The American Institute of Baking's Model System for Nutrition Labeling of Bakery Foods

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I. Introduction

A. History

Up until the present time, the cost of developing the information needed for declaring the nutrient content of bakery foods was not a serious problem. Since nutrition labeling was essentially voluntary, a company could simply not declare nutrient content on most products, if the cost was considered excessive. Enriched white bread, rolls, and buns were required to be nutritionally labeled because the term "enriched" as part of the product name was considered a claim relative to the nutritional value of the food.

Although some companies did voluntarily nutritionally label some of their products, most companies chose to not incur the cost required to develop the information needed for labeling bakery foods.

The Nutrition Labeling and Education Act of 1990 (NLEA) and its provisions for mandatory nutrition labeling of most consumer food products eliminated the option to not provide nutrition information. Furthermore, the requirement that nutrition information must be provided in labeling for unpackaged products extended nutrition labeling beyond what many of us expected when mandatory nutrition labeling was talked about prior to the NLEA and the regulations promulgated for its enforcement.

B. Need

Therefore, about the time the NLEA was signed into law, there was increasing discussion of the need for a lower cost alternative to laboratory analysis for nutrition labeling of bakery foods. There were literally tens of thousands of small bakeries (retail and in-store bakeries) that would be faced with the need to provide nutrition information for their products. Most of these bakeries would

produce several hundred products and were facing costs in excess of $100,000 in order to comply with the new requirements. Faced with this type of expenditure, many operations were forced to consider shutting down. The economic burden was no less severe for the larger wholesale baking companies, even though their sales dollars might be well above the small business exemption level set by the NLEA.

AIB began to think seriously about developing a "data base" for the nutrition labeling of bakery foods. We thought this could be an excellent service to offer to the baking industry.

C. Approach

We soon realized, however, that a simple data base of nutrient content information for specific bakery foods was not going to work. The "real world" situation was much more complicated that a simple nutrient profile for chocolate chip cookies or multi-grain bread. There are too many recipes for each individual type of bakery food to allow one nutrient profile to apply to all variations of the product. There are rich, high quality chocolate chip cookies, and there are less rich, lower costing chocolate chip cookies for the shopper with economy on the mind.

Therefore, in consideration of regulatory compliance requirements, it became obvious that meaningful nutrition information for a product would have to be formula specific. Nutrient content data should be generated from information on the specific ingredients used in a specific formula. There might even have to be adjustments for changes caused by processing.

We were not sure of the degree of cooperation we might receive from ingredient manufacturers who would be expected to provide nutrient content information on the ingredients they supply to be baking industry. Also, we were not sure of the extent to which the baking industry would be willing to release formula information even under a signed nondisclosure agreement. We were sure, however, that if we decided to move ahead, we had a tremendous task ahead of us.

We began to contact ingredient suppliers and assessed their attitude toward cooperation. We asked bakers to indicate their interest by contributing to the financial cost of developing the program. Response was generally positive from both suppliers and bakers.

Our program started with a small scale feasibility study and, as we continued to get positive results, we continued to expand our program. One of our initial primary objectives was to obtain FDA acceptance of our end result for use in nutrition labeling of bakery foods. Therefore, we knew we needed FDA's input in terms of characteristics of the end product and how to demonstrate the efficacy of the system we were developing.

D. Interaction with FDA

We wanted FDA's cooperation and guidance because of its policy on data bases as stated in the Federal Register on December 21, 1979 (44 Fed. Reg. 75990): "If products bearing nutrition labeling in accordance with properly (FDA) evaluated nutrient databases and manufactured in accordance with good manufacturing practices are found not to be in compliance with applicable nutrition labeling regulations, the agency will work with the firms responsible for the product in question and with the appropriate authorities who are maintaining the applicable nutrient data base to correct the problem before initiating compliance provision actions."

We met frequently with the staff at FDA's Center for Food Safety and Applied Nutrition. We

answered questions, our progress reports were critiqued, and we received advice on how to meet FDA's nutrition labeling compliance requirements. We were told early on that it would be difficult for FDA to accept our data base for labeling bakery foods if we simple sold the data base and computer software for converting formulas to nutrient content information. We needed a "system" for managing the program and ensuring its continued validity.

We received from FDA on January 6th of this year, a letter signed by Dr. Fred Shank, stating in part, "...the model system developed by AIB may be used on an interim basis for labeling purposes, provided that AIB agrees to continue working on the system to meet the above criteria. At the end of a two-year period FDA will again review the status of your model system to determine what further corrective actions might be necessary."

II. Description of AIB's System and Method of Operation

A. The System

We emphasize the term "system" in describing the service we are offering to the baking industry, because our program is indeed a system and not just a data base of ingredient information coupled with a software program for converting formulas to nutrient content information. We do, of course, have a data base of ingredients and nutrient content profiles on these ingredients. And, we do, of course, have a software program for converting formula, processing, and finished product information to nutrient content information meeting the requirements of regulations promulgated to enforce provisions of the NLEA for nutrition labeling.

In addition to these vital components, our system includes the following:

1. Technical review of nutrient content information provided by ingredient suppliers.

2. Technical review of formula, processing, and finished product information provided by bakeries using our program.

3. Technical review of end product label information generated by our computer program.

4. Continued monitoring of the system and verification of its efficacy in providing valid nutrition labeling data.

A brief discussion of each part of our system follows.

1. *Technical review of ingredient information.* A key component of our system is the nutrient content information on the ingredients used by baking companies enrolled in our program. The baking companies submit to us on our forms a listing of ingredients, brand names, and suppliers. If the ingredient is not already in our data base, we contact the supplier and request the specific information we need.

We review the information provided by the ingredient supplier to determine its suitability for incorporation into our data base. The vast majority of technical information is quite satisfactory, but we have also encountered a number of errors that might be overlooked by someone not qualified to conduct such a technical review.

a) One product was reported to have 120 g. of carbohydrate in 100 g. of the product and a calorie content of 841.5.

b) Many suppliers fail to report saturated fat in addition to total fat and the break down of total carbohydrate into sugars and total dietary fiber.

c) The total proximate analysis of one product totaled only 57%. We had no way of knowing what was in the remaining 43%.

d) The 351 calories reported for a blended product were contributed by the 39 g. of fat (39 X 9 = 351). The product reportedly had no moisture. What constituted the remaining 61% of the product? Surely some of it was protein or carbohydrate at 4 calories per gram.

e) Even though asked to provide the calories in 100 grams of product, one manufacturer reported 25.5 calories per 7.09 g.

We feel the technical review of ingredient content information is an essential part of our total system. Whenever nutrient content data for ingredients are added to a data base, the information must be screened for accuracy by a trained individual to avoid errors that could lead to false label declarations.

2. *Technical review of formula and processing information.* Bakers are asked to submit formula and processing information on our forms. This information is reviewed for completeness and obvious errors prior to processing for nutrient content calculation. Again, although the vast majority of forms are complete and correct, we still encounter a number of situations that need some type of modification before accurate nutrient content information can be calculated.

a) There is considerable confusion over determination of label serving size; this is sometimes reflected in wrong information being submitted on the forms we receive.

b) Information on yield of finished product from a batch of dough or batter is critical in calculating nutrient content of the product; our expert baking technologists are able to detect most major errors in reporting of yield.

c) Ingredients are sometimes listed with incomplete designations (dry or liquid eggs, type of sweetener in "liquid sugar", enriched or unenriched flour, etc.). These require follow-up contact with the bakery.

d) When a company submits there own version of a computerized formula sheet in place of completing our form for formula and process information, we some times find omissions and incomplete declarations.

This technical review process helps ensure the validity and accuracy of the nutrition labeling information generated by our program.

3. *Technical review of final nutrition labeling information.* Finally, before the nutrition facts information generated by our system is forwarded to the participating bakery, we provide one last technical review to ensure that no gross errors have occurred. We cannot, of course, verify the accuracy of each number, but we can certainly determine whether or not the information appears to be correct for the product in question.

B. Operation of the System

In response to requests for detailed information concerning the system, we distribute a package of information. This package includes:

1. A signed nondisclosure of proprietary information agreement. We commit to maintaining as confidential any proprietary information provided to us by a client using our service.

2. Forms and instructions for providing ingredient information.

3. Forms and instructions for providing formula and processing information. Examples of completed forms are provided to illustrate how information is to be submitted.

4. An example of a final report.

We have imposed some limitations on our system. We are providing nutrition labeling information for mandatory ingredients plus thiamin, riboflavin, and niacin only. We do not provide information for voluntary declarations such as monounsaturated fat, soluble and insoluble fiber, potassium, etc.

We are not making recommendations on the possibility of using optional formats. This is, however, a service we might provide under separate contract with a client.

We advise clients that nutrition labeling information should be recalculated if a formula or ingredient is changed in a way that might effect declarations.

The system is operational. We will increase computer input staff as needed to keep up with demand. We expect our work to peak in July and August and fall off rapidly as we approach October. This will give bakers the time needed to order and receive delivery of new packaging material before the effective date of May 8, 1994.

Following this initial surge of activity, we expect a continuing, but much lower level of activity as bakers develop and introduce new products or modify current products.

III. Current Status

A. Ingredients

At the present time, we have approximately 6000 ingredients in our data base. These are ingredients used specifically by bakeries planning to use our service. For the most part, they are listed by brand name and include various types of flours, sweeteners, shortenings, and all other ingredients commonly used in the baking industry. The data base also includes a number of formulated ingredients such as mixes, fruit fillings, icings, etc.

Ingredients that are essentially pure chemicals are listed generically. These include materials such as salt, chemical preservatives, emulsifiers, sugar, gums and other stabilizers, etc.

B. Baking Companies

Approximately 300 wholesale and large retail baking companies are currently participating in our program. Another approximately 200 companies have requested the forms and instructions. The Retail Bakers of America's program will go on stream about June 1st and will bring hundreds

of smaller retail bakers into the program. We expect to end up with at least 1000 companies in the program.

C. Formulas Processed

We have processed about 2000 formulas and have recently reached an output of several hundred formulas per day. Our anticipation is substantially higher than 2000 formulas or 200 per day.

IV. Future

A. Continuing Operations

We expect activity to drop off substantially as our clients receive the information needed to have packaging or labeling material in compliance with requirements by May 8, 1994. However, we expect a continuing low level of activity as bakers develop new products, change formula for existing products, or convert to new ingredients.

We are planning to offer additional services that would utilize our data base and be of value in the development of new, improved, or modified products.

We are not anticipating a major broadening of our market beyond the baking industry.

B. Maintenance of System

An important part of our commitment to FDA in developing this model system was the continued maintenance of the system. We will keep the program operational so it can be used to update data when formula or ingredients are changed. We plan to contact suppliers on a regular basis to inquire about changes in ingredients that might effect the nutrient content information in our data base.

We plan regular communication with our bakery clients as a mechanism of relaying new information or reminders to recheck calculated labeling data.

C. Monitoring the System

Within the next month or two we hope to initiate a new series of contacts with FDA as required by the letter of acceptance of our system. One of the major items of discussion will be the mechanism for monitoring the continuing validity of our model system. We have a two year time period in which to determine what further corrective actions might be necessary in order to maintain the use of the system for labeling purposes.

V. Summary

The American Institute of Baking, with the cooperation of bakers, ingredients supplier, and most of all the FDA, has developed and is implementing a model system for determining the information required for the nutrition labeling of bakery foods. This system has been accepted by FDA for use in labeling of bakery foods. We have committed to a continuing maintenance of the system and a relationship with FDA in monitoring and improving the system.

This system not only offers the baking industry considerable relief from the economic burden of

complying with the requirements of mandatory nutrition labeling, but helps fulfill one of the objectives of the Nutrition Labeling and Education Act of 1990---to provide meaningful information on nutritional characteristics of food products as a means of assisting consumers in choosing foods for a more healthy diet.