

GENETICALLY MODIFIED ORGANISMS AND BRAZILIAN NEWSPAPERS

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ABSTRACT

The objective of this paper is to map out how Brazilian newspapers are covering issues related to genetically modified organisms (GMOs). As study cases we chose two major newspapers in the country, *O Globo* and *Folha de São Paulo*. We focused on 2003, which was a year of great controversy in Brazil around genetically modified crops. We used a combination of quantitative and qualitative methods, by combining a content analysis of the stories with interviews of the main journalists who wrote them. We found that the two newspapers under study framed the issue of GMOs differently. This study can help journalists to improve the way they cover controversial issues. Ultimately, since the majority of the public gets their information about science and technology in the newspapers, the way GMOs are framed in the newspapers has important consequences for public understanding of science.

INDEX TERMS

Genetically modified crops; science journalism; controversies and journalism; controversies and media; public understanding of science

INTRODUCTION

Across the world, there has been considerable controversy over genetically modified crops. In Brazil – the fifth largest country in the world with a land area of approximately 8.5 millions km² and in which agriculture is a key sector of the economy of the country –, the issue has generated a significant debate among different sectors of society, both in rural and urban areas. Since 1998, attempts to produce GM crops on a commercial scale have been made but growing and selling GM crops was prohibited until March 2005, when a legislation allowed them in the country. In 2003, the controversy was especially significant due to the fact that in February it was found that a major proportion of Brazilian soya crops were transgenic due to illegal planting in Southern states.

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Shortly after an announcement was made to maintain the ban on GM crops, the government decided to allow the sale of GM soya for animal and human consumption, sparking protest within the government and from environmental groups. The decision was limited to the 2003 harvest. The government argued that the decision was taken after being faced with an important social and economic problem involving thousands of millions of tons of transgenic soya and small farmers that did not want their crops destroyed.

As far as public opinion about the issue is concerned, a survey conducted in December 2002 by the Brazilian Institute of Public and Statistical Opinion (IBOPE) showed that 70 per cent of Brazilians would prefer to consume products that are GM-free; 65 per cent affirmed that transgenics should be prohibited, meanwhile there are doubts with respect to the potential damage to health and environment by scientists; 90 per cent said that products containing GM ingredients should be labeled (IBOPE, 2001). A similar result was found by the same organization one year before (IBOPE, 2001; IBOPE, 2002). A Citizens Jury held in 2001 designed to give voice to opinions of Brazilian poor citizens in the North East of the country, organized by the Brazilian non-governmental organizations ActionAid and Esplar, rejected the proposal to introduce genetically modified organisms into Brazil (Toni, Braun, 2001).

The genetically modified crops' controversy in Brazil is a good study case for understanding the relationship between science, science policy, science communication, and public engagement. The conflicts and controversies surrounding the policy development and decisions around GM crops are also related to a large extent to inadequacies of technological decision-making in Brazil and the need to make such decision-making more inclusive and democratic. This study is part of a broader project that is being held in Fiocruz that focuses on understanding the lack of public engagement in science and technology issues in Brazil, and that aims at creating strategies to reduce the gap between science and society. In this specific part of the broader study, we want to know what role newspapers are taking in this process. Since the majority of the public gets their information about science and technology in the newspaper, the way GMOs are framed in the newspapers has important consequences for public understanding of science.

THE SCIENCE COMMUNICATION PROCESS

1. Identified issues:

The objective of this paper is to map out how Brazilian newspapers are covering issues related to genetically modified organisms (GMOs). We chose as study cases two major newspapers in the country, *O Globo* and *Folha de São Paulo*, both of them having intensively covered GMOs. These two newspapers were chosen due to the relevance they have in the country and their broad impact with a national distribution of 600,000 to 1,000,000 issues per day according to the day of the week. Also, they have some similarities allowing a better comparison, including the fact that they are published in the most important cultural and economical Brazilian cities (*O Globo* in Rio de Janeiro and *Folha de São Paulo* in São Paulo) and that their target audiences are similar, that is, middle to up class. Brazil has hundreds of newspapers – most of them with local impact – and we are aware that this is only a limited expression of the national mass media. It should be observed, however, that these two newspapers are widely read by policy

makers and people responsible for consolidating the TV news agenda, which in turn has an impressive impact in the whole population. *O Globo* belongs to the same family which controls TV Globo, the main TV channel which covers 99.8 per cent of the national territory (Oliveira and Serra, 2005) and has a significant impact in the whole population, both rural and urban from all economical classes.

Our study focused on 2003, which was a year of great controversy in Brazil around genetically modified crops, because it was found that a major proportion of Brazilian soybean crops were transgenic due to illegal planting in the Southern state of Rio Grande do Sul (almost 90 per cent of the soybean crops in Rio Grande do Sul and about 8 per cent of the Brazilian soybean harvest come from illegal planting).

Our research questions are the following: How do major national newspapers in Brazil cover the issue of GM organisms? What is the main focus of the articles covering GMOs? What are the policy arenas in which GMOs are discussed? How is the location of the articles in the newspapers related to their main focus? How are the articles framed?

We analyzed 330 stories, a figure equivalent to all the stories published by both newspapers in 2003 (*O Globo* = 73 stories; *Folha de São Paulo* = 257 stories). We used a combination of quantitative and qualitative methods, by combining a content analysis of the stories with interviews of the main journalists who wrote the stories as well as the editors of the science sections. The quantitative analysis was based on an Agricultural Biotechnology coding sheet developed in the context of another study (Nisbet, on-going research). Ten per cent of the articles were coded by a second coder, to assess reliability of the coding process.

The goal of the interviews with the journalists was to help us understand the agenda building process leading these professionals to focus on specific angles and content when covering the issue of GMOs, and the main challenges they faced. Six journalists were interviewed, based on the number of stories on genetically modified crops they had published throughout the year of 2003

2. Science communication objective

We aimed to understand how issues related to genetically modified organisms are covered by main newspapers in Brazil, and to find out what explains the lack of public engagement in science and technology issues in the country, in order to ultimately build effective outreach programs on these issues.

EVALUATION/RESULTS

The significant number of stories published per both newspapers shows the importance given by them to the issue. The 257 stories published by *Folha de São Paulo* were distributed unevenly during the year, with two peaks. The highest peaks were observed in September and October, with about 80 stories published during the latest, perhaps as a consequence of a governmental decision to broaden the special permission allowing the growth and commercialization of smuggled GM soya.

Most of the articles published by the newspapers were news stories: 87 per cent in *Folha de São Paulo* and 60 per cent in *O Globo*. Opinion articles represented less than 10 per cent of the articles on GMOs in *Folha de São Paulo* and 21 per cent in *O Globo*.

One fifth of the stories published by *O Globo* were located in the science section, meanwhile about 35 per cent appeared in the “national news” section and 14 per cent in

sections devoted to economic issues. The figures are very different for *Folha de São Paulo*: 63 per cent of the stories were published in sections devoted to economic issues, about 10 per cent in the science section and about 5 per cent in the supplement devoted to agriculture.

A significant part of the sources considered by the journalists were governmental representatives (63 per cent in *Folha de São Paulo* and 59 per cent in *O Globo*). The presence of the scientific community in the articles was lower: the scientific academies, which includes Academies of Science and the Societies for the Advancement of Science, were used as sources in about 20 per cent of the stories published by *O Globo* and in about 8 per cent of the stories published by *Folha de São Paulo*. Experts were interviewed by the journalists in 25 per cent of the stories in *O Globo* and in 15 per cent of the stories in *Folha de São Paulo*. The presence of representatives from environmental organizations was even lower, with a presence of 13 per cent in *O Globo* and less than 5 per cent in *Folha de São Paulo*.

Most of the policy arenas mentioned by the stories were the Presidency and the National Congress (93 per cent in *O Globo* and 67 per cent in *Folha de São Paulo*). CTNBio, the national technical commission for biosafety, was mentioned in respectively 29 per cent and 20 per cent on the stories. Scientific arenas were present in about 10 per cent of the stories of both newspapers; a similar value was observed in *O Globo* in respect of representatives of the consumers (*Folha de São Paulo* = 6 per cent) and representatives of the Landless Movement which joins small farmers who do not have properties (*Folha de São Paulo* = 7 per cent). Almost the totality of the stories were related to the Brazilian policy, but Monsanto – the multinational responsible for developing the GM soya which seeds were smuggled from Argentina – was mentioned in about 25 per cent of the stories. About half of the stories published by *O Globo* and 60 per cent of the stories published by *Folha de São Paulo* were about GM soya; the second most mentioned crop was corn (less than 8 per cent in both newspapers), meanwhile other crops and organisms represented the remaining value.

We also analyzed whether issues related to risks and benefits were discussed. Risks were covered by 24 per cent of the stories published by *O Globo* and by 20 per cent of the stories published by *Folha de São Paulo*, meanwhile the values for benefits were respectively about 30 per cent and 14 per cent. Both risks and benefits were mentioned by 12 per cent in *O Globo* and 8 per cent in *Folha de São Paulo*; risks but no benefits were shown in 12 per cent of the stories of *O Globo* and 13 per cent of *Folha de São Paulo*. In respect of the overall tone of the articles, *Folha de São Paulo* showed a more negative stance: 31 per cent of its stories versus 17 per cent of *O Globo*. A neutral tone was observed in 61 per cent of the stories published by *O Globo* and in 42 per cent of the stories published by *Folha de São Paulo*.

DISCUSSION

We found that the two newspapers under study framed the issue of GMOs differently. While the newspaper *O Globo* framed the issue in terms of policy, the newspaper *Folha de São Paulo* stressed political strategy and market related issues. Interviews with science journalists that wrote the stories and the editors of the science sections helped us understand by which process these different frames were selected.

In both newspapers, journalists and editors seem to not consider the science and technological aspects intrinsically linked to the genetically modified crops debate, mainly in the case of the GM soya. This is stressed both by the frame used by journalists, as well as by the low use of experts from scientific community as sources in the stories. A different discourse is observed when the story is focusing on other GM organisms, mainly when a health application is foreseen. In those cases, the discourse is mainly scientific, including scientific explanations on how the organism was developed, which was not observed in most of the stories on GM soya. These reporting strategies might lead the public to believe that science is an enterprise that is disconnected of other societal dimensions, such as economy.

Another aspect systematically left out by the journalists is the public and what Brazilians think about GM food and GM crops. This is especially interesting considering that the results of the survey of 2,000 Brazilians that we mentioned earlier on (IBOPE 2001, 2002) – in which Brazilians exhibited a concern toward transgenics – were published few weeks before the GM soya growth with smuggled seeds in the South of Brazil incident took place.

CONCLUSIONS

Our quantitative analysis gave us an interesting overview of how newspapers cover GMOs in Brazil. Further qualitative analysis is being done at this to allow for deeper analysis, in order to better understand how the newspapers are discussing issues related to GM crops and food in Brazil. Other pieces of this puzzle are also being analyzed, since we consider that the GM controversy in Brazil is a good study case for understanding the relationship between science, science policy, policy and public engagement.

Although this paper is clearly based on an academic and research emphasis and might seem disconnected from purely applied goals, we believe that studies like ours allows to map out the main difficulties and challenges of covering controversial issues – in this case with a significant impact on lay people everyday life. Thus, we argue that this kind of studies can directly be used to improve practice of science journalism in the context of scientific controversial issues. By understanding how issues related to genetically modified organisms are covered by the main newspapers in Brazil can shed a light on the lack of public engagement in science and technology issues in Brazil, which ultimately will help build effective outreach programs on these issues.

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