Land-Grant Faculty's Past Experiences with Reporters

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What's on the Agenda? News Coverage of GM Food's Effects on the Environment

Introduction

Genetically modified (GM) food has been a highly controversial news topic in recent decades. Typical trends show that GM food coverage is event-driven, highlighting issues such as food security, labeling, and public accountability (Botelho & Kurtz, 2008). Often, GM food is reported in a negative light in order to produce sensationalized stories (McCluskey & Swinnen, 2011). Generally, fears surrounding GM food stem from potential health risks despite the lack of scientific support for such claims (Scott, Inbar, Wirz, Brossard, & Rozin, 2018). Additionally, studies have found researchers and members of the public alike have questioned the impact of GM food on the environment (Nicolia, Manzo, Veronesi, & Rosellini, 2014). Some research has shown GM crops to be beneficial for the environment (Barfoot & Brookes, 2014), while other research has indicated the opposite (Nicolia et al., 2014). Despite the apparent debate related to the effects of GM crops on the environment, research of news coverage on GM food has mostly focused on health risks (Botelho & Kurtz, 2008; Clancy & Clancy, 2016). Because media coverage can drive public opinion (McCombs & Shaw, 1972), there is a need to understand how newspapers report about GM food. The purpose of this research was to determine the extent to which GM food was discussed in US newspapers within the context of the environment. This research aligned with priority area one of the national research agenda (Enns, Martin, & Spielmaker, 2016).

Theoretical Framework

Agenda setting theory and framing theory provided the theoretical framework for this research (McCombs & Shaw, 1972). Journalists use frames to help audiences filter large amounts of information by placing emphasis on some issues while ignoring others (McCombs & Shaw, 1972). Message frames indicate specific ideas, information, or images related to an issue while agenda setting makes the issue accessible to the public; both help to drive public opinion (Nelson, Clawson, & Oxley, 1997; Price & Tewsbury, 1997). Past research had found newspapers used a frame of environmental risks when reporting on GM food in the United Kingdom (Marks, Kalaitzandonakes, Allison, & Zakharova, 2003). Additionally, research of newspaper coverage of the GM crop, Golden Rice, in the Philippines had also identified environmental risk frames (Mula, 2007). However, more recent framing research of GM food in the US did not specifically identify frames related to the environment (D'Angelo, Ellis, Burke, & Ruth, 2018). There is a need to examine if GM food is framed within an environmental context in US newspapers to help agricultural communicators and Extension educators understand how the issue is presented on the media's agenda and informs public opinion.

Methods

A quantitative content analysis was used to fulfill the purpose of this study. The population of interest from this study were the top five circulating national and Florida newspapers from 2013 to 2018 (10 newspapers total). Florida newspapers were included to understand if and how GM food was framed within an environmental context in both national and local papers. LexusNexus, ProQuest, and NewsBank were the newspaper data bases used to collect data. The search query used was, "GMO" OR "GMOs" OR "GMO Food" OR "GMO Foods" OR "Genetically Modified Food" OR "Genetically Modified Foods" AND NOT ("non-GMO" OR "non- GMO"). There were 718 articles identified from the five national newspapers and 228 from the Florida newspapers that met the query ($N = 946$). To make the findings generalizable, a sample of 273 articles was taken from the population (national papers = 207; Florida papers = 66). Stratified sampling was used so the number of articles sampled from each

newspaper was proportional to the number of articles per newspaper in the population (Ary, Jacobs, & Sorensen, 2010). Researchers used a code book to determine the focus of the story and if there was an environmental frame present (Table 1). The coders went through two rounds of coder training with 10% of the articles (n = 27) to reach consensus for their analysis (Krippendorff's alpha was 1.0 for variables of interest; Krippendorff, 2004).

Table 1

Codes of interest

GM Food: Main Focus	GM Food: Secondary Focus	GM Food: Example Only	Environmental Frame
The bulk of the story covered the topic of GM food.	GM foods were a secondary focus or provided support for the main focus.	GM foods only appeared as an example. I.e. "One of the issues on the ballot was GMO labelling."	Discussed GM foods within the context of the environment (e.g. biodiversity, runoff, pesticide use, sustainability).

Results

In national newspapers, GM food was the main topic of the story in 41.1% of the articles. GM food was discussed as a secondary topic (29.5%) or an example (29.6%) in about one-third of the articles. Florida newspapers had a smaller percentage of articles with a main focus of GM food (33.3%) and a larger percentage of articles that covered GM food as a secondary topic compared to national papers (37.9%). GM foods were used as an example in 28.8% of Florida articles. Only 6.3% of the national papers discussed GM food using an environmental frame compared to 16.7% of the articles in Florida.

Conclusions & Recommendations

The findings from this study indicated that while approximately one-third of national and Florida newspapers covered GM food as a main topic, these articles did not discuss the topic within the frame of the environment. This research conflicted with findings from other countries that indicated newspaper coverage of GM food did focus on environmental risks (Marks et al., 2003; Mula, 2007). Based on the current study, it is unlikely that GM food's impact on the environment, both positive and negative, has been on the media's agenda in the US over the past few years. As a result, the public may have a difficult time forming an opinion on the issue (McCombs & Shaw, 1972). However, there was a larger percentage of Florida articles that covered the environmental impact of GM food, which indicate potential regional differences in GM food coverage related to the environment. Agricultural communicators and Extension educators should work with scientists researching GM food and farmers using the product to create news releases about the impacts these products have on the environment. This would help to place this topic on the media's agenda and drive public opinion (McCombs & Shaw, 1972). Future research should determine what frames are commonly used to communicate about GM food in US newspapers to help connect environmental frames with ones that are already part of the media's agenda. This study should be replicated in other states/regions to determine if regional differences in news coverage emerge.

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