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LINKING PRODUCTION WITH NUTRITIONAL CONCERNS. INDUSTRY RESPONSE

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The American food system, farm to the table, has achieved remarkable success in linking production with the nutritional "concerns" of the consumer. The evolution of our society from primarily rural into an urbanized, fast-paced society has brought about changes in consumer "needs." Food was once regarded in terms of "subsistence." Today, the availability of food is taken for granted, permitting the modern consumer's food "needs" to focus on not only wholesomeness, but convenience, tastiness, all for less money, in terms of disposable income, than was spent by their ancestors.

In the early days of this country, the linkage between food production and nutrition was direct and readily recognizable. The success of the pilgrim's agricultural activities made a direct impact measured by the difference between having a full stomach or frank malnutrition. As the pioneers moved westward, hardtack and salted jerky were displaced with better tasting, more convenient canned products. Today canned and frozen foods are challenged with microwaveable, irradiated, or aseptically packaged products of exceptional quality which allows the consumer greater freedoms to pursue individual priorities. It is not surprising that the success of the food system has fogged our roots to agriculture. Our greatest nutrition needed today is not subsistence but rather of excess. No wonder the urbanized homemaker has become complacent to the point where the classical bumpersticker "Why worry about the farmer as long as we have the supermarket" seems to be reflective of society today.

Key to concept and to my remarks regarding the "Industry's Response" is the recognition that our food system has evolved to meet changing consumer needs. As new food needs were created as a result of changing life-styles, opportunities were also created to meet those needs. This step-wise progress, cast in a highly competitive environment, continues to work today. Subsistence is now satisfied: Quality, wholesomeness, taste, and convenience are all available. Meeting the consumer's need for health and longevity through food now presents unparalleled challenges and opportunities.

The linkage between food production and nutrition has also become fogged because of the lack of a clear understanding of our nutritional expectations of our food supply. Satisfying hunger, curing vitamin and mineral deficiencies were relatively direct examples of the relationships between the availability of food and how a person felt. The nutrition problems of today, overnutrition and associated chronic diseases, are multifaceted and occur over a long period of time. Linkage of any one component of a varied dietary to an individual's overall health and well-being presents unique challenges.

The food industry, because of the competitive nature of the business environment, has become extremely efficient in identifying and meeting consumer needs. Here linkages between production and nutrition are very evident. The consumers need (real or perceived) to be slender, healthy, and free of risk of the chronic diseases have been quickly sensed, evaluated, and translated into products with attributes that provide the desired point of difference. Production of specific food products take the form of low calorie, low fat, low cholesterol, low salt, or high vitamin, and/or high fiber food products available, in a competitive environment, with other food choices. With the consumer awareness and interest in nutrition at an all time high, the linkages with food product development are indeed alive and well.

These direct linkages are also readily apparent in the animal product section of the supermarket. The consumer "need" for leaner cuts of meat, the perceived benefit of chicken and fish and the preference for low fat milk have had a major impact. However, because of the nature of these markets the production component of this equation has been slow to change, yet change has occurred.

Direct linkages between other agriculture sectors of the food system and nutritional concerns of the consumer are less apparent. This is likely due to the farmer's direct customer, the processor, is less focused on the nutritional attributes of the commodity per se. The farmer's primary objectives have been to raise crops which provide a return on their investment of money and effort. Commodities that have desired functional qualities have been successful in changing agriculture production practices. However, before nutritional concerns are successfully introduced into the farmers decision tree, it will be necessary to demonstrate that changes in agricultural practices are the most cost/effective route to accomplish the objective of improved nutritional well-being of the consumer. There would be little interest in a nutritionally superior crop variety unless it also had equal or better agricultural characteristics and could be harvested, processed, and distributed separately and then presented to the consumer with a meaningful point of difference at a competitive cost.

For example, why would Quaker seek to develop a variety of oats with twice the B-Glucan content, twice the protein and vitamin content when we know the costs would be high (in time and effort) and the chance of success low, especially when we already know the nutritional parameters in question can easily be achieved through existing technology once the raw commodity is received at our processing plant. Nutritional manipulation of a single food either through agricultural practices or by processing technologies will likely have only a minor impact on the overall "real" nutritional health of the consumer who is eating a variety of foods throughout their lifetime. To recommend or initiate major changes in the food system based on perceived nutritional benefits would appear to be ineffective use of resources.

The role of the agriculturist in providing nutritional benefit will likely be more long range and indirect. As new varieties of crops are developed, either through conventional plant breeding or biotechnological techniques, there should be an understanding of the eventual end use, including nutritional role, of the product. Genetic alteration for improved yields, disease resistance, etc. should not be made at the expense of the nutritional profile of the commodity. In order for genetically manipulated crops to be successfully introduced into the dietary mainstream, issues related to agronomics, processing, distribution, and consumer need will have to be addressed concurrently.

Thus, from a food processing industry perspective, the linkages between production of finished products and consumer nutritional concerns are real and closely associated with future successes in the marketplace. These issues are clearly included as priorities in the minds of the modern consumer. It is unlikely, however, with possibly the exception of the animal product industry, that agriculture practices will, in the near term, be directly linked with nutrition concerns.

If there is to be more effective linkages between food production and the nutritional needs of the consumer, the U.S.D.A. will likely be required to take a greater role in coordinating and encouraging the various segments of the food chain to work toward this common goal. The U.S.D.A. is uniquely qualified to provide the needed leadership.

The processing food industry, only one segment in the food system, is not a monolith. The resources and "way of doing business" within this segment of the food system are diverse and very independent to lump all industries involved in the food system as one entity, while convenient for conference organizers is unrealistic.

For the most part the members of the processed food industry have neither the resources nor the intent to establish the necessary foundation on which to strengthen the linkages between food production and human nutrition.

The dietary surveys needed to establish the nutritional status of the public at large and the development and maintenance of a data base for the nutritional value of the foods available for consumption can best be coordinated by a governmental agency such as the human nutrition information service. These surveys help the industry better understand and differentiate between business opportunities based upon "real" or "perceived" nutritional need.

The U.S.D.A. human nutrition research projects conducted through the agriculture research service and cooperative state research service continue to clarify the goal we are trying to attain with respect to human requirements, bioavailability of nutrients and the "real" role diet may have in health promotion and prevention of chronic diseases. Nutrition is a dynamic science. The answers to pertinent questions will be derived from a long term commitment to basic research which has been effectively managed and coordinated from a broad perspective of how the information may fit into the many facets of feeding people. The U.S.D.A. efforts in human nutrition research clearly have a long range value in providing a better base for linking production to nutritional concerns. Research programs focused on plant and animal production should continue to recognize the end use of their respective commodities and consciously address the nutritional impact of their research programs. Finally, the ARS research laboratories directed toward crop utilization play a key role in enhancing the linkages between production and nutritional value of the food supply. The food processing industry is varied with respect to the efforts applied toward basic research related to food science and technology. For the most part the R&D focus is comparatively myopic. Long range issues with respect to the evaluation and development of processing techniques or development of novel foodstuffs having enhanced nutritional value are addressed only by a small portion of the food processing industry. The ARS research programs are of great assistance to the industry at large and in turn the consuming public by making basic information available to a larger segment of the industry for more practical application.

Finally, the U.S.D.A. cooperative extension service also play a central role in strengthening the linkages between production and nutrition needs. Their nutrition information and education programs, directed toward the medical, health professional and lay public, help dispel many of the unfounded fears concerning the wholesomeness of the food supply. An informed public is better prepared to separate "real" nutrition issues from those "perceived" to be of importance. An informed, discriminating consumer can evaluate the endless barrage of nutrition/health messages provided by the media. Nutritional needs of the public which are based upon a solid science, add stability to the food production system. When these consumer nutrition issues are registered by a large enough number, the industry will respond with products that meet these needs. Successful products, in turn beget other product introductions with similar characteristics and changes in the food supply occur.

In summary, what segment of the food production system then can most effectively respond to the nutritional needs of the public?

This issue was addressed last year by the U.S.D.A. human nutrition board of scientific counselors. As part of this process, a series of workshops were held with plant production scientists, animal production scientists, and with food technologists. The report of these workshops provide a good deal of "food for thought." The result of these discussions was a consensus that the most effective means for affecting the nutritional value of the food supply would occur once the raw commodities reached the processor. The primary contribution of the plant production segment of the food system should be to continue to provide a uniform high quality, cost effective, raw material to the processor and maintain and expand the commodity base from which the food technologist could draw their basic ingredients.

The animal production segment may likely more directly impact on the nutrient composition of the products available to the consumer, especially with respect to the level of fat contained in meat and dairy products. However, until pricing and grading standards are modified to encourage equal or improved return to the producer there will likely be justified resistance to change.

Collectively, the U.S.D.A. and the operating agencies within the department have the potential to encourage the needed interdisciplinary research and communication efforts across all segments of the food production system.

Technical transfer and education throughout all segments of the food system from farmer to consumer are important to the continued evolution of the food system toward meeting the stated lofty goal. The food processing industry along with other industries must be full partners in both identifying problems and devising solutions.

Change must be based upon sound science so as to avoid misinterpretation. Science based food and nutrition education programs for the media professionals and consumers will add stability to the food system.

Finally, the continued coordination of the private industry, federal and stage agencies and the consumer will be needed in order to accomplish this common goal.