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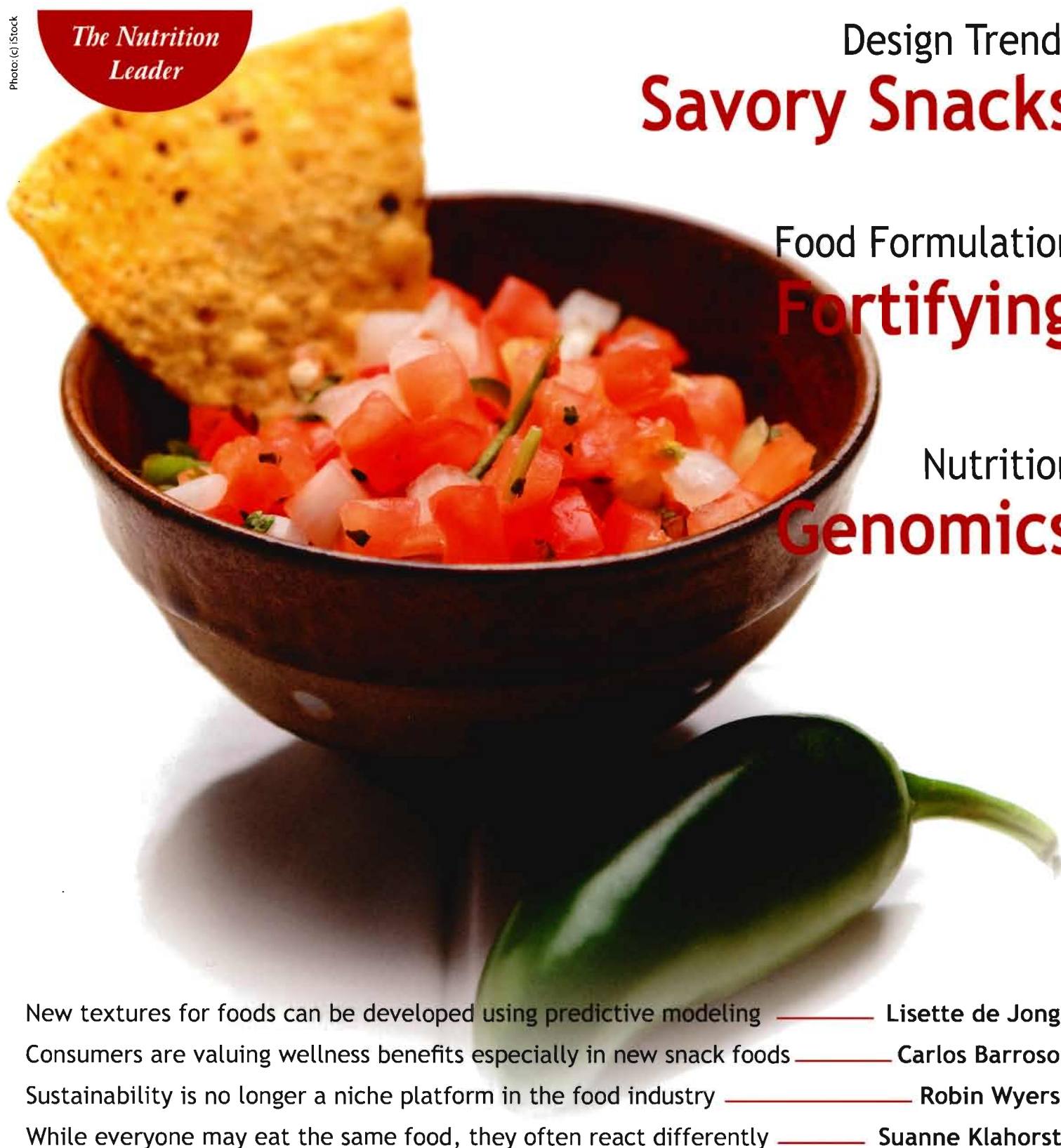
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Design Trends
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New textures for foods can be developed using predictive modeling ——— Lisette de Jong
 Consumers are valuing wellness benefits especially in new snack foods ——— Carlos Barroso
 Sustainability is no longer a niche platform in the food industry ——— Robin Wyers
 While everyone may eat the same food, they often react differently ——— Suanne Klahorst

Food Forward – GM Foods

Food companies should be loathed to trap themselves into marketing less healthy, less nutritious, and less safe foods at higher costs because the company is leery of modern biotechnology.

by Drew L. Kershen

Food companies sourcing safe and nutritious ingredients for their food products must also understand the regulatory regimes that apply to their selected ingredients. When these regulatory regimes are applied to ingredients from genetically improved crops, food companies face a complex task. Let's use two ingredient examples to explore this regulatory complexity in the European Union and the United States.

Firstly, soybean oils that have health and nutrition benefits developed through modern biotechnology are within a few years of commercialization in the United States. Two examples include stearidonic acid omega 3 enriched soybeans and low saturate/high oleic/low linolenic soybeans. The reason for growing these improved soybean oils is the consumer benefit from a healthier, more nutritious oil. Secondly, Swedish university plant breeders have grown apples from apple trees grafted to apple root-

stock genetically modified for improved rooting. The harvested apples can be considered ordinary apples because the genetically modified rootstock apparently passes no gene or protein to the grafted tree or its fruit. The reason for growing these improved apples is the increased production likely to occur due to hardier apple rootstock.

Diverse Regulation

Food companies that source the healthier, more nutritious soybean oils face very different regulatory regimes between the European Union and the United States. Both the European Union (through the European Food Safety Agency) and the United States (through the Food and Drug Administration) will verify that the soybean oils are safe and provide the health and nutrition benefits claimed. Once shown to be safe and efficacious, the United States will require labeling of these new ingredients because these compositional changes are "mate-

rial" information for consumers because the soybean oils are no longer "substantially equivalent" to traditional soybean oil. Of course, if the soybean oils are healthier and more nutritious, food companies will also likely be allowed to advertise the health and nutrition benefits of these improved soybean oils. Indeed, one can expect that US food companies will gladly tout the health and nutrition benefits of these improved soybean oils.

In Europe, food companies may also be allowed to make health and nutrition claims for these improved soybean oils. However, European food companies will also face an additional labeling requirement even after the EFSA opines that the new soybean oils are safe and efficacious for health and nutrition claims. In Europe, food companies will be required to label the products as genetically modified because the process used to develop the improved oils intentionally used modern biotechnology. Of course, the same will be true in Europe for whole soybeans in snacks or salads. By contrast, the US does not label for process alone and food companies in the US will not have this additional labeling requirement for improved soybean oils or whole soybean snacks/salads.

GM Apples

Food companies that source apples from trees grafted to genetically improved rootstock present different regulatory is-

ssues between the US and the EU. In the US, once the rootstock gains regulatory approval for commercial release into the environment, food companies will have no special label obligations because the apples are substantially equivalent to apples. US companies will sell apples from genetically improved rootstock as apples – so many per dollar or so much per pound. In the EU, food companies face a different determination. Food companies must decide whether these apples from trees grafted to genetically improved rootstock are made "from" genetic modification or made "with" genetic modification.

If these apples are made "from" genetic modification, food companies must label these apples as genetically modified even though the apples are indistinguishable from the same variety of apples from trees with non-improved rootstock. If "from" genetic modification, food companies will also have to comply carefully with the traceability requirements for products of genetic modification because the compositional quality of the apples would not provide any scientific test as being "from" a genetically improved rootstock. In other words, these apples would be treated by the European legal regime like refined oils from genetically modified soybeans.

If these apples are made "with" genetic modification, European food companies would have no requirement to label

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these products as having any connection whatsoever with genetically improved crops. European law specifically exempts products made "with" genetic modification, but carrying no trace of the gene or protein, from being labeled as genetically modified. If "with" genetic modification, the European legal regime would treat these apples like breads made with genetically modified yeasts, like foods made with genetically modified enzymes, or like meat from animals fed genetically modified feeds.

Special Authorization

However, in Europe, even if the apples are "with" genetic modification and, thus, avoid the special labeling regime for genetically modified foods, the apple rootstock is genetically improved through modern biotechnology. Consequently, European law requires special authorization before the apple rootstock could be grown in European soils. As the European Union has only approved two genetically improved crops (a Bt-maize and an improved potato) in fifteen years of commercial production of genetically improved biotechnology crops, European food companies may be able to access these apples only from growers in other countries, like the US, where many genetically improved crops grow after gaining regulatory approval for release into the environment. US consumers thus likely benefit from this new production technique for apples. Whether European consumers will have access to these apples and, if so, with what label is presently unknown.

Labeling Concerns

Food companies, of course, are properly concerned about the impact that labels may have for their food products. Companies are worried about the regulatory burdens and direct economic costs of labeling that legal regimes impose upon their

products. But with respect to products from modern biotechnology, companies are most concerned about consumer reactions, especially as to those products mandated to carry the label "genetically engineered."

In the United States, the International Food Information Council (IFIC) conducts an annual "Consumer Perceptions of Food Technology" survey. In the survey for 2010, the IFIC learned that American consumers have minimal food safety concerns about food biotechnology (2%) and consumers did not even list food biotechnology as a type of food that they avoid. Moreover, when asked if they would purchase products from modern biotechnology if those products provided health and nutrition benefits or helped to meet the food demand in the United States and the world, American consumers gave favorable responses, in the 70% range and 51% respectively.

In light of the labeling regime existing in the US, food companies can have confidence in sourcing both the improved soybean oils and the apples grown on improved rootstock. Even if those opposed to food biotechnology organized a campaign against these food products, food companies can have confidence that large majorities of American consumers will continue to purchase food products from genetically improved crops.

European Sensitivity

Food companies in Europe are more sensitive to the use of ingredients from genetically improved crops because European consumer sentiment is less favorable towards modern biotechnology. Food companies in Europe have been especially reluctant to source ingredients that result in the product being mandatorily labeled as "genetically engineered" due to the EU labeling regime. However, as summarized by GMO Compass in a short article (April 16, 2009)

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titled "Opposition decreasing or acceptance increasing? An overview of European consumer pools on attitudes to GMOs," European consumers react much more often like their American counterparts than many assume. Specifically, GMO Compass concluded that "GM products having significant environmental or consumer benefits were rated positive by more than half the consumers and would be bought." Indeed, in a European Commission Project (No. 518435, Final Report 14 Oct 2008) entitled, "Do European Consumers Buy GM Goods?," the authors wrote, "We conclude that a major factor in governing the purchase of GM-products by Europeans is the decision of retailers to make them available to consumers. Thus, to the question "Do Europeans buy GM food?," the answer is "yes - when offered the opportunity."

In Support of Science

Consumers in Europe and the United States react favorably when the sciences of plant breeding and agronomy indicate that genetically improved crops can play a vital role in meeting

future food demand, domestically and for the world. While food companies can respond to this ethical or altruistic consumer reaction by sourcing ingredients like the soybean oils or apples used as examples in this piece, food companies may also respond with recognition that if they do not stand by the science of improved crops, they are forgoing the benefits of improved ingredients and foods for their customers.

Food companies should be loathed to trap themselves into marketing less healthy, less nutritious, and less safe foods at higher costs because the company is leery of modern biotechnology.

Failing to stand by the science is effectively ignoring advances in food science, food technology, and agronomy. Standing by the science is not just about "feeding the world's growing population"; it is also about providing one's customers with the best products available.

Food companies deciding to "stand by the science" can also assist consumers in learning about the significance and importance of science to food

security in Europe and the United States.

When those opposed to modern biotechnology expand their opposition to other modern breeding techniques (e.g., mutagenic crops recently vandalized in France by those calling these mutagenic crops as "hidden gmos"), consumers need assistance in understanding that present-day crops are products of modern breeding techniques based in science. Without the advances from science in plant breeding, consumers would face food insecurity, rather than food security.

Acceptable Standards

Standards about agricultural sustainability are beginning to emerge domestically and internationally. The International Standards Organization (ISO) and the American National Standards Institute (ANSI) are both working on standards that are technology neutral. Biotechnology is acceptable to these standards and may be able to meet these sustainability standards more easily than other farming techniques. Food companies can also use "niche

markets" though labels (such as "GMO-Free") to market products to those for whom avoidance of ingredients from genetically improved crops is a food purchase priority. Hence, food companies can choose to source ingredients from genetically-improved crops with confidence that they are meeting standards and satisfying consumer preferences.

Legally Favorable

As a final consideration, likely unique to the American legal regime, food companies should at least be aware of the slight risk of not using ingredients from genetically improved crops. If food companies purposefully avoid improved food ingredients having health and nutrition benefits (e.g., improved soybean oils), the day may come when American product-liability lawyers bring class actions claiming that their clients have suffered health and nutrition problems because they ate foods not made from improved ingredients.

Under American law, food companies might face product-liability claims based on design-defect. The design-defect claim alleges that a company produced a product that caused harm by the company refusing to use a safer, equally efficacious component to its product. Consumer expectations are part of the definition of what is or is not a design defect.

However, food companies will have no defense from liability on the basis that they did not use a safer, equally efficacious product because of organizations and consumers who campaigned against genetically improved crops and their products. By standing with science, food companies can take a longer view that may ultimately prove more protective of the food company's image and its profitability. ♦

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health and cosmetics ingredients. Moreover, NutriProcess regularly extends its technical expertise.

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