AGRICULTURE AND DEVELOPMENT SEMINAR SERIES (ADSS) HIGHLIGHTS

Public Perception of Agricultural Biotechnology: Implications to Communication Planning

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Biotechnology "is the application of scientific and engineering principles to the processing of materials for biological agents to provide food and services… it is the construction of microorganisms with useful traits by recombinant DNA techniques, cell fusion, or other methods."

- *Definition read by Dr. Emiliana Bernardo, retired UPLB faculty during the ADSS*

This paper is drawn from the 2004-2005 study of the International Service for the Acquisition of Agri-biotech Applications (ISAAA) titled "Public Understanding, Perception, and Attitude towards Agri-Biotech in the Philippines." Guided by six research questions, this presentation is based on the study's salient findings and its implications to communication planning. The study locales were distributed among the three major Philippine islands: Luzon (Metro Manila, Cagayan, and Laguna); Visayas (Cebu and Iloilo); and Mindanao (Davao City and Bukidnon). The main research method used was the survey. Independent variables included the socio-demographic characteristics of respondents, their worldviews and values, and information sources. Dependent variables were respondents' understanding, perception, and attitude towards agri-biotechnology. A total of 423 respondents of differing backgrounds participated in the study. Most respondents were male, married, aged 30-50, and half were from rural areas.

Why communicate agri-biotech?

Respondents have had high exposure to mass media and interpersonal sources; but there is scarce information related to biotechnology. With the exception of religious leaders, all sectors had favorable perception of and attitude towards agri-biotech. This finding deviates from the typical hearsay that the time is not right for agri-biotech.

Moreover, all respondents considered themselves as having moderate understanding of agri-biotech. This proves a challenge because despite mass media and interpersonal channels, the public still needs more information on agri-biotech; even scientists. Majority also believe that regulation of biotechnology should not be left to industry. This signifies that people want to be involved in agri-biotech regulation given that they are well-informed.

What to communicate about agri-biotech?

From the survey questions, the common misconception across all groups was that "plant viruses are transferred to humans when they eat vegetables and fruits infected with plant viruses." Likewise,

religious leaders and consumers were ignorant about golden rice as genetically-modified (GM) food. As such, scientists should explain these concerns.

Generally, Filipinos were concerned about using agri-biotech as food than as animal feed or industrial by-products. Although the study did not probe why Filipinos prefer using biotech as food, Dr. Torres explained that survey respondents think food for humans has more direct bearing on their health than animal feeds and industrial by-products. Thus, it would be more favorable for biotech advocates to design messages on food-related themes – e.g., that biotech is beneficial to the food industry; and that GM food is non-allergenic, non-poisonous, and nutritious.

Consumers and journalists had mixed responses on the holding back of vital information about health effects of GM food. The findings revealed issues of mistrust and suspicion and a need to be more open about the health impacts of GM food.

Who do we communicate with?

Policy makers, scientists, and journalists were perceived as interested and concerned about agri-biotech for obvious reasons. Policy makers are concerned with public safety, scientists are the agri-biotech workers, and journalists want to share agri-biotech information to the public. Among the three, the policy makers were the most active agri-biotech information seekers while the religious leaders were the most passive.

The International Rice Research Institute (IRRI) and the Centro Internacional de Mejoramiento de Maíz y Trigo (CIMMYT, also known as the International Maize and Wheat Improvement Center) were recognized as highly concerned with public health and safety issues of agri-biotech.

Who should communicate agri-biotech?

Policy makers, scientists, and journalists were also perceived as the most trusted and concerned sources of info. University-based scientists ranked first while governments were perceived favorably in making sure that agri-biotech safeguards are in place. Again, this refutes the hearsay that the government is not trusted with biotechnology concerns.

Interestingly, religious leaders who had negative perception of agri-biotech because of moral and ethical considerations, came out as trusted information sources by policy makers and fellow religious leaders. Also, non-government organizations (NGOs) tended to lead the public into perceiving that agri-biotech information is held back. Local politicians tended to lead the public that government agencies do not do much to ensure that the food people eat are safe. These findings prove to be a challenge for biotech advocates.

How do we frame agri-biotech messages?

As science is perceived important in agricultural development, respondents also believed that genetic engineering could lead to nutritious and cheaper food. However, they noted that information on agri-biotech is only ‘somewhat’ and ‘not very’ scientific.

What communication channels should be used?

Respondents had multiple sources of agri-biotech information, but they most commonly used mass media and interpersonal channels. Extension workers were the most popular persons disseminating agri-biotech information. Majority of the respondents expressed willingness to attend seminars and public fora to learn more about biotechnology if the community would hold such.

Another finding was that the mass media tended to give negative messages such as 1) Biotechnology benefits agricultural companies, and 2) Biotechnology is disadvantageous to the country's agriculture. Meanwhile, interpersonal sources tended to give favorable messages including 1) Biotechnology is good for food production, and 2) Biotechnology is less risky.

Conclusion

More than agri-biotech's technical soundness and utility, the problems in communicating agri-biotech information are moral and ethical in nature. The religious sectors, in particular, do not want it.

OPEN FORUM

Challenge to Scientists

Dr. Bernardo strongly agreed that religious groups are very much against biotechnology as she had been involved with biotechnology. She shared her experience while attending a biotech forum where a nun asked: "Should we not be afraid that we are playing God *[because of biotechnology]*? In response, she told the nun that nothing will succeed without the permission of God. The fact that scientists succeeded in developing it means that God has permitted scientists to discover it. As a scientist, she said that sometimes, you really have to think hard to explain such matters to people who perceive biotech negatively.

Scientists often face the challenge of explaining why GMs are safe (i.e., how can the introduction of the toxin *Bacillus thuringiensis* (*Bt*) to corn be safe for many organisms, specifically humans?) In this case, scientific explanations are paramount. The simplest explanation for this is that organisms need special receptors in order to absorb the *Bt* toxins; otherwise, they will just pass out through body wastes. Only the Lepidopterans (butterflies) have these receptors.

Dr. Torres said that the problem usually lies on how to explain biotech in layman's terms. Scientists should help communicators translate technical terms to be understood by the ordinary public. Although mass media are highly accessible, what people hear about biotech is usually negative. Ms. Jenny Panopio, Special Projects Coordinator of the ISAAA Biotechnology Information Center (BIC) based at SEARCA however pointed out that in the latest media monitoring conducted by BIC, data shows that the current news are have now leaned more on the positive side. She said that it is probable that at the time of the study, there were less positive articles on biotech. As a response, Dr. Torres said that the challenge is that negative messages on biotech seem to be retained more than the positive ones.

Global Status of Biotech Crops

As a consumer, Filipinos import corn and sorghum. One participant clarified whether these are GM or not. Ms. Bernardo replied that most imported corn varieties are GM. Ms. Panopio supported this view

saying that there is a study on the double status of biotech crops and findings show that 90% of corns planted in the US are GM. For the global status of biotech crops, people can visit the ISAAA (www.isaaa.org) or BIC (www.bic.searca.org) website.

Communication Campaign for Religious Leaders

Dr. Maria Celeste H. Cadiz, Manager of SEARCA's Knowledge Management Department, noted Dr. Torres' findings that religious leaders, who are trusted by policymakers, oppose biotech on moral and ethical grounds. She then suggested that messages should emphasize the moral basis of biotech such as ensuring food security.

Dr. Torres said that we have yet to see communication campaigns geared towards religious groups because some just accepted the notion that religious leaders would oppose by virtue of their mandate. Ethical and moral concerns are also hard to challenge. To date, no biotech messages touching on morality and ethics have been crafted.

Mechanisms for Knowledge Transfer

One participant noted that the study indicated the importance of interpersonal sources. How then do people communicate what they learn -- for example, students attending a biotech forum such as this one? Dr. Torres said that students specifically at the UPLB College of Development Communication are trained to package information materials for various media. As such, should they cover agricultural biotechnology as a topic for a class output, they are able to contribute to communicating about it. Likewise, students present could always use the knowledge gained from the seminar to communicate informally with friends and family.

Need for Scientific Information

Findings showed that people feel that the biotech information they get is 'somewhat' and 'not very' scientific. Thus, the study recommended giving out more scientific information to the public. However, one participant argued that this may be attributed to the information sources. As respondents indicated, they often acquired information on agri-biotechnology from extension workers and policy makers who do not really have sufficient technical knowledge on biotech. Also, information may be affected by the channels used. Dr. Torres said that "we need more scientists to speak out on biotech."

Qualification of Biotech

As biotechnology includes an array of products such as GMOs, fermentation, and tissue culture), one participant asked whether these were this qualified in the study. Specifically, was there an attempt to list down all the things that people perceive as biotech? This can probably explain why food is given preference. Dr. Torres said that the study did not have such questions -- as it focused more on the level of agreement on biotech among respondents and note really on what biotech is.

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