

## Summary of Discussions on Session F

### Vegetable Proteins in Meat and Fish Products

T.H. APPLEWHITE, Recorder, Kraft Inc., Glenview, IL USA

The panel discussions in this area mainly centered on the technological aspects of the topic, although there were some nutritional and philosophical comments and questions, as well. Five short papers were presented as part of the discussion; two are reproduced following this summary.

In the technology area, the main interest in vegetable proteins is their function in binding water and fat. It was pointed out that hams labeled "with added water" are now sold and the quality and yield of these products is further improved with added soy protein. These products at 10 to 15% moisture are preferred by consumers in blind taste tests. Further, by proper processing and formulation with the correct protein, lower fat products can be produced.

Another advantage in the use of soy protein isolates for emulsified meat products is their emulsification properties. However, proper, water soluble soy proteins must be selected for maximum performance. It also was noted that for the same fat/lean meat ratios the extension with soy protein actually adds protein and dilutes fat. But, care must be taken to balance water and fat with the type of soy protein added as each type has different requirements. Examples of too dry or less juicy products were cited.

These comments led to the suggestion that what the technologist was observing with the various types of proteins - flours, concentrates and isolates - is not unexpected by the protein chemists. It was further offered that the hydration demands and rheological properties are readily predictable. This led to the thought that much more dialogue should be established between the food technologists, rheologists, and protein chemists to aid the proper selection and utilization of these protein materials.

Additional information on the proper selection and

processing of soy protein-extended meat emulsions included some cautions on the use of proper formulas and extenders for batch vs. continuous systems. If not done properly, the end products can suffer many deficiencies, e.g., dryness, poor texture, and weak emulsions.

In the nutritional area, some observations were made on the level of protein consumed in the developed nations, and the nutritional efficacy of the addition of more protein to their foods was questioned. It was also noted that some nutritional workers have suggested that high levels of dietary protein are related to decalcification, but caution was advised in that this work hasn't been reproduced to date.

With respect to the level of protein consumed in the developed countries, the idea was advanced that perhaps we should not be as concerned about supplementing their now high protein diet as we should be about utilizing protein resources for upgrading diets in the developing nations. In response, it was noted that the products under discussion are rather sophisticated, fabricated foods. And, if we are to succeed in producing other specialized products for the developing nations, we must first have the acceptance of the products in these foods now consumed in the developed nations. This is so because the developing nations will not readily accept products they feel are rejected by the more affluent in the developed countries.

The discussions closed with the observations that although many nations, and predominantly the developing ones, have produced vegetable protein foods for centuries, we should not become over emotional about the substitution of vegetable proteins for meat proteins. This is occurring very slowly, is at a very low level, and will not expand sharply in the next twenty years.