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FUTURE FOODS AND FADS

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Our future food supply promises to be unlike any that has come before. Consumer sophistication in the diet and health area and technological advances will dictate unprecedented flexibility; that is, the ability to cater to diverse and distinct market niches, including those concerned with diet and health.

Importantly, though, along with the ability to provide "new improved foods to meet the needs of everyone", comes the challenge to prepare and inform consumers about their new food options. Only informed consumers can successfully incorporate future foods into a healthful eating pattern. And, only informed consumers can make future foods the market success they must be to drive further initiatives in healthful food development.

I would like to give an overview of what some of these future foods might be, and the history behind the trends. Then I would like to bring to your attention an example of how the current food labeling reforms (1 & 2) fail to cover a "near future" labeling contingency that threatens to confuse and frustrate consumers--that of non-caloric, fat-based fat substitutes.

FUTURE FOODS: WHAT FORM WITH THEY TAKE?

Our food suppliers have already seen to it that nutritious convenience foods are readily available to the hassled and harried among us, as well as to the just plain pampered. For example, microwave technology is found in the majority of American households and "Zapping" has allowed for the proliferation of balanced, prudent, frozen and sous vide meals in supermarkets, and gourmet take-out entrees that shun fat, cholesterol, and sodium. The need for quick, attractive, and tasty foods that help consumers adhere to a healthful overall eating pattern is here to stay.

In this category as well are foods made with macronutrient replacements, such as fat substitutes, high-intensity sweeteners, bulk fillers, and dietary fibers. While the connection between excess macronutrients and degenerative disease is well-established in consumers' minds, continued adherence to a healthful diet has not been possible for many. To meet current and future needs for aids to achieve healthful eating, the food industry has put a high priority on developing products made with nutrient replacements. According to one estimate, more than 30 companies internationally have been engaged in sweetener R&D efforts and at least 15 are developing fat replacements. (3)

As a result, a wide range of fat replacers are currently on the market or in the various stages of development and regulatory (4) approval. For example, there are carbohydrate-based fat replacers including cellulose, gums, dextrans, maltodextrins, modified food starch, and polydextrose. There are also fat replacers based on protein, and even those based on a variety of non-caloric or reduced-calorie fats.

The demand for lower-fat products has grown so extensively that ~67 percent of adult Americans now consume low or reduced-fat foods and beverages. Moreover, the vast majority would like to see additional low-fat product choices that are not yet available (5). It's no surprise, then, that fat substitutes alone are predicted to be a \$375 million category by 1994.

Sugar replacers are also big business. A survey by the Calorie Council (5) found that ~100 million Americans now consume low-calorie foods and beverages. This number is up by 23 million from 1986. (6)

On the other side of the diet and health coin are natural, organic ingredients and products. This consumer niche is concerned about pesticides and other synthetics, such as sugar and fat substitutes, in the food supply. To meet the needs of this group, more and more organically grown and naturally prepared products are finding space in both health food stores and mainstream supermarkets. In fact, a government (7) report notes that annual sales of processed and fresh organic foods are now in excess of \$1 billion--up from \$174 million ten years ago.

This will persist in counterpoint to the proliferation of more fully processed foods as safety and environmental issues attract even more consumer concern.

What consumers leave out of their diets (i.e., their avoidance behavior) is only half of the diet and health story, though. Putting in adequate vitamins, minerals, fiber, and even phytochemicals is the other half. A class of food products has emerged for consumers who want to have their supplements and eat them too. The foods in this category are alternately referred to as "nutraceuticals," "functional foods," or "designer foods". These products are defined as edibles that have been formulated beyond basic nutritional content to prevent or cure disease. For example, adding antioxidants, fiber, or broccoli extracts to existing or new food products, exclusively for consumer health effects, qualifies foods for this category.

Nutraceutical/functional/designer foods currently are the rage in Japan and Germany (8). Analysts see a rosy future for this food category in our country as well (9). The market was estimated at \$2.5 billion in 1988 and is projected to reach \$7.5 to \$9 billion by 1995. Interestingly, a Gallup poll indicates that 87 percent of those Americans surveyed favor government support for nutraceutical research (10). In fact, our government is currently considering designer food research under the auspices of the National Cancer Institute (11). It's focus is on the effects, on cancer, of non-nutritive plant compounds (anutrients/phytochemicals) incorporated into processed foods.

Another distinct diet and health market niche that is sure to come our way is the individualization of consumers' diets to help control each person's unique, genetically determined health destiny. Within the next ten years, more or less, enough will be known about genetic markers for degenerative diseases to allow health professionals to create individualized diet plans on the basis of their client's genome (12). This individualized approach will make dietary adherence more compelling and the implementation will definitely require more specially formulated food products.

THE HISTORY BEHIND THE TRENDS

It is the growing awareness among both scientists and the public of the relationship between diet and chronic disease that catapulted such far-reaching changes in our food supply. This growing awareness culminated in the release of several reports from government and professional organizations containing dietary recommendations for the general public. Most notable among these reports are: The Surgeon General's Report on Nutrition and Health (13); Diet and Health: Implications for Reducing Chronic Disease Risk (14); Improving America's Diet and Health (15); and, Dietary Guidelines for Americans (16).

All of these reports support and promote the consensus among the nutrition community that Americans should: 1. attain and maintain a healthy body weight; 2. reduce fat, saturated fatty acids, cholesterol, and sodium consumption; and, 3. increase complex carbohydrate consumption.

Another important message to emerge is that of balance, variety, and moderation in food selection. This message reinforces the idea that there are no "good" foods or "bad" foods. Rather, every food has a place in a nutritious total diet when it is eaten in moderation.

In response to these reports, and the often-publicized findings they are based on, the American consumer has been clamoring for innovations in food technology to help in selecting low-fat, low-calorie, high-complex carbohydrate diets. In response to consumer demand for healthful alternatives, more than 10 percent of the ~10,000 new food product introductions over the last two years were lower in fat or calories (17).

By responding to consumer health needs, the food industry is helping the public to implement the dietary recommendations. These changes in the food supply are in line with directives from the National Academy of Sciences for the private sector as well (15). The directives include "increasing the availability of a wide variety of appealing foods that help consumers meet dietary recommendations." The private sector is encouraged to develop new products and to modify existing ones, as well as to gear marketing efforts to make these products user-friendly for everyone. The directives also include "promoting dietary recommendations and motivating consumers to use them in selecting and preparing foods and in developing healthful dietary patterns." Here, the private sector is encouraged to collaborate with other sectors to develop education and information programs and materials.

A FUTURE FOODS LABELING DILEMMA

What we have seen so far is that both consumer sophistication in the diet and health area and technological advances in the food industry have led to welcome changes in our food supply. Yet, consumer demand and technological advances can frequently outstrip consumer understanding. Unfortunately, if consumers can't assess a food's nutrition profile or choose the appropriate combination of foods to fashion healthful diets, America's health status won't change--no matter how many helpful products are on the market. Without adequate knowledge and understanding on the part of consumers, an education discontinuity results that inevitably leads to consumer confusion. This confusion, in turn, can dilute the effectiveness of many technological advances and act as a disincentive to develop others.

The new proposed nutrition labeling regulations are designed to minimize the discontinuity between consumer need and consumer action. Nutrition labeling reform has the following goals, as summarized by the FDA: 1. to clear confusion; 2. to help consumers make healthy choices; and, 3. to encourage product innovation.

Yet, there is one area on the food label relevant to future foods that has not been adequately addressed by the current proposals. That area concerns quantity disclosures and descriptors for foods made with non-caloric macronutrient replacements.

For example, the proposed regulations suggest that total calories, calories from fat, total fat, saturated fat, cholesterol, total carbohydrates, complex carbohydrates, sugars, dietary fiber, protein, sodium, vitamins A and C, calcium, and iron must be listed on a per serving basis. What message will the consumer get, though, if all or some of the fat in a food is a non-caloric fat replacer; or, if all or some of the carbohydrates in a food are from non-caloric carbohydrate replacers?

Let's look at mayonnaise. A one tablespoon serving has 99 calories, 99 calories from fat, 11 grams of total fat, and 1.2 grams of saturated fat. If this product were re-formulated with a fat-based, non-caloric fat substitute, the label would still list 11 grams of total fat yet the calories would be close to zero -- as would the calories from fat. What would a consumer make of this?

Moreover, if the product were re-formulated with a partially absorbable, highly saturated fat (such as stearic acid), the label would be even more confusing. What is a consumer to make of a reduced-calorie mayonnaise that has the full 11 grams of fat, and highly saturated fat at that? This mayonnaise is undoubtedly a healthier alternative to traditional mayonnaise but the consumer will be hard-pressed to realize this from the label.

The descriptors won't be much help either. According to the proposals, any claims about fat are based, in part, on the amount of fat per serving. To qualify as "Fat Free", a product must contain <0.5 gm of fat per serving, provided that it has no added ingredient that is fat or oil. To be "low-fat", 3 gm or less of fat per serving and per 100 gm of food must be met. A fat-based, non-absorbed fat is considered by analysis a fat in foods -- even though it will not be treated as a fat by the body.

Clearly what is needed is a means of labeling "available" fat, fat calories and saturated fat. This requires an appropriate test to quantitate these values in a consistent, reproducible manner. Obviously an appropriate revision in the regulations will be necessary to accommodate these new ingredients in order to permit consumers to effectively use products containing them to achieve more healthful diets.

CONCLUSION:

Future foods will certainly wear many different hats to meet the varied dietary needs consumers have. It is also clear that future foods will be here sooner than we think. Both the market demand and the technological know-how are well on their way to defining and delivering such a food supply.

We must be careful to keep consumers up-to-speed on how to enjoy their many future food options. This involves keeping the food label flexible enough to educate future consumers as successfully as we hope to educate the consumer of today.

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