

**Focus on Genetically Engineered Crops and Foods -
A Case Study from Mendocino County's Public Debate.**

Gregory A. Giusti, John Harper and Peggy G. Lemaux

Abstract

In March 2004, Mendocino County, in northwestern California, passed a ballot initiative prohibiting the production of all genetically engineered agricultural commodities. This precedent-setting decision by the voters has spawned a rash of similar actions being considered by a number of California counties who have sought advice and counsel on how best to address this complex scientific, environmental and social issue. We amassed and characterized a sizable sub-sample of election related materials into thematic subjects in order to assess what issues resonated with voters. To provide insight into the actions in Mendocino County, we collected and analyzed more than 200 paid advertisements; personal mailings and flyers, editorial opinions, and letters to the Editor to the local papers to characterize what GMO related topics were of importance to county residents. Though the initiative was limited solely to the propagation of GE plants and animals, the residents of Mendocino County used the electoral process to vent their feelings about issues not necessarily directly related to GE including; globalization, protectionism, isolationism, private property rights and public health and safety. The final vote tally closely paralleled the division among the letters submitted to the local newspapers. We characterize those public sources of information and offer insights to support other county efforts in addressing this newly evolving debate regarding biotechnology in agriculture and natural resource management.

Introduction – *What Initiated the Debate?*

The conflicts and social anxieties regarding the production of genetically engineered crops is a relatively new topic of discussion in the United States and until recently was limited to a few specific products, e.g., Flavr-Savr tomatoes, rBGH enhanced milk. The debate was first hotly contested on the European continent awakening much of the world to this highly complex scientific and divisive debate (Watson 2003).

The first locally directed action to successfully use the political process to address the GE debate in North America recently occurred in Mendocino County, California a geographic area known for contentious disputes over timber harvest, pastoral views and shoreline scenery. In March 2004, the voters of Mendocino County approved a county ordinance that makes it unlawful “ for any person, firm, or corporation to propagate, cultivate, raise, or grow genetically modified organisms in Mendocino County”. The ban, as all county-based initiatives, does not pertain to properties within city limits, or lands managed by state, Tribal and Federal agencies. The initiative identified the County's Agricultural Commissioner as the enforcing agency and directed his office to develop a protocol to inspect and confiscate any GE plants or animals being produced in the county. At the time of the election, there were no GE organisms known to be in production within the borders of Mendocino County.

The impetus for the ban came from an owner of a local organic brew pub who alleged that their supply of organically produced, beer-making ingredients had been contaminated by GE plantings adjacent to their source, thereby threatening their ability to secure organically certified supplies. These beer-making components were not grown in California. Incensed at the threat to their business, the brewpub owners initiated a grass-roots movement to raise the consciousness of local voters to the perceived threats of GE organisms to the economic vitality of the community, the environment and human health.

A group of concerned citizens initiated a grass-roots effort to secure the necessary signatures to qualify for an initiative vote prior to taking the issue to the county Board of Supervisors. Once the signatures were gathered, the Supervisors had little choice but to capitulate and put the measure on the March 2004 ballot. This process effectively limited the debate on the issue at that level and removed any chance of discussing the merits or disadvantages of GE crops on a case-by-case basis (Milius 2003), prior to plunging the debate into a political fray.

The process chosen by the initiative's proponents, *i.e.*, the gathering of signatures prior to public debate compromised the ability for any scientific scrutiny of the initiative's language prior to its acceptance by the Board. Consequently, the initiative language that was ultimately voted upon contained factual errors that could not be corrected once accepted by the Registrar's office. Specifically, the initiative arbitrarily defined DNA as a protein, essentially redefining both the structure and function of deoxyribonucleic acid. This gross error in defining the principle agent involved in the initiative may eventually prove problematic for the proponents if the initiative should ever be challenged in the courts. Proposed ordinances evolving in other counties have corrected this short-coming.

Methodology

Starting in November 2003, once the proposed initiative had been announced, but before it had been placed on the ballot, and ending on March 2, 2004, we collected election-related materials that were mailed to the UC Cooperative Extension office. Though not an active or exhaustive search of all materials circulated, this passive collection closely mimicked the way materials were received by voters prior to the March election. Secondly, newspaper articles, paid advertisements and Letters to the Editor were collected from the Santa Rosa Press Democrat (PD) and the Ukiah Daily Journal (UDJ) newspaper, the two largest daily newspapers circulated in Mendocino County.

Materials were separated by categories that described their method of delivery to the voters, e.g., 1) paid advertisements/flyers, 2) letters to the editor (further assessed for gender), 3) news articles written by newspaper staff, 4) editorials (written by staff or invited writers), 5) direct mailings, and 6) public service announcements informing the public of events relevant to the initiative.

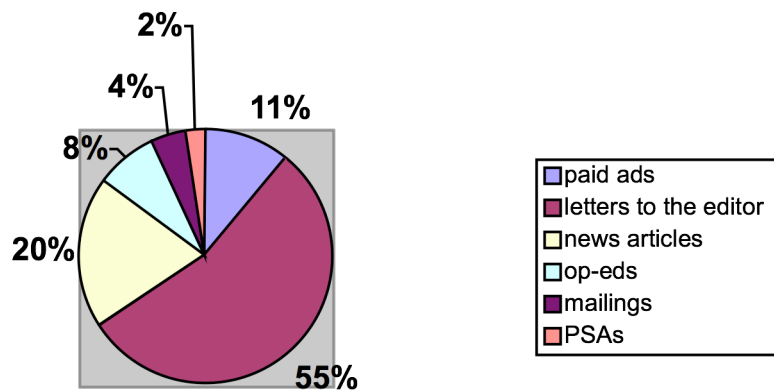
The categories were further characterized by thematic subjects. The themes most often identified included: 1) threats to organic certification, 2) unique marketing niche/ability, 3) threats to environmental safety, 4) economic vitality/viability, 5) opinions regarding multi-national corporations, 6) issues of human safety/well-being, 7) private property rights/privacy/taxes, 8) protectionism/isolationism, and 9) semantics. Many, if not all, of the materials distributed contained points of view on multiple themes. Furthermore, the tone of the point of view being expressed was obviously affected by the advocacy position being taken by those who were distributing the material.

Though political advocates for and against Measure H heavily relied on paid political radio announcements these were not characterized and are not included in this assessment.

Results

A total of 206 pieces of written materials were collected (Fig. 1.). These materials were characterized by the delivery methods used to provide information and opinions to the voters. The paid advertisements and direct mailings were direct actions taken by the opposing factions of the campaign. The letters to the editors, op-ed articles and news articles were distributed through the Ukiah Daily Journal and the Santa Rosa Press Democrat to deliver advocacy points of view, personal opinions, and other election related stories. The Public Service Announcements (PSA) were provided by the newspapers to inform the voting public of upcoming forums of importance to the upcoming vote.

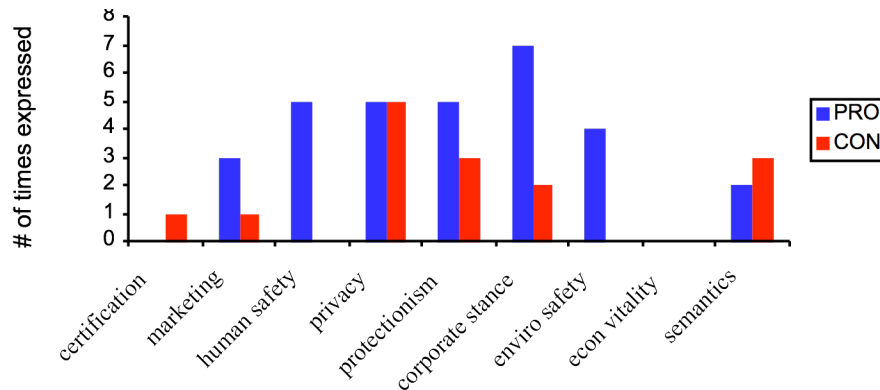
Fig. 1. Delivery method of 206 sampled materials received by the voters of Mendocino County regarding Measure H. November 2003 through March 2, 2004.



Paid Advertisements

Paid advertisements represent the most obvious form of advocacy that was distributed during the campaign. A total of 46 commercial pieces (full-page newspapers ads, direct mailings, flyers) were collected and characterized (Fig. 2) into thematic subjects including: threats to organic certification; potential market opportunities; threats to human safety; issues of privacy, property rights and taxation; issues of protectionism/isolationism; threats to environmental safety; aspects of economic vitality; and semantics regarding the initiative language.

Fig. 2. Characterization of Distributed Paid Advertisements for Measure H. Mendocino Co., Calif. November 2003 - March 2004.



Both advocacy groups relied heavily on commercial advertisements to deliver their message to the voters. Measure H proponents used paid advertisements to deliver a balanced approach to issues relative to: market opportunities of “GMO Free” labeling for local goods; projected threats to human and environmental safety; protectionism from outside influences on local agriculture; and assurances of minimal government intrusion if the initiative passed. However, the campaign relied heavily on paid ads to stress the need for voters to take a vehement political stance against multi-national corporations. The premise was that local residents, and not multi-national corporations, should set the future direction of agricultural policies for Mendocino County.

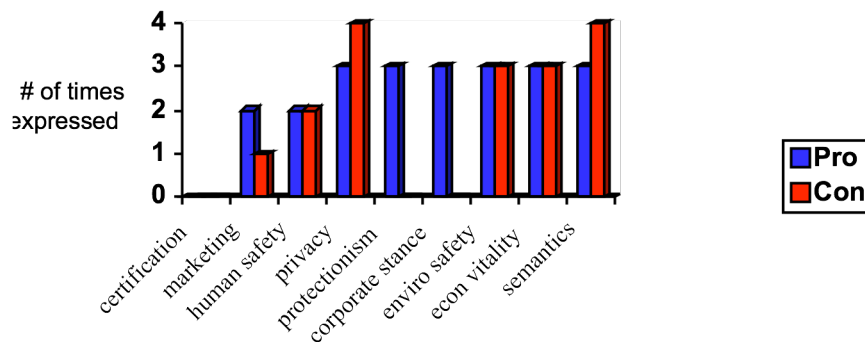
Concurrently, Measure H opponents used paid commercial messages to stress the need to protect personal rights, privacy and taxation issues from increased government intrusion from hypothetical GMO inspections of homes, gardens and ranches. Secondly, critics of the initiative used paid ads to stress the inadequacy of the language contained in the measure. Though critical of the initiative’s language, the ads were vague and non-specific in nature and did not provide corrected language to the voters. None of the sampled materials distributed by the initiative opponents addressed issues relative to environmental or human safety.

Editorials

The sampled materials included 38 editorials circulated through local newspapers. Though insightful and provocative, each was subject to editorial review prior to publication thereby eliminating much of the hyperbole associated with the paid commercials. (Fig. 3). The contents of the editorials were generally well crafted and well articulated and often provided a balanced assessment of each of the thematic areas important to the position being advocated.

Editorials generally addressed all of the indexed topics and issues except the debate over organic certification. This may have been the result of confusion and contradictory statements and positions being expressed within the certification community regarding the potential impacts from passage of Measure H. Both political perspectives used the op-ed process to address topics in a timely manner as they surfaced during the campaign. The campaign to defeat Measure H used the editorial process to narrowly define its concerns regarding: privacy issues from supposed inspections; suspicions of how a prohibition of GE crops could potentially inhibit markets; increased taxes due to increased inspection services and attacked the inaccuracy of the initiative language.

Fig. 3. Content, by theme, of 38 newspaper editorials addressing Measure H. November 2003 - March 2, 2004.



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Conversely, proponents used the op-ed approach to address a wide array of subjects including; 1) the regulatory ineptness of biotech screening and testing, 2) threats to human and environmental safety and, 3) the relationship between biotechnology and religion (UDL 2/22/04). However, the campaign to pass Measure H used the op-ed approach to deliver a balanced message addressing each of the thematic subjects.

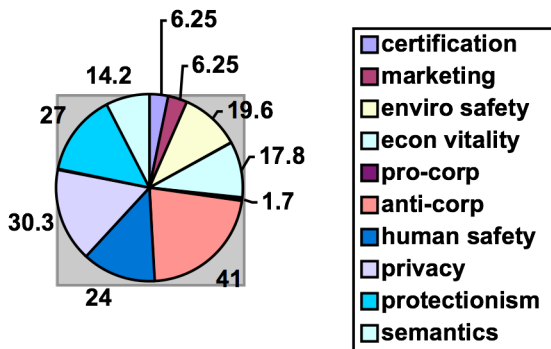
Prior to the vote, the two daily newspapers servicing the area, the Santa Rosa Press Democrat (PD) and the Ukiah Daily Journal (UDJ), both advocated positions against the initiative. The PD editorial spoke against the initiative because “[though admirable] it addresses a problem that doesn’t yet exist in Mendocino County, prevents possible solutions to future problems, creates illogical situations and would be difficult to enforce”. The UDJ cited reasons of poorly crafted language and the lack of a clear and present need for the initiative at this time as a reason to speak out against the measure. Further, the UDJ characterized Measure H as “nothing more than meaningless window dressing based on fear mongering which is no way to legislate anything”.

Letters to the Editor

A total of 112 letters were sampled from the two newspapers. Collectively, they illustrated the greatest disparity of opinion regarding various issues, but most addressed the common themes being expressed by the campaign. Of these, 62 (55%) spoke in favor of the initiative while 39 (45%) were opposed to its passage. A total of 11 letters expressed neutral political stances and were not included in this analysis. The tallied letters, all submitted prior to the vote, closely mimicked the final vote tally. The initiative passed with 56.3% of the vote. Of the letters, sampled, females submitted 43.75%, while males submitted 56.26%.

The issues that resonated most with letter writer’s included matters of environmental safety (19.6%), human safety (24%), issues of privacy (30.3%), and issues relative to taking a stance against corporate influence of local policy direction (41%). The combined issues of protectionism, concerns expressed about internationalism, and globalization, when combined, accounted for nearly 27% of the topics raised (Fig. 4) by writers.

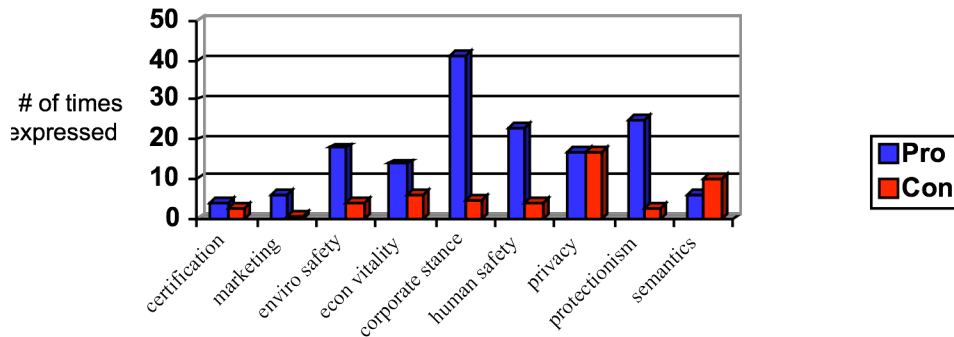
Fig. 4. Percentage of sampled letters submitted to the Editors of the Ukiah Daily Journal and the Santa Rosa Press Democrat addressing issues of concern prior to the March 2, 2004 vote.



Further analysis of the letters demonstrated strong central themes by opposing viewpoints (Fig. 5). The issues relative to taxes, privacy, and private property rights resonated strongly with those opposed to Measure H. While, values expressed against multi-national corporations were strongly expressed by those writers urging passage.

The issue of multi-national corporate influence of local agricultural policy greatly influenced the supporter’s viewpoint of the initiative. The sampled letters had an obvious “Goliath vs. David” tone and was carried into the theme of protectionism and the fear of globalization corrupting the ability to decide local political choices. This issue dwarfed all other expressed opinions among writers and rendered the debate of semantics and scientific accuracy irrelevant. The theme of language and scientific accuracy became marginalized by the end of the campaign and is reflected in the few times the topic was expressed by letter writers.

Fig. 5. Number of times issues of concerns were raised in letters to editor of the UDJ and the PD prior to the March 2, 2004 vote.



Discussion

Corporate Association of GE programs

Though Measure H was fervently opposed by both local newspapers and the “No on H” campaign which amassed donations totalling \$517,000 from a conglomerate of agri-business interests, it was resoundingly passed by the voters. As a side-note, only \$5,000 in support of the “No” campaign came from within Mendocino County while the proponents of Measure H raised nearly \$75,000 entirely from local contributions.

The theme of limiting multi-national corporate influence in local agricultural policy and directions dwarfed all others during the campaign. Proponents of Measure H often cited the book *Seeds of Deception* (2003) to validate their fears of government and corporate conspiracies influencing the regulations of GE products – a prominent theme of the book. Following the vote, supporters for Measure H characterized their efforts as a “test case for democracy” and “Passage of Measure H is just the beginning of a revolution....against the bullying of corporations” (UDJ March 3, 2004). This attitude is consistent with the characterizations of the anti-GMO political actions seen in Europe and described by Watson (2003) where consumers and voters expressed distrust toward government regulatory actions, corporate financial obligations and liabilities in biotechnology and world trade issues as reasons to oppose GM crops and foods.

The anti-corporate theme was further supported by the majority of public letters that expressed a desire to protect Mendocino County from outside threats and pressures from the change in globalized markets and trade. The most extreme points of view expressed a need to secure Mendocino’s borders from these pressures and promoted the “go it alone” ideas reminiscent of the isolationist rhetoric of the 1930’s.

This tangential component of the debate may be difficult for scientists and educators to ignore, and even more problematic to address, particularly if the anti-corporation stance is directly linked to a University and its programs. Opinions expressed in the letters to the editors were evenly split among writer’s who felt University of California personnel were generally objective in their deliberations regarding GMOs and those who believe that UC scientists are corrupted by the need to secure outside funding to advance their programs. Similarly, op-ed articles that addressed the issue of UC input were almost equally divided in what role the University should take, and how its personnel should be viewed. Though the numbers of election related materials addressing UC’s involvement were relatively small (<2%), those that did include UC as a stakeholder held strong opinions. Generally, those in opposition to Measure H were supportive of UC input, while those in support of the initiative were most critical of the University.

This point was seen most clearly when a UCCE Specialist was excluded from participating in a public forum after she had been invited by the Editor of the UDJ to attend as “a scientific expert” to provide technical and factual information. Proponents of Measure H threatened to boycott the forum if she was allowed to sit on stage and respond to questions. Although she had been invited to participate by the organizer of the program, the pro-Measure H debaters, who had asked her to organize the event, had not been specifically told of her presence and did not welcome her participation. Though the UCCE specialist, and UCCE advisors in Mendocino County are not currently receiving funding for biotech research or outreach from any of the multi-national corporations targeted, UC and non-UC academic participation in biotech research provides a platform from which to negatively characterize all academics in this debate as siding with industry. This certainly undermines the ability of university personnel to be involved and provide what is perceived as unbiased information during the debate.

GE Commodities and the Environment

The potential impact from pollen of GE crops affecting both organic labeling status and genetic purity of existing commodities was a pervasive theme advanced by the proponents of Measure H. The primary argument focused on the potential impacts to the wine grape industry, which is currently the leading agricultural commodity in Mendocino County and the potential contamination of GE wine grapes plantings to non-GE plantings. Though any potential planting of GE *Vitus* plantings are not predicted in the coming decade (G. McGourty, UCCE Viticulture Advisor, pers. comm). the threat of such plantings was widely promoted as a threat to the local wine grape industry.

GE Commodities and Human Health

The language contained in Measure H limited its scope regarding biotechnology to the production, propagation and raising of agricultural crops and animals. It did not include aspects of biotechnology regarding medical applications. However, the campaign did secure and distribute support from no less than 53 practicing physicians, and 190 other health care providers, including the Mendocino County Director of Public Health, which they described in their paid advertisements and direct mailings, implying a direct connection between agriculture and the medical community. Although Measure H did not establish labeling or other disclosure requirements on foods containing GE crops to help inform consumers who wish to avoid GE products, the campaign relied on the endorsements of health care providers to raise issues of concerns regarding GMOs. These include the following: 1) GMOs may trigger allergies in humans; 2) GMOs may have or trigger new toxins harmful to human health; 3) consuming GMOs may lead to antibiotic resistance; and 4) GMOs may be linked with a resurgence of infectious diseases (<http://gmofreemendo.com> 2/17/2004). This tactic greatly broadened the scope of the proposed initiative and incorporated social aspects of the GMO debate that were not directly relevant to the Measure since it did not address products on market shelves that may contain GE properties.

Science in the Public Realm

The campaigns for and against Measure H in Mendocino County became an example of a civics debate between science and a community. It was the fear of biological contamination from GMOs unleashing uncontrollable genes into the environment that was the premise to promote the initiative. Paradoxically, the exercise unleashed a barrage of disconnected, but passionate, themes that became pervasive and negated any opportunities for a rational debate about the scientific merits or disadvantages of the subject at hand. Watson (2003) accurately captured this notion in his statement “the opposition to GM foods is largely a socio-political movement whose arguments, though couched in the language of science, are typically, unscientific”. This was the obvious outcome in the public debate on Measure H in which the final vote was forged primarily on a community’s distrust of multi-national corporations and government oversight and had little to do with the scientific and health/environmental safety themes that were originally proposed as the reason to move the initiative forward.

The scientific and regulatory communities must address these highly emotional themes directly if they hope to address the many sober social and environmental issues facing humanity and the role that bio-engineering may play addressing these issues in the future i.e.; addressing population growth, meeting food and fiber demands, farmer’s rights and the economic distribution of GE crops and profits (Cook 2004; Bradford & Alston 2004). In the Unites States, where most people do not feel threatened by a lack of available food, the experience in Mendocino County demonstrated how one community re-defined the discussion of GE crops as merely an opportunity for corporations to expand their bottom line. This message should be recognized by all involved in the production and distribution of agricultural products and should not be taken lightly.

Opportunities, beyond the approach of putting forth an initiative, that provide for a broader discussion among community participants to ascertain all of the scientific and social aspects of the subject matter should be explored (Giusti 2003). Additionally, alternative mechanisms that allow for the evolution of thought would provide a greater opportunity for citizen input and guidance to county voters and decision makers should be explored and developed. Alternatives to the initiative process may include: 1) temporary, county-based, moratoria on GMO crops to provide more time for informed debate and education of the voting public regarding the relative risks, benefits and social implications of bio-technology in agriculture; 2) a county-based use-permit/registry program to assist in the tracking and evaluation of GE crop expansion to better address concerns over adventitious pollination of crops; 3) development of Best Management Practices or related strategies that reduce risk issues associated with each type of commodity being planted; and 4) the instigation of labeling programs to better inform consumers of the presence of GE products on grocery shelves. Each of these alternatives allow for adaptive decision-making as more information is obtained and does not require a community to initiate a special election that may not fully address their deeply help convictions.

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