Biotech In focus

Cooperative Extension Service
Biotechnology Outreach Program
College of Tropical Agriculture and Human Resources
University of Hawai'i at Manoa

December 2014 Issue 23 of 24

What does GMO-Free Mean?

More than 120 years ago, Harley Proctor wanted to prove the superiority of his white soap. He hired a laboratory, which defined pure soap as fats plus alkali and determined that the non-soap contents of Proctor & Gamble's Ivory soap added up to 0.56%, giving Proctor a memorable slogan: "99 44/100% Pure."

Proctor's advertising tagline survives today because 99.44% purity sounds impressive yet believable. In the context of science, claims of absolute purity ring false. Answers to the question "what is pure?" or "what is pure enough?" will vary, case by case.

For example, the Environmental Protection Agency's goal for arsenic in drinking water is zero. However, arsenic occurs naturally in some soils, so the standard for EPA enforcement is 10 parts per billion. (An equivalent fraction of time would be one second out of 3 years, 2 months.) This means that water in a schoolyard drinking fountain is allowed to include a very small amount of arsenic.

Likewise, according to the Food and Drug Administration, a cup of wheat flour containing 200 insect fragments is defective, but the same cup with 100 insect fragments is not. Unlike arsenic, so-called insect filth has no ill health effects; its regulation is based on our squeamishness. We can't produce bug-free flour, but we can limit how many bits of bug we eat.

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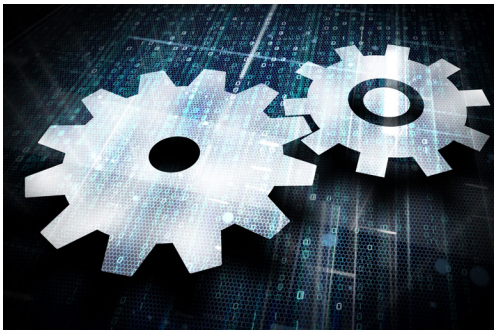
Thank you to Carol Oshiro for web design, Jessica Radovich for graphics and Kathleen Vickers for text editing.

Defining Food Rules

Questions of purity also affect how governments define and regulate foods that are produced using engineered genes. Rules that define foods as GM, non-GM, or organically farmed differ widely. Some nations regulate product contents whereas others focus on food production processes. Labeling standards may apply to all of the ingredients in a processed food, or just the major ingredients. Others have no exemptions to exemption for meat, processed products, restaurants and animal feed. To confuse the matter more, some labelling regulations target the finished product as having detectable presence of GM while others target the process even if no GM even if no traces are present. For each of these approaches, governments must determine whether to define an acceptable level of GM material in foods that are treated as non-GM. The acceptable level or threshold varies widely around the world from none to 5%.

Complex Issues



Defining food purity in the context of genetic engineering has far-reaching effects on food labeling and the coexistence of different forms of agriculture. Labeling and coexistence involve a complex mix of technical, legal, and social issues.

Practical Limits

Testing procedures and crop isolation practices have practical limits. GM and organic foods are subject to a patchwork of regulations that determine where and how they can be sold and affect their market value.

Philosophical ?

Lastly, for many people, scientific studies that assess a particular crop's risks and benefits are secondary to philosophical questions, such as whether it is appropriate to create transgenic organisms, or whether the agricultural corporations, Universities or Institutes that breed GM crops are acting in the public interest.

As we explore labeling and coexistence in the next two bulletins, we'll take a closer look at how two competing definitions—100% GMO-free vs. some lesser threshold—have helped fuel debate over agricultural biotechnology. For now, consider a food in which 99 44/100% of the ingredients came from conventionally bred crops. Would you think of that food as non-GM? If those crops were farmed using organic agriculture practices, would unintentionally including 0.56% transgenic ingredients make the resulting food not organic, or even GM? Conflicting answers to these questions serve to underscore how difficult it is to achieve consensus on the use of genetic engineering in food.

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