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## FOOD RESEARCH Is Not *Just* Production Research

In a series of recent editorials, I have discussed support for food research and the priorities for that research. World population and food availability have been the topics of a number of conferences, workshops, and speeches by leading statesmen, and this emphasis on the growing gap between food supply and demand on a worldwide scale quite understandably forces our attention on the production aspects of food research.

It is equally important to keep our food research activities in balance, however, because merely producing the basic food crops will in no way overcome hunger and starvation. It is tragic, indeed, that somewhere between 25 and 35 percent of the food produced never reaches hungry humans because it is spoiled or consumed by rats, rodents, or other vermin. It is apparent that at least 30 percent more food can be made available for the increasing population just by eliminating these losses.

While the loss of food supplies through spoilage and consumption by vermin is easily recognized, other equally important but more subtle and less understood causes constantly reduce the value of food. Simply stated, the nutritive value of food changes, often to its detriment, following harvest of the basic food source. Nearly 95 percent of the food consumed today is processed in some way. Few people realize that foods are really very complex systems of chemicals that constantly change, both while an integral part of a plant, animal, fish, or fowl and, often more rapidly, when excised or harvested from their "hosts." A whole body of science has developed that is concerned with understanding all of the physical, chemical, and biologic changes that occur in food from production through processing and preservation to consumption. Food scientists and nutrition specialists represent an important component of our food research teams. The more we learn about the after-harvest physiological activities of our food crops, the more chances we will have to influence

these activities to preserve their optimum nutritional quality.

The nutritional quality of food is a topic of national interest, resulting in passionate speeches by national figures as well as legislation that is not always based on adequate scientific data — e.g., nutritional labeling of fresh fruits and vegetables.

Much research is needed in the field of food and nutrition. While there is great public and governmental interest in the safety of food additives and in nutritional labeling, we also need new and approved means of measuring important nutrients; we need increased understanding of the relation between the availability of some food nutrients and human health; and we need to continue and perhaps increase research on nutrient stability during processing, storage, and distribution.

Unlike the nonbiological products of our factories, food, the biologic product of our natural resources, consumes *itself* whether it is used or not. If we were to concentrate only on the productive phases of the food cycle, we would be guilty of promoting a wasteful practice and would also likely find that our efforts to provide enough food for the billions of hungry people in the world would be neutralized by the detrimental effects of poor quality food.

My purpose here is to remind all of us who manage agricultural research and hopefully those who fund the research that there is a vital link between agricultural production, food science, and nutrition. All parts of this research system need adequate support to optimize the gains made in any part of the food system. Our biggest challenge in managing ongoing research is to moderate the diversionary influences of legislation, earmarked appropriations, and sometimes public opinion, which detract from the main goals. This can be accomplished largely only through increased understanding and improved communication with our "publics."