

# Communicating Biotechnology: Conquering the Fear of the Unknown

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The ASEAN biosafety regulations and developments including the Cartagena Biosafety Protocol as they relate to communication of biotechnology to the public are briefly discussed. According to AFIC studies, although there are ASEAN biosafety guidelines in addition to country-specific guidelines, most ASEAN consumers are not aware of these. Consumers are confused because of (a) scarcity of scientifically correct and balanced information; (b) general unfamiliarity of the public with even conventional methods of crop production, much less, biotechnology-assisted crop production; (c) fear of new technologies, and (d) differences in global acceptance of biotechnology. The author further discussed the theories on risk communication and their implications for education program in biotechnology. These include trust determination and risk perception.

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Communication is a topic that is frequently overlooked, yet is vitally important to biotechnology. The success of this technology will depend on its acceptability to consumers. Consumer acceptance will depend largely on how well the science is communicated.

This paper will provide: 1) a brief overview of the ASEAN biosafety regulations and developments and highlight a few points which are relevant to the topic of this paper; 2) risk communication theory; 3) some of the research that Asian Food Information Center (AFIC) has done on Asian consumer attitudes toward genetically modified (GM) foods; and 4) some implications for communication programs.

## Food Safety and Biosafety Regulations

Our research shows that one of the key issues for consumers is whether or not these GM foods are safe and biosafety regulations have a lot to do with that perception.

There have been significant developments in the whole area of risk assessment, including Codex and the Cartagena Biosafety protocol. There are ASEAN biosafety guidelines in addition to country-specific guidelines. Yet most Asian consumers do not know this. They have no perception at all that these foods are regulated, which makes them uneasy and keen to source additional information.

Codex is the reference for food safety issues evolving from the World Trade Organization (WTO) and is based on scientific principles and transparency. There have been two Food and Agriculture Organization/World Health Organization consultative meetings on biotechnology. The recommendations coming out of these meetings included: 1) establishment of comprehensive and enforceable food regulations by national authorities; 2) that nations seek to keep pace with technological developments in this area; 3) the adoption of appropriate strategies in the evaluation of food derived from biotechnology, and 4) that safety assessments should be based on sound science.

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Another recommendation is that consumers must be provided with sound science-based information on biotechnology and safety assessment.

One key point that came out of the Montreal meeting, which resulted in the Cartagena Protocol held in May this year, was that there is a need to avoid any confusion between food safety and labeling issues. Another key point was that labeling is not intended to replace a safety evaluation. There is a lot of misperception about this. Codex has labeling regulations under discussion. And while there is agreement on the definitions for labeling, there has been no agreement reached on how labeling will be approached.

ASEAN also has guidelines on the risk assessment of agriculture-related GMOs. These are legally non-binding and have no precedence on national legislation. However, they provide a very good framework for science-based risk assessment. They also have attachments with a step-by-step checklist to guide regulators and risk managers on the assessment of product. But they exclude compensation and liability issues. They do not discuss labeling. And there were no socioeconomic or religious factors discussed in the document. Individual countries also have their own biosafety regulations.

The need for public awareness campaigns was discussed during the 21<sup>st</sup> **MAMF** meeting. The importance of biotechnology was noted during this meeting and the need to communicate with the public about biotechnology was identified. There was an ad-hoc task force meeting in Jakarta in March of this year looking at ASEAN public awareness programs. Ten countries attended that meeting and the group identified target groups, strategies, and programs.

### **Why Are Consumers Confused?**

If all of this work is underway, in terms of risk assessment, regulations, and public awareness campaigns, why are consumers confused? There are several reasons for this.

Our research shows that the number one source of information on biotechnology in every market in Asia is the media. And unfortunately, a lot of information that is printed is controversial. It is often not based on the science, contains very emotive language, and can be extremely misleading. This is not the media's fault. The fault lies in the lack of good risk communication by the scientists and regulators involved in this area.

A search in the Internet shows that 90-95 percent of information on biotechnology or genetically modified foods there is extremely negative. It uses very emotive biased terms and a lot of it is not based on the science. There seems to be a scarcity of information out there that is scientifically correct and balanced.

The general public is not familiar with even conventional methods of crop production. They do not know about genes. They know nothing about genetics. In AFIC's research on consumer knowledge and attitudes toward biotechnology in Asian countries, questions relating to knowledge of genetics in agriculture were asked. For example, one question asked: "Is this statement true or false? *A genetically modified soy plant contains genes but normal soy plants do not.*" Most people in Asia will agree with

that statement and believe that conventional plants do not have genes but genetically modified ones do.

Of greater concern is that when we asked them if eating a product, which had been genetically modified, would also change their genetic makeup, about 30 percent agreed. Significantly more did not know if this was true or false. So, as you can see, there is a lot of work to be done in terms of educating people.

Added to this is the fear of new technologies. Throughout history, people have been afraid of new technology. When the first telephone was introduced, people thought that they would be electrocuted, so they did not use it. People believed initially that immunization would make them would grow horns or take on the characteristics of animals.

There is also a lot of confusion over the differences in global consumers' acceptance of biotechnology. People in Asia have looked at the dispute between Europe and US, and asked what's going on? Why isn't Europe accepting this? Is this a safety issue or a trade dispute?

The polarization of supporters and opponents has generated a lot of noise and confusion. The terminology used by the different sides adds to this. For example, an opponent to biotechnology uses terms such as "artificial," "genetically engineered," "manipulation," and "tampering." On the other hand, a supporter tends to use a totally different terminology.

AFIC's research shows that in Asia, people see genetic modification/food biotechnology as a means by which foods are processed. So essentially, there's very little awareness of what biotechnology is about. When the terminology is explained to them by a simple description, they are not particularly negative but they still have many misconceptions, particularly the belief that perhaps the technology will involve the use of additional chemicals and additives in the food supply.

## **Risk Communication Theory**

There are two main theories that are related to communication in situations where there is a perceived risk and the findings have implications for education programs on biotechnology. The first of these is **trust determination**. The extent to which someone will listen to your message will largely depend on how much they trust you. A lack of trust can lead to distortion of the message you are trying to convey. The level at which somebody trusts you depends on your level of empathy with them and your credibility. Can they relate to you or are you standing there as a scientist or a government regulator spouting a lot of scientific information that they do not understand? Are you expressing any empathy with them, do you understand their real concerns? Credibility relates to the extent to which the audience believes the communicator to be honest. For example, there is a lot of resistance to accepting information from the industry. Despite their level of expertise, they are not deemed as credible as other sources of information. The perceived credibility of government varies by country, being high in countries such as Singapore but low in many parts of Europe.

The second theory is on **risk perception**. Depending on how much risk an individual perceives there to be, they can become quite frustrated. And as scientists, what often happens is you relay information about what you perceive to be the real risks. You've done the research, you know the evidence, you are very learned. As an "expert" in the area, you convey what you believe to be the issues and the real concerns. Unfortunately, the consumer often does not understand the terminology being used and, in many cases, has concerns different from those of the "experts." Many of the consumer concerns that have been picked up in our research are quite different from what the "experts" see as the issues in biotechnology.

In risk communication, you need to respond to consumer concerns. This means listening to what consumers are saying and answering their concerns.

Over the past 12 months, print media coverage on biotechnology has risen significantly. In terms of a percentage of the total print media coverage of food, food safety and related issues, biotechnology has gone from about 20 percent up to 50 percent. This means that there is a lot of "noise" out there and a lot of conflicting information. This causes confusion and acts as a block to communication efforts. To cut through the noise, messages need to be clear, simple, and concise - or they will be lost.

Risk communicators need to be aware that science alone is not necessarily going to be enough. In a situation such as biotechnology, which is highly emotive, people are concerned. Science alone is not going to win the day. Communication programs need to be carefully planned and executed and involve professional communicators.

Once people form beliefs, they are difficult or even impossible to change. One of the problems in Europe was that the activist groups put out a lot of misinformation that was not addressed by scientists. People can hear something once and they might form an opinion about it. If it comes from a credible source, that opinion might be quite a solid opinion. If somebody then tells them an opposing opinion, they will tend to stay neutral, once again depending on the credibility of the source. Research shows that four pieces of information repeated four times from a credible party lead to the formation of a belief. This means that inaccurate or unscientific messages that are not countered will lead to the establishment of beliefs. Parties involved in education programs around biotechnology must be aware of the need to counter misinformation in a timely manner before it develops into a belief.

The goal of any party in the communication of science must be to communicate in ways that serve both public understanding and the goals of communicators. Biotechnology is a very complex subject and is very difficult to communicate, particularly given the lack of information in the community. Joint programs and consistent messages from all parties involved in the communication process offer the best opportunity for improving consumer understanding. ASEAN programs should be coordinated regionally for maximum effectiveness. Programs such as this conference can provide opportunities to discuss issues, debate programs, and debate various approaches.

Biotechnology will evolve in much the same way as did the Green Revolution and other technologies if the education process is executed effectively. It has started off as a very emotional issue with little awareness or understanding. It is now progressing (or will progress, hopefully in Asia) toward improved consumer understanding and the

addressing of the real issues and informed opinions. It will progress from being perceived as a local situation to one with a global perspective, particularly with the trade issues going on. It will progress from looking at safety issues to one of consumer choice, as the biosafety regulations and labelling issues are sorted out.

James Watson, co-discoverer of the DNA structure stated:

"I'm worried about a lot of things, but not modified food.

To argue that you don't know what is going to occur is true about everything in life. People will never get married, never have children, never do anything."

A lot of concerns people have expressed through our research was related to the long- term health effects of modern biotechnology products. But you can argue just about anything and this quote puts it all in perspective.