarship the University of Portland and its agents have the non-exclusive license to archive and make accessible my work in whole or in part in all forms of media in perpetuity. Further, I understand that my work, in addition to its bibliographic record and abstract, may be available to a wider community of scholars and researchers through electronic access.

### **Abstract**

The mass consumption of nonhuman animals is a significant contributor to climate change. Yet public awareness remains low globally, posing a barrier to social action. This study analyzes the websites of 22 international, environmental non-governmental organizations to investigate their participation in setting the public agenda through a diagnostic framing of animal agriculture and a prognostic framing of reduced animal consumption. Results show that the majority of websites include messages about animal agriculture's environmental impact, but do not suggest reduced consumption. Instead, websites propose more "sustainable" or "efficient" means of producing the same foods. Substantial, untapped potential for climate change mitigation remains if those with access to a diverse range of plant-based foods eliminate or drastically reduce consumption of animals. By increasing the salience of this issue on its own agenda, the environmental movement may increase the salience of this issue on the public agenda, leading to significant reductions in animal agriculture's environmental impact.

**Transportation, Energy, Fossil Fuels: What about Animal Agriculture?  
Seeking Vegan Advocacy on the Websites of International Environmental NGOs**

Animal agriculture is a significant contributor to environmental degradation and global climate change (Bajzelj, Richards, Allwood, Smith, Dennis, Curmi, & Gilligan, 2014; Baroni, Cenci, Tettamanti, & Berati, 2007; Carlsson-Kanyama & Gonzalez, 2009; Eshel & Martin, 2006; FAO, 2006a; FAO, 2006b; FAO, 2009; FAO, 2013; Fazeni & Steinmuller, 2011; Foley, et al., 2011; Friel, Dangour, Garnett, Lock, Chalabi, Roberts, Butler, A., Butler, C., Waage, McMichael, & Haines, 2009; Garnett, 2009; Garnett, 2011; Gonzalez, Frostell, & Carlsson-Kanyama, 2011; Goodland, 2010; Goodland & Anhang, 2009; Joyce, Dixon, Comfort, & Hallett, 2012; McMichael, Powles, Butler, & Uauy, 2007; Pimental & Pimental, 2003; Reijnders & Soret, 2003; Stehfest, et al., 2009; Thornton, Herrero, & Ericksen, 2011; Weber & Matthews, 2008; Wirsenius, Azar, & Berndes, 2010; Wirsenius, Hedenus, & Mohlin, 2011). The environmental impact of producing meat, dairy, and eggs is greater than the impact of the entire transportation industry combined (FAO, 2006a). To further heighten the issue, global population and levels of animal consumption are both rising rapidly. The Food and Agriculture Organization of the United Nations predicts that by 2030 the number of nonhuman animals raised for human animal consumption will have increased by 50% and by 2050 it will have doubled (FAO, 2006a).

Currently, about 45% of the earth's total land surface is used for animal agriculture (Thornton, et al., 2011). Yet, compared to growing plants, "growing" animals is inherently inefficient, requiring large inputs of energy, land, water, oxygen, chemicals, fossil fuels, and other resources to output small amounts of meat or dairy (Bajzelj, et al., Baroni, et al., 2007; Pimental & Pimental, 2003; Reijnders & Soret, 2003). The environmental benefits of switching from an omnivorous lifestyle to a vegan lifestyle are astronomical, particularly

for citizens of wealthy and developed countries where consumption is highest. Removing only beef and dairy one day per week from the average American diet reduces more greenhouse gas emissions than if that same person consumed a 100% locally sourced diet (Weber & Matthews, 2008). Comparing the greenhouse gas emissions of two potential sources of protein, “if beans containing an equal amount of protein are substituted for cattle meat, emissions are cut by more than 99%” (Wirsenius, et al., 2011).

Given the anticipated threats posed by climate change for all global animals – human, wild, and farmed; the significance of animal agriculture’s environmental impact; and the mitigation potential if large numbers of people were to switch from omnivorous to vegan lifestyles; consumer awareness of this issue is critical. However, research shows global consumers are largely unaware of animal agriculture’s starring role in environmental degradation (Bailey, Froggat, & Wellesley, 2014; Lea & Worsley, 2008). A recent international survey revealed the most credible communicators for delivering this message are experts and environmental groups (Bailey, et al., 2014).

Extending previous research by assessing a more global sample, this study investigates the websites of 22 international, environmental non-governmental organizations (NGOs). I conduct a manifest content analysis, paying particular attention to the homepage, links available from the homepage, campaigns, and consumer action recommendations. I identify the presence/absence of discourse connecting animal agriculture to climate change, the frequency and prominence of any discourse, proposed solutions to mitigating animal agriculture’s impact in light of global climate change, and the presence/absence of recommendations for reduced animal consumption. I then offer

implications of these findings for public advocacy and further research in Internet messaging.

### **Agenda-Setting & Framing**

Agenda-setting explains the news media's influence in deciding which issues, and which attributes of those issues, are worthy of public and government attention (McCombs & Shaw, 1972; McCombs, Shaw, & Weaver, 2014). However, since its original conception, agenda-setting theory has been expanded to explain the transfer of issue salience across a variety of agenda types (McCombs, et al., 2014). At times, research has found bidirectional effects of agenda-setting, with public opinion or interest groups also influencing media coverage (Huckins, 1999; Uscinski, 2009). Others have shown that agenda-setting persists in Internet messaging, despite the changes to information delivery and dissemination from more traditional media outlets (Roberts, et al., 2002). In a study of political campaigns, websites had a larger influence on the public's agenda than either national newspapers or television (Ku, Kaid, & Pfau, 2003).

Social movement and advocacy organizations can serve agenda-setting functions as well (Hansen, 2011; Holzer, 2007; Kim, 2006; Praelle, 2006a; Praelle, 2006b; Ragas & Kiouisis, 2010; Torgerson, 1997), and may mediate the relationship between public opinion and policy (Andrews & Edwards, 2004). Through framing, communicators craft messages that prime an audience by focusing their attention and encouraging them to think, feel, or act in a certain way (Entman, 1993; Entman, 2007; Takeshita, 2005). Entman (1993) describes the power of framing as the ability to "select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment

recommendation” (p. 52). A communicator’s frames are reflected in the manifest content of the message. Frames organize belief systems, and readers also approach messages with pre-existing frames (Entman, 1993).

For social movement organizations, Cress and Snow (2000) suggest that well-crafted diagnostic and prognostic frames are just as important to goal attainment as tactics, organizational structure, and political context. *Diagnostic* framing describes the identification of problems, and *prognostic* framing describes the proposal of solutions (Benford & Snow, 2000). *Selection* refers to what content is chosen for inclusion and what is excluded. Content is usually selected according to cultural values. *Salience* refers to “making a piece more noticeable, meaningful, or memorable to audiences” (Entman, 1993, p. 53). Prominent placement, repetition, and campaigns are examples of ways to increase salience.

### **NGOs Online**

NGOs are private, non-profit organizations that work to solve societal issues, often pressing for reform in government and profit-seeking organizations. “The role of NGOs as a countervailing power is created by mobilizing public support and bringing sensitive issues to public and political notice” (Merilainen & Vos, 2011, p. 294). One method of gaining attention and support for issues is through active online communication. Internet messaging presents NGOs with the opportunity to sidestep the news media and communicate a desired message with a selected frame directly to the public (Merilainen & Vos, 2011). Websites offer a method of message promotion that is typically low-cost and widely accessible to interested readers. International NGOs, in particular, also benefit from Internet communication due to the compression of geographical distance (Kiely, 2005).

### **Potential Barriers to Vegan Advocacy**

Laestadius, Neff, Barry, and Frattaroli (2013, 2014) identified a number of barriers environmental NGOs may face when advocating for vegan diets. Using a grounded theory approach, they interviewed staff from 34 environmental and animal rights organizations in the U.S., Sweden, and Canada in order to understand what factors influence NGO decisions to engage in public policy or education campaigns to encourage lower domestic meat consumption. The researchers found that “the decision to adopt a campaign was influenced by four additional and interrelated factors: (1) the fit of the issue with the NGO’s core missions; (2) the fit of the issue with the NGO’s tactical preferences; (3) the perceived outcome of the engagement with the issue; and (4) the NGO’s capacity to take on the issue” (2014, p. 35). Many of the staff from animal rights organizations believed education and advocacy on the topic was the job of environmental organizations (EOs), and, conversely, some EO staff believed it was the job of animal rights organizations. Most EOs “expressed a clear interest for policy advocacy, litigation, research, or working to influence corporate practices rather than public education focused on encouraging behavior change” (p. 36). Additionally, “many NGOs appeared to have limited their engagement... due both to (1) the challenging and controversial nature of addressing meat consumption through personal behavior, and (2) limited political and public interest in climate change” (p. 36). Some EO staff were concerned the message would alienate their audience, upset supporters, invoke potential backlash, or indirectly aid their political opponents. However, despite the challenge of these barriers, the researchers concluded that NGOs must be willing to address daily lifestyle practices in order to meaningfully mitigate climate change.



### **The “Awareness Gap”**

Lea and Worsley (2008) surveyed Australians to see which food-related actions they believed were most beneficial to the environment. Respondents rated the use of less food packaging by manufacturers as the action most likely to help and eating less meat as the action least likely to help. The researchers concluded that widespread efforts are needed in order to raise consciousness of meat production’s environmental impact.

A multi-national, multi-lingual survey conducted by the Chatham House (2014) affirms the lack of consumer awareness globally. “Across all the emissions sectors asked about in the survey, recognition of the livestock sector as a contributor to climate change was markedly the lowest” (Bailey, et al., p. 18). One out of four respondents said meat and dairy production contributes little or nothing to global climate change. However, the survey also found that respondents who knew of the environmental impacts were more willing to reduce consumption. Respondents considered experts and environmental groups the most trusted sources for information on the topic (Bailey, et al., 2014).

In contrast to the average consumer, the individuals employed at EOs are generally well aware of the environmental issues inherent in raising, killing, and consuming billions of animals each year. In the aforementioned study of environmental and animal rights NGOs, all 34 participants knew about the scientific evidence connecting animal agriculture and animal consumption to climate change (Laestadius, et al., 2014). Many of those interviewed even stated that they considered the issue to be “important and largely neglected” (Laestadius, et al., 2013, p. 29). However, despite this awareness, most NGOs did not identify the issue as a priority for their organization (Laestadius, et al., 2014).

Other studies (Bristow & Fitzgerald, 2011; Freeman, 2010) have also pointed to limited advocacy by EOs for reduced animal consumption. Freeman (2010) analyzed the websites of 15 U.S. environmental advocacy organizations to determine the extent that EOs problematized animal product consumption and encouraged plant-based diets. She concluded that the organizations generally “privileged consumer *preference* for animal products over the *need* for them and succumbed to the compromise that we should simply try to meet this preference in the most environmentally efficient way without major re-evaluation of lifestyles or needed sacrifice” (p. 25).

### **Rationale**

The aim of this study is to investigate how international, environmental NGOs may participate in setting the public agenda through a diagnostic framing of animal agriculture and a prognostic framing of reduced animal consumption. Specifically, this study will address the following questions:

RQ1: How often do websites include information about animal agriculture?

RQ2: When they do, what is the salience of the message?

RQ3: When animal agriculture is framed diagnostically, what are the most common prognostic frames?

RQ4: How often do websites suggest reduced animal consumption?

### **Methodology**

The intent of content analysis is “to show the public patterns in some content with which they have high exposure and are likely to have their own subjective interpretations. The value for the public is to have the results resonate with their own experience with the content” (Potter & Levine-Donnerstein, 1999, p. 269). Generally, content analysis requires

seven steps: formulating the research questions, selecting the study sample, defining the categories of analysis, defining the coding process, implementing the coding process, determining trustworthiness, and analyzing results (Hsieh & Shannon, 2005; Kaid, 1989).

To select the organizations included in this study, I first pulled two lists of international, environmental NGOs with considerable overlap: a list of 70 from Wikipedia and a list of 53 from Green Energy Ohio. I entered the homepage address for each organization into Alexa (alexa.com) to obtain website analytics. For organizations with multiple websites, the web address for the international homepage was used. The following list represents the 25 organizations with the most website traffic in the past year: 350, BirdLife International, Climate Reality Project, Conservation International, Earth Easy, Earthwatch, Environmental Defense Fund, Environmental News Network, Forest Stewardship Council, Friends of the Earth, Global Footprint Network, Global Witness, Greenpeace, International Institute for Sustainable Development, International Rivers, International Union for Conservation of Nature, Panthera Corporation, Project AWARE, Rainforest Alliance, Sandwatch, The Nature Conservancy, Wildlife Conservation Society, World Resources Institute, World Wide Fund for Nature, and Worldwatch Institute.

After visiting each website, I further eliminated three organizations due to their especially focused missions and the distance of that focus from animal agriculture. The eliminated organizations and their corresponding missions were: the Panthera Corporation (big cats), Project AWARE (sharks and marine debris), and Sandwatch (beaches). I considered eliminating the Forest Stewardship Council as the organization's predominant focus is on certification. However, I decided to remain inclusive because of the strong causal link between animal agriculture and deforestation.

For the 22 remaining NGOs, I began on the homepage and exhaustively followed links around the website. I first determined whether or not the organization had any campaigns promoting veganism, vegetarianism, or reduced consumption of animals. Next, I identified action recommendations directed toward individuals looking for ways to reduce their environmental impact to see if reduced animal consumption was suggested. As a measure of issue salience, I also noted whether or not each website had animal agriculture discourse available *on* the homepage, whether or not there were links that opened to animal agriculture discourse *from* the homepage, and, finally, the fewest number of clicks required to access any informative material on animal agriculture's environmental impact. When a search box was available, I typed in the keywords "vegan," "vegetarian," "meat," "livestock", "animal agriculture," and "plant-based" to identify pertinent information I may have missed while following links around the site. I did not read every blog post or article that the search revealed as the results were in the thousands for some sites. However, the search function was still useful because it allowed me to verify the absence of content on some sites. After collecting this data, I compiled a chart using Microsoft Excel to visually organize, count, and compare the results.

Issue selection was measured by the presence/absence of discourse problematizing animal agriculture's environmental impact anywhere on the EO's website. Issue salience was measured by the presence/absence of discourse on the EO's homepage, the presence/absence of links to discourse accessible from the homepage, and the fewest number of clicks required to access discourse anywhere on the website. Prognostic frames accompanying discourse were clustered thematically and tallied. The prevalence of reduced animal consumption as a prognostic frame was measured by the

presence/absence of the suggestion to eat less meat anywhere on the website and by the presence/absence of a campaign for reduced animal consumption.

## **Results**

*RQ1: How often do websites include information about animal agriculture?*

Out of 22 websites, 13 (59%) included information about animal agriculture's impact on the environment. Nine (41%) did not select the issue.

*RQ2: When they do, what is the salience of the message?*

None (0%) of the NGOs provided information about animal agriculture on their homepage. Three (14%) had links on the homepage: The Environmental News Network, Friends of the Earth, and The World Watch Institute. The other websites required a minimum of 2-4 clicks to access animal agriculture discourse (see Figure 1).

*RQ3: When animal agriculture is framed diagnostically, what are the most common prognostic frames?*

The majority of sites that framed animal agriculture diagnostically described the issue as either one of food security or improper production practices. Food security concerns pertained to a growing human animal population, lack of supply to meet demand, human animal malnutrition and starvation, and potential threats to future food production posed by climate change or environmental degradation. Improper production concerns pertained to deforestation, heavy pesticide and fertilizer use, water pollution, soil degradation, GMOs, destruction of wildlife habitat, species extinction, overfishing, human animal health hazards, and the success of small farmers.

Overwhelmingly, for either of the diagnostic frames, the most frequent prognostic frame was transitioning to more "sustainable" and/or "efficient" means of producing the

same foods. Recommendations included increased use of organic, non-GMO, and less resource-intensive methods. EOs appealed to individuals as citizens to push for policy reform and as consumers to push for corporate reform. Consumers were also encouraged to purchase better-sourced versions of the same foods, and, to a lesser extent, reduce meat consumption and grow their own food.

On the website of The Nature Conservancy, I came across a post written by longtime vegetarian turned vegan, CEO and president Mark Tercek. In his response to a journalist who wondered why he doesn't use The Nature Conservancy to advocate for more eco-friendly diets, Mr. Tercek admits, "global meat consumption is too high." However, he then rejects campaigns directed at lower consumption and speaks in favor of *increased* meat production. "...I think we should focus on producing more meat from existing pasture and farmland. That means paying more attention to soil health, water conservation and agricultural extension, giving farmers the support they need to produce more and do it smartly." He identifies two primary obstacles of a campaign toward reduced meat consumption. "First, and most fundamentally, no one wants to be told what they can and cannot eat. Few things are as powerfully evocative as food, with deep ties to family, culture and tradition. Second, as global incomes rise, we will see — among many other positive outcomes — a trend toward improved nutrition. Tradition and culture suggest that this will mean an increase in protein-rich diets."

The Rainforest Alliance website reads "agricultural expansion is responsible for 70% of global deforestation, and is the single greatest threat to tropical forests. In these biodiversity-rich regions, farms are often responsible for soil erosion, water pollution, and wildlife habitat destruction." Following links to the "Cattle" subheading, statistics from the

FAO's (2006a) report on livestock's contribution to climate change are readily available. Yet, the proposed solution never mentions decreased consumption and instead involves a certification program for "sustainable cattle production." Similarly, the World Wide Fund for Nature website addresses the environmental destruction caused by beef, dairy, and seafood production, but focuses initiatives on increasing sustainability in production and management rather than decreasing consumption.

*RQ4: How often do websites suggest reduced animal consumption?*

None (0%) of the NGOs had an international campaign advocating for reduced meat consumption. However, Friends of the Earth did have an active, comprehensive campaign on their U.S. and U.K. webpages called "Good Food, Healthy Planet." This points to an increase in advocacy by Friends of the Earth, as Freeman's initial analysis found too little food discourse on their website to include it in her 2010 article. Greenpeace had no internal meat reduction campaign, but did link to external sites with campaigns such as "Take Extinction Off Your Plate," a recently launched campaign by the Center for Biological Diversity and their partners, encouraging consumers to pledge to reduce their meat intake by a third.

Ten (45%) NGOs suggested eating less meat as a tactic for climate change mitigation somewhere on their website. Within those ten websites, however, the suggestions were sometimes difficult to find or buried among other suggestions for less impactful actions. Under "Everyday Environmentalist," the "Food and Health" section on The Nature Conservancy website contains one article about meat consumption. In comparison, there are two articles in the same location about coffee consumption. The topic of one of those articles is "bring your own reusable coffee cup to coffee shops."

On the World Wide Fund for Nature website, suggestions are given for how to “green your lifestyle.” Recommendations are weighted by an assignment of 1-5 leaves. “Try vegetarian meals twice a week” is recommended with an assignment of five leaves, communicating the action has a high impact. However, taking a shower instead of a bath, sharing newspapers, and using weather strips on your house are also weighted with five leaves, implying a similar level of impact.

### **Discussion**

Overall, results from international organizations proved similar to results from U.S., Canadian, and Swedish organizations (Freeman, 2010; Laestadius, et al., 2013; Laestadius, et al., 2014). The majority of EOs included messages about animal agriculture on their websites, but did not suggest consumers eat less meat. None of the websites featured animal agriculture content on the homepage, nor recommended consumers switch to vegan lifestyles. When websites problematized animal agriculture, they generally focused on ways to reduce the environmental impact or increase the efficiency of current production. The issue was framed as a lack of supply, not as excessive demand.

If environmental groups are considered one of the most trusted sources for this information, (Bailey, et al., 2014), these results may partially explain low global awareness and low salience of this issue on the public’s agenda. Agenda-setting theory suggests that a significant increase in message selection and salience would have an impact on public opinion, which could, in turn, impact media coverage and government policy. As Freeman (2010) pointed out, pressuring corporations and governments without strong citizen support is likely to be ineffective. Therefore, closing the awareness gap between environmentalists and the average consumer is a prerequisite for social action. The high



levels of meat consumption by wealthy nations also presents a social justice issue, as climate change is anticipated to impact those who are least responsible for it first and worst.

Citizens should not be given the impression that climate change can be managed without sacrifice or a substantial change in current habits (Thogersen & Crompton, 2009). Hale (2010) contends that many choose easy pro-environment options while refusing to face their most environmentally detrimental preferences and behaviors. Consumers may experience cognitive dissonance when they have difficulty aligning their pro-environment beliefs with their environmentally harmful behaviors (Bratt, 1999). As a result, individuals may engage in easier and less sacrificial actions as a way of alleviating this discomfort, despite the greatly reduced benefit of those actions.

Of particular concern is the implication that improvements to current production practices will sufficiently alleviate animal agriculture's environmental degradation and disproportional use of resources. Technology may increase efficiency somewhat, but this will in no way be sufficient to mitigate demand (Bajzelj, et al., 2014; Friel, et al., 2009; Henning, 2011). Furthermore, any gains from improved production will never surpass the efficiency of simply eating lower on the food chain (Garnett, 2011).

Incompatible NGO mission statements may need revision or expansion to incorporate relatively recent data. Existing tactical skillsets may still be utilized. For example, an increase in consumer awareness would allow EOs to start pressuring corporations to switch away from animal-derived products in menu options, furniture, construction materials and more, employing a preferred tactic of influencing corporate practices. EO staff with skills in policy advocacy would be enormously beneficial to goals of

eliminating national subsidies that benefit the meat, dairy, and egg industries (Winebarger, 2012), implementing a meat tax (Wirsenius, et al., 2011), and/or passing new policy to instead subsidize the production of low-emission, nutrient-rich, plant-based foods (Friel, et al., 2009). The Chatham House survey delivered optimistic results for those concerned with the outcome of vegan campaigns; respondents' willingness to curb animal consumption increased as awareness of meat and dairy's environmental impact increased (Bailey, et al., 2014). Finally, with regard to organization capacity as a barrier, "the NGOs campaigning on meat and climate change were frequently relatively small as compared to the largest environmental NGOs. The staffers at these small NGOs also made frequent mentions of practices such as using free social media to promote their messages on meat consumption" (Laestadius, et al., 2014, p. 38). Websites and other forms of Internet messaging offer a similar opportunity for low-cost message promotion.

### **Recommendations for EOs**

Extending these findings, the follow recommendations are offered for EOs:

1. Reconsider the placement and clustering of consumer action recommendations. Clearly prioritize which actions are most impactful and to what extent. Situate, repeat, and campaign for the most impactful actions so those will be most salient to readers.
2. Reframe the solution to environmental degradation caused by animal agriculture. Propose drastically decreased demand for animal products, especially by residents of wealthy and developed countries. As the most resource-efficient choice, suggest consumers strive to live vegan lifestyles.
3. Reframe the solution to human animal starvation and malnutrition. Propose using resources to expand global access to a wide range of low-emission, nutrient-rich, plant-

based and fermented foods; provide nutritional education; and boost local crop diversity wherever possible. Consider alternative, healthier, and more sustainable ways nutritional deficiencies can be met. Acknowledge the many negative impacts an increase in animal agriculture would likely have on these same vulnerable populations.

4. Collaborate with groups who have overlapping missions and craft complementary, symbiotic messages. These could be organizations concerned with global food security, human animal nutrition, human animal health, disease prevention/control, social justice, global poverty, nonhuman animal rights, and all aspects of the environmental movement.

### **Recommendations for Future Research**

A longitudinal study would allow researchers to track issue salience over time and highlight patterns; future research could attempt to measure the transfer of issue salience between EO, news media, government, and public agendas. Alternatively, research might examine the success/failure of campaigns for reduced animal consumption, identifying the most effective prognostic and diagnostic frames. Analyzing EO websites through the lens of critical rhetoric could inform an investigation of how knowledge and power integrate in society through discourse, supporting dominant and powerful interests (McKerrow, 1989). Internet messaging tools such as websites, social media, email lists, online communities, and blogs also warrant further study to determine their usefulness in all types of public advocacy.

### **Conclusion**

Because environmental NGOs play such a large role in consumer education and awareness, the messages they craft about the causes of climate change and the solutions to

mitigation should bear considerable scrutiny. This study found that international, environmental NGOs often provide educational material on their websites about animal agriculture's environmental impact. However, diagnostic frames suggest the problem lies in unsustainable/inefficient production practices or a lack of supply to meet demand. Prognostic frames focus on more "sustainable" or "efficient" means of producing the same foods. Websites sometimes suggest reducing animal consumption, but do not advocate for vegan lifestyles. Current discourse may give consumers the faulty impression that climate change can be managed without significant change to current lifestyles. Substantial, untapped potential for mitigation remains if those with access to a diverse range of plant-based foods eliminate or drastically reduce consumption of nonhuman animals. By increasing the salience of this issue on its own agenda, the environmental movement may increase salience on the public agenda, leading to significant reductions in animal agriculture's environmental impact.

### References

- Andrews, K. T., & Edwards, B. (2004). Advocacy organizations in the U.S. political process. *Annual Review of Sociology, 30*, 479-506.
- Bailey, R., Froggat, A., & Wellesley, L. (2014). Livestock - climate change's forgotten sector: Global public opinion on meat and dairy consumption. *Energy, Environment and Resources*. Chatham House: The Royal Institute of International Affairs.
- Bajzelj, B., Richards, K. S., Allwood, J. M., Smith, P., Dennis, J. S., Curmi, E., & Gilligan, C. A. (2014). Importance of food-demand management for climate mitigation. *Nature Climate Change, 4*, 924-929.
- Baroni, L., Cenci, L., Tettamanti, M., & Berati, M. (2007). Evaluating the environmental impact of various dietary patterns combined with different food production systems. *European Journal of Clinical Nutrition, 61*(2), 279-286.
- Benford, R. D., & Snow, D. A. (2000). Framing processes and social movements: An overview and assessment. *Annual Review of Sociology, 26*, 611-639.
- Bratt, C. (1999). Consumers environmental behavior: Generalized, sector-based, or compensatory? *Environment and Behavior, 31*, 28-44.
- Bristow, E., & Fitzgerald, A. J. (2011). Global climate change and the industrial animal agriculture link: The construction of risk. *Society and Animals, 19*(3), 205-224.
- Carlsson-Kanyama, A., & Gonzalez, A. D. (2009). Potential contributions of food consumption patterns to climate change. *American Society of Nutrition, 89*, 1704S-1709S.
- Entman, R. M. (2007). Framing bias: Media in the distribution of power. *Journal of Communication, 57*, 163-173.

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication, 43*(4), 51-58.

Eshel, G., & Martin, P. A. (2006). Diet, energy, and global warming. *Earth Interactions, 10*(9), 1-17.

Fazeni, K., & Steinmuller, H. (2011). Impact of changes in diet on the availability of land, energy demand, and greenhouse gas emissions of agriculture. *Energy, Sustainability and Society, 1*(6), 1-14.

Foley, J. A., Ramankutty, N., Brauman, K. A., Cassidy, E. S., Gerber, J. S., Johnston, M., Mueller, N. D., O'Connell, C. O., Ray, D. K., West, P. C., Balzer, C., Bennett, E. M., Carpenter, S. R., Hill, J., Monfreda, C., Polasky, S., Rockstrom, J., Sheehan, J., Siebert, S., Tilman, D., & Zaks, D. P. M. (2011). Solutions for a cultivated planet. *Nature, 478*, 337-342.

Food and Agriculture Organization of the United Nations (FAO). (2006a). Livestock's Long Shadow: Environmental Issues and Options. Rome.

Food and Agriculture Organization of the United Nations (FAO). (2006b). World Agriculture: Towards 2030/2050. Interim Report. Rome.

Food and Agriculture Organization of the United Nations (FAO). (2009). The State of Food and Agriculture: Livestock in Balance. Rome.

Food and Agriculture Organization of the United Nations (FAO). (2013). Tackling Climate Change Through Livestock: A Global Assessment of Emissions and Mitigation Opportunities. Rome.

Freeman, C. P. (2010). Meat's place on the campaign menu: How US environmental discourse negotiates vegetarianism. *Environmental Communication, 4*(3), 255-276.

- Friel, S., Dangour, A. D., Garnett, T., Lock, K., Chalabi, Z., Roberts, I., Butler, A., Butler, C. D., Waage, J., McMichael, A., & Haines, A. (2009). Public health benefits of strategies to reduce greenhouse-gas emissions: Food and agriculture. *The Lancet*, *374*, 2016-2025.
- Garnett, T. (2009). Livestock-related greenhouse gas emissions: Impacts and options for policy makers. *Environmental Science & Policy*, *12*, 491-503.
- Garnett, T. (2011). Where are the best opportunities for reducing greenhouse gas emissions in the food system (including the food chain)? *Food Policy*, *36*, S23-S32.
- Gonzalez, A. D., Frostell, B., & Carlsson-Kanyama, A. (2011). Protein efficiency per unit energy and per unit greenhouse gas emissions: Potential contribution of diet choices to climate change mitigation. *Food Policy*, *36*, 562-570.
- Goodland, R. (2010). The overlooked climate solution. *Journal of Human Security*, *6*(3), 50-60.
- Goodland, R., & Anhang, J. (2009). Livestock and climate change: What if the key actors are... cows, pigs, and chickens? *World Watch*, *Nov-Dec*, 10-19.
- Hale, S. (2010). The new politics of climate change: Why we are failing and how we will succeed. *Environmental Policy*, *19*(2), 255-275.
- Hansen, A. (2011). Communication, media, and environment: Toward reconnecting research on the production, content, and social implications of environmental communication. *International Communication Gazette*, *73*(1-2), 7-25.
- Henning, B. G. (2011). Standing in livestock's long shadow: The ethics of eating meat on a small planet. *Ethics & the Environment*, *16*(2), 63-93.

- Holzer, B. (2007). Framing the corporation: Royal Dutch/Shell and human rights woes in Nigeria. *Journal of Consumer Policy*, 30, 281-301.
- Huckins, K. (1999). Interest-group influence on the media agenda: A case study. *Journalism and Mass Communication Quarterly*, 76(1), 76-86.
- Joyce, A., Dixon, S., Comfort, J., & Hallett, J. (2012). Reducing the environmental impact of dietary choice: Perspectives from a behavioural and social change approach. *Journal of Environmental and Public Health*, 2012, 1-7.
- Kiely, R. (2005). Global civil society and spaces of resistance. In J. Eade & D. O'Byrne (Eds.), *Global Ethics and Civil Society* (pp. 138-153). Ashgate: Aldershot.
- Kim, A. E. (2006). Civic activism and Korean democracy: The impact of blacklisting campaigns in the 2000 and 2004 general elections. *The Pacific Review*, 19, 519-542.
- Ku, G. Kaid, L. L., & Pfau, M. (2003). The impact of website campaigning on traditional news media and public information processing. *Journalism and Mass Communication Quarterly*, 80(3), 528-547.
- Laestadius, L. I., Neff, R. A., Barry, C. L., & Frattaroli, S. (2013). Meat consumption and climate change: The role of non-governmental organizations. *Climatic Change*, 120, 25-38.
- Laestadius, L. I., Neff, R. A., Barry, C. L., & Frattaroli, S. (2014). "We don't tell people what to do": An examination of the factors influencing NGO decisions to campaign for reduced meat consumption in light of climate change. *Global Environmental Change*, 29, 32-40.
- Lea, E., & Worsley, A. (2008). Australian consumers' food-related environmental beliefs and behaviours. *Appetite*, 53(2-3), 207-214.



- McCombs, M., & Shaw, D. (1972). The agenda-setting function of mass media. *Publication Quarterly*, 36(2), 176-187.
- McCombs, M. E., Shaw, D. L., & Weaver, D. H. (2014). New directions in agenda-setting theory and research. *Mass Communication and Society*, 17(6), 781-802.
- McKerrow, R. E. (1989). Critical rhetoric: Theory and praxis. *Communication Monographs*, 56, 91-111.
- McMichael, A. J., Powles, J. W., Butler, C. D., & Uauy, R. (2007). Food, livestock production, energy, climate change, and health. *The Lancet*, 370, 1253-1263.
- Merilainen, N., & Vos, M. (2011). Human rights organizations and online agenda setting. *Corporate Communications: An International Journal*, 16(4), 293-310.
- Pimental, D., & Pimental, M. (2003). Sustainability of meat-based and plant-based diets and the environment. *American Journal of Clinical Nutrition*, 78(3), 660S-663S.
- Pralle, S. (2006a). The "mouse that roared": Agenda setting in Canadian pesticide politics. *The Policy Studies Journal*, 34, 171-194.
- Pralle, S. (2006b). Timing and sequence in agenda-setting and policy change: A comparative study of lawn care pesticide politics in Canada and the U.S. *Journal of European Public Policy*, 13, 987-1005.
- Ragas, M. W., & Kiouisis, S. (2010). Intermedia agenda-setting and political activism: MoveOn.org and the 2008 presidential election. *Mass Communication and Society*, 13, 560-583.
- Reijnders, L., & Soret, S. (2003). Quantification of the environmental impacts of different dietary protein choices. *American Journal of Clinical Nutrition*, 78(3), 664-668.

- Roberts, M., Wanta, W., & Dzwo, T. (2002). Agenda setting and issue salience online. *Communication Research*, 29(4), 452-465.
- Stehfest, E., Bouwman, L., van Vuuren, D. P., den Elzen, M. G. J., Eickhout, B., & Kabat, P. (2009). Climate benefits of changing diet. *Climate Change*, 95, 83-102.
- Takeshita, T. (2005). Current critical problems in agenda-setting research. *International Journal of Public Opinion Research*, 18(3), 275-296.
- Thøgersen, J., & Crompton, T. (2009). Simple and painless? The limitations of spillover in environmental campaigning. *Journal of Consumer Policy*, 32(2), 141-163.
- Thornton, P., Herrero, M., & Ericksen, P. (2011). Livestock and climate change. *Livestock Exchange*, 3, 1-4.
- Torgerson, D. (1997). Policy professionalism and the voices of dissent: The case of environmentalism. *Polity*, 29(3), 345-374.
- Uscinski, J. E. (2009). When does the public's issue agenda affect the media's issue agenda (and vice versa)? Developing a framework for media-public influence. *Social Science Quarterly*, 90(4), 796-815.
- Weber, C. L., & Matthews, H. S. (2008). Food-Miles and the Relative Climate Impacts of Food Choices in the United States. *Environmental Science & Technology*, 42(10), 3508-3513.
- Winebarger, L. (2012). Standing behind beastly emissions: The U.S. subsidization of animal agriculture violates the United Nations framework convention on climate change. *American University International Law Review*, 27(4), 991-1035.

Wirsenius, S., Azar, C., & Berndes, G. (2010). How much land is needed for global food production under scenarios of dietary changes and livestock productivity increases in 2030? *Agricultural Systems*, *103*, 621-638.

Wirsenius, S., Hedenus, F., & Mohlin, K. (2011). Greenhouse gas taxes on animal food products: rationale, tax scheme, and climate change mitigation effects. *Climatic Change*, *108*, 159-184.