The need for dietary goals is obvious. It is clear that the consuming public has a definite need for guidance in making appropriate food selections that will ensure, insofar as possible, the consumption of a diet providing the essential nutrients and ensuring maximal health. The selection of such a diet is not a simple matter and must be based on current scientific information. The public cannot be expected to be conversant with the scientific information and therefore this information must be translated into food terms which the consuming public can understand and use. The need for such goals should be inherent in any national food and nutrition policy. Such a policy, developed by the National Nutrition Consortium, has been incorporated in previous reports from the Senate Select Committee on Nutrition and Human Needs. Dietary goals are an important component of any national policy for once established and accepted by the public, they have significant impacts upon food production and processing systems. Any effective national policy must also involve an effective education component which will assist consumers in understanding and adopting the enunciated goals.

Recently the Senate Select Committee on Nutrition and Human Needs has published a set of dietary goals. This effort is laudable, but unfortunately the goals leave a great deal to be desired. In many respects these goals are not based on the contemporary science and if implemented would not be in the public interest. I will attempt to point out that these goals are not based on the whole of the scientific evidence available, that they fail to recognize significant problems which exist in our society, and unfortunately, fail to recognize the possible negative impacts which their implementation might have.

Ideally dietary goals should take into account those positive aspects of our current national diets and should assist in sustaining them. Further, they should correct the poor eating habits which can be identified. The American diet has been referred to as "pathogenetic" by some and as "disastrous" by others, implying that our diet has "deteriorated" in the past 50 to 75 years. I submit that such a conclusion is erroneous and misleading. The American diet today is better than ever before and is one of the best, if not the best, in the world today. There is much supporting evidence for this statement. One need merely consider the stature of the current generation of Americans which is coming closer and closer to the achievement of maximum genetic potential. We have virtually eliminated morbidity and mortality from acute nutritional deficiencies. A prime example is pellagra resulting from niacin deficiency, which claimed thousands of lives only a few short decades ago but which is virtually unheard of today. The same could be said for rickets

*The views expressed in this paper are those of the author and not necessarily those of the USDA.
which was overcome by the fortification of milk with vitamin D and of goiter which was eradicated by the iodization of salt. We have seen a remarkable increase in the life expectancy of the American population. We have seen many improvements in the quality of our food supply as measured by its safety, wholesomeness and variety, it is unparalleled in the world today. Taking all of these factors into account, it seems abundantly clear to me that we can put to rest serious concerns about the quality of our diet and any consideration of returning to the diet of days gone by. Any notion that a return to the diet of the past would improve the well-being of Americans is nostalgic nonsense. Rather, we should identify existing nutritional problems and attempt to develop solutions to them. This, it seems to me, is the appropriate challenge of today and the challenge of developing appropriate goals for the American population.

The goals developed by the Senate Select Committee imply that we have been a nation without dietary goals. This is not completely true. Admittedly we have not had a national food and nutrition policy to give visibility to dietary goals but assuredly we have had guidelines which have served effectively to direct many food and nutrition programs in this country. The guidelines of which I speak are the Recommended Dietary Allowances (RDA) initially established by the Food and Nutrition Board of the National Research Council in 1941 and periodically revised since then. The RDA's were initially developed as a basis for planning food supplies for the military. They have proven to be equally valuable in planning food supplies for the civilian sector of our population and have served admirably as a basis for a variety of feeding programs within the U.S. Department of Agriculture. The RDA's have also been the basis for the establishment of guidelines for nutrition labeling by the Food and Drug Administration. Admittedly the RDA's are considerably different in evolution and purpose from the Senate Select Committee's Dietary Goals for the U.S.

The RDA's differ from the Senate Select Committee's goals in that the former are based on the requirements for known nutrients. The RDA's represent an attempt to establish an allowance that will meet the needs of virtually the entire population. The goals developed by the Senate Select Committee on the other hand really reflect an attempt to provide guidelines for the prevention and/or cure of diseases considered to be public health hazards. Any dietary guideline must have, as a fundamental basis, the objective of meeting essential nutrient needs and, secondarily, must deal with other recommendations that would contribute to ensuring the public health. If such guidelines are to deal with the prevention of specific diseases, there should be a sound scientific basis for their establishment and they should not put any segment of the population at nutritional risk. Unfortunately, the Senate Select Committee's dietary goals have not provided this assurance and they are not based on the whole of available scientific evidence.

The dietary goals, published by the Senate Select Committee, assume 1) that the diseases of primary concern, namely cardiovascular disease and cancer, are of epidemic proportions in the U.S., and 2) that appropriate dietary modifications can delay or prevent these diseases. I would like to spend a brief time reviewing these two fundamental assumptions. There is little question that the proportion of the U.S. population dying from cardiovascular disease and cancer has increased dramatically over the past 50 years. I submit that this
is not surprising and is to be expected. Accompanying the increase in mortality from cardiovascular disease and cancer has been a significant reduction in mortality from infectious diseases. Advances in medical science have greatly reduced mortality from such causes as tuberculosis, pneumonia, etc. The old adage that "death and taxes are assured" remains to be disproven. Consequently, one would expect that the elimination of death from infectious diseases would simply involve some other cause of death becoming primary. Accompanying the improvements in medical care, sanitation and nutrition has been an increase in life expectancy and an increase in that segment of our population above the age of 65. This proportion of our population has increased significantly over the last several decades and continues to grow. The diseases of primary concern to the Senate Select Committee, namely cardiovascular disease and cancer, are chronic diseases. The probability of incurring these diseases grows with advancing age. Thus, with an older population an increase in both of these diseases is predictable. This is obvious when one examines mortality statistics on an age adjusted basis. While the total number of deaths from cardiovascular disease and cancer have increased over the last several decades, the mortality rate expressed on an age adjusted basis has not increased significantly and, in fact, for cardiovascular disease has shown a significant reduction. Thus, the urgency for changes in diet and life style to control the rate of increase of these chronic diseases is not supported by available evidence. This certainly does not imply that we should not direct our attention to further reducing morbidity and mortality of chronic diseases, for clearly that should be the direction of our research and educational efforts.

I would now like to turn to the scientific basis for the establishment of the Senate Select Committee's Dietary Goals. It is implied that the high incidence of cardiovascular disease in this country stems directly from an increased consumption of fat, particularly saturated fat, and cholesterol. It is clear that elevated blood cholesterol levels represent a risk factor in the development of cardiovascular disease and that diet can influence circulating cholesterol levels in some individuals. It should also be recognized that diet is not the only factor affecting circulating cholesterol levels nor is the blood cholesterol level the only, nor the major, risk factor in cardiovascular disease. The concept that dietary modification will prevent or delay atherosclerotic heart disease remains a hypothetical and not a demonstrated fact. While it may seem "prudent" to modify one's diet on the basis of existing hypotheses, it hardly seems a sufficient basis for the recommendation of major dietary changes for the entire population. There are many other risk factors associated with the development of cardiovascular disease. The relative importance of each varies from individual to individual and requires a comprehensive evaluation of the relative risk factors for each individual. Considerable controversy exists among specialists as to the relative value of dietary modification. There is no consensus upon which to establish definitive dietary guidelines for the general population. The Senate Select Committee's report also implies that the intake of sugar contributes to the increased risk of cardiovascular disease in the American population. This conclusion is contrary to the views of most experts in the field. Such a hypothesis has been put forth but experimental evidence supporting the hypothesis is completely lacking. Furthermore, the recommendation for an increased intake of polyunsaturated fatty acids may represent a risk which has yet to be fully evaluated. On the basis of the totality of available evidence, it seems highly premature to make any major
recommendations for dietary change for the prevention of cardiovascular disease. Rather, it would seem far wiser to recommend the establishment of a system for the evaluation of individuals to establish that segment of the population at risk and to make appropriate dietary and other recommendations for these individuals.

The report of the Senate Select Committee proposes that a relationship exists between diet and the incidence of cancer. Evidence for such a relationship is extremely meager. The available evidence is strictly epidemiological in nature and remains to be verified experimentally. Such evidence is at best suggestive and cannot be accepted as a reasonable basis for recommending dietary changes. The recommendation of the Select Committee that a shift from foods of animal origin to those of plant origin would protect the population from cancer is unfounded and is not supported by available evidence. Consequently, these recommendations, like those dealing with cardiovascular disease, are premature and unsound.

The Senate Select Committee has recommended a significant reduction in the intake of salt as a means of reducing the incidence of hypertension. Again, this recommendation is based on a modicum of tenuous information. The available evidence does demonstrate that excessive salt intake can induce hypertension in a segment of the population. There is debate as to the proportion of the population whose blood pressure would be influenced by salt intake but it is generally agreed that this represents a relatively small proportion of the population. The desirability of reducing the salt intake of the total population must be carefully examined. It may be wiser to establish means of detecting those individuals at risk and to advise this group of desirable dietary changes. It should also be recognized that not all hypertensives will respond to a reduction in salt intake. Further, virtually all professionals examining the dietary goals of the Select Committee are in agreement that the recommended level of salt intake of three grams per day is excessively low and represents a level which is not achievable.

There are health problems which exist in this country and which should receive attention. Dental caries, obesity and iron deficiency anemia have been identified by several surveys as problems warranting attention. There is also preliminary evidence suggesting that certain population segments have marginal intakes of certain trace elements, particularly zinc and perhaps chromium. These problems deserve attention.

The problem of dental caries has been researched to a significant degree, but the need for further research is evident. It is known that sucrose will contribute to dental caries, however the contribution is not so much a quantitative one as a matter of the form in which sugar is consumed. Sugar in the form of sticky candies remains in the oral cavity, in contact with the dental enamel, for significant periods of time and provides an ideal environment for the proliferation of acid producing microorganisms responsible for the initiation of caries.

The problem of obesity is recognized, however the solution to this problem is not as evident. Certainly reduction of body weight to a desirable level
involves a reduction in caloric intake. However, the achievement of that reduced intake remains difficult and is an area requiring further research. National dietary goals should certainly recognize the existence of obesity as a problem and provide incentive to reduce caloric intake. In this regard a reduction in dietary fat could be supported, since this is the most calorically dense component of our diets.

The intake of foods with low nutrient content is partially addressed in the Senate Select Committee's report. Unfortunately the report deals only with the intake of sugar and fails to recognize the fact that other foods, such as alcohol and oils and shortenings can also provide significant calories without providing other nutrients. The Select Committee's report erroneously implies that our intake of sugars and sweetners has increased dramatically in recent decades. In fact, our intake of sugar on an absolute basis has not increased significantly since 1925. What has changed is the form in which sugar is purchased and utilized. A half century ago most of the sugar was purchased as such and utilized in the home. Today a smaller proportion of sugar is purchased for home use and the greater proportion is consumed in pre-prepared products, such as baked goods. However, it should be recognized that the proportion of calories derived from sugar has increased, for while the absolute amount of sugar consumed has remained unchanged, our per capita intake of energy has declined. Thus, our consumption of sugar as a percent of calories has increased. There is no evidence that this increased proportion of calories from sugar has any detrimental effect but it should be recognized that sugar is one of those foods having a low nutrient content and from this standpoint a reduction in its consumption might be warranted.

One of the significant concerns regarding the American diet is the fact that due to our sedentary life styles, the consumption of calories is declining steadily. If we are to deal successfully with the problem of obesity, a still greater reduction will be required. The requirement for other nutrients remains essentially unchanged even though caloric intake decreases. Consequently, in order to meet nutrient needs, it becomes important to increase the nutrient density of those foods which are consumed. This requires an even more careful selection of foods to comprise a complete diet, a task which is virtually impossible for some nutrients at very low caloric intakes. For example, it is not unusual for women in the U.S. to be consuming as few as 1500 to 1700 calories per day. On this caloric intake it is virtually impossible to meet the 18 mg RDA for iron in the premenopausal woman. In such individuals the iron requirement can only be met by increased fortification of certain foods or by the use of iron supplements. This appears to be true for other nutrients such a zinc and copper. Consequently, any recommendation for a change in diet must carefully assess the impact that such changes would have on the intake of essential nutrients. To my knowledge this has not been assessed for the changes which the Select Committee has recommended.

It seems that the recommendations for dietary change made by the Select Committee have not been evaluated from the standpoint of other potential, undesirable impacts which they might have if implemented. For example, it is recognized that a significant proportion of the total iron consumption by the U.S. population is derived from meats and meat products. Further, it is recognized that a large proportion of the iron derived from meat is in the form of heme which has a much higher availability than does nonheme iron. If the
recommendations of the Select Committee were followed, the likely effect would be a significant reduction in total iron intake and a decreased availability of that iron which was consumed. If this were to occur, the effect on the problem of anemia, which already appears to be widespread, would be disastrous. Thus, the recommended changes cannot be made without recognizing the need for increased iron fortification or somehow increasing the availability of iron from sources other than meat. Similarly the American population derives a significant proportion of its dietary zinc from meat. A reduction in meat intake would result in a significant reduction in zinc consumption. Further, the increased intake of cereal grains would increase the dietary content of phytic acid which is known to bind zinc and reduce its availability. Thus, there is a high probability that implementation of the Select Committee's goals would result in serious zinc deficiency in some segments of the population.

Careful evaluation of the Select Committee's recommendations, demonstrates that they are not based on the available scientific information. Further, there are many inconsistencies and outright errors in the development of the goals. The errors of omission and interpretation are sufficiently great as to cause serious concern if they were taken seriously and applied to any current feeding programs.

There is a need for sound dietary goals to guide feeding programs and to guide individual consumers in their food choices. There is no question, in my opinion, but that the Senate Select Committee's goals are inappropriate and that a totally new effort is required. Such an effort should involve a broad cross-section of expertise from the nutrition, food and medical communities. It should involve consumers and consumer advocates who are knowledgeable about the application of nutrition and food information by consumers. Only in this way can a realistic set of dietary goals be established which will serve the best interests of the U.S. population. I firmly believe that the Department of Agriculture should be at the forefront of such a development. This would seem particularly appropriate since the application of sound guidelines to the feeding programs administered by the Department would impact upon countless thousands of individuals.