Summary of Discussions on Session B

Economics of Vegetable Proteins

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Although the world is now using the world soy protein reserve of 20 x 10^6 MT, about 90% for livestock feeding and 10% for humans, the panel did not visualize a rapid growth of vegetable protein utilization in human foods over the next decade. It was stressed that not only economics, but taste, custom, acceptance, and regulatory climates are major factors in limiting the growth of vegetable protein for edible use. Among the many nonanimal proteins available, e.g., soybean, cottonseed, rapeseed, sunflower and single cell, only soybean was seen as an economically attractive protein source for human use at this time. Single cell protein, although an excellent protein, was noted to have a great many technological drawbacks that make these products economically unattractive, and the other oilseed proteins have sufficient technical problems in their production to make them too expensive relative to soy.

In discussing regional matters, the panels noted that the U.S.S.R. now produces 0.6 to 0.8 x 10^6 MT of soybeans/yr, but they hope to increase this to 2 to 3 x 10^6 MT/yr in 5 to 10 yr. In the meantime, they do import 1 to 2 x 10^6 MT of soybeans/yr. Of the total of 230 x 10^6 MT of grain available in the U.S.S.R., only 60 x 10^6 MT is used in food. As for Western Europe, its consumption of vegetable proteins will rely mainly on soybeans from the U.S. and Brazil, although there is a possibility of advances leading to utilization of alfalfa and rapeseed proteins. With respect to the total world consumption of refined vegetable proteins in human diets, it was agreed that it is difficult to arrive at a firm estimate. One figure offered was 30 to 32,000 MT/yr. Also, it was noted that consumption of these products in the U.S., alone, was 386,000 MT/yr. In discussing this latter situation, the panel spent some time reviewing the multiyear U.S. studies on hamburger vs. soy protein-extended hamburger sales. It was noted that price was controlling at first and the blends sold very well during periods of high meat prices but dropped off as meat prices fell. In fact, there was and is a strongly interrelated soy protein-livestock-soy oil economic complex throughout the world. And superimposed on the marketplace economics are the governmental subsidies and tariff policies that make this not just an economic problem but also a political-social-economic problem as well. An additional regional experience discussed was that in the U.K. where good success was encountered when soy protein was introduced as a "new" food ingredient into an institutional feeding program. Much of the success was credited to a concerted, positive educational program which allowed the introduction of 25% soy protein into meat dishes without any negative reactions from the food preparation staff or the students consuming the foods. In the Scandanavian countries, vegetable proteins have enjoyed considerable acceptance, not only as economical extenders for prepared meats but also for their functional fat and water-binding properties.

In looking to the future, the panel stressed a number of points. We must do the basic research now to improve our yields of vegetable protein-bearing crops. At the current rate of population and affluence growth, it was estimated that we would see vegetable protein shortages in the 1980s. Also, we must continue the research programs to develop the new vegetable protein-based products of the future. These areas would include: isolates and blends for special purposes; plant proteins with improved functionality or with new functional properties; plant proteins with improved flavor and textural properties; and new plant protein-based foods that will stand on their own and not merely be extensions of today's foods. And coupled with all of this must be an enlightened and progressive regulatory climate around the world. It was concluded that these products are good, nutritious, wholesome foods that offer sustantial economic advantages and require much less of the world's resources to produce. It was the hope of the panel that the future growth and utilization of these promising foodstuffs would not be thwarted by parochial interests protected by political bodies.