prove that his product is not responsible. Obviously, we should not overlook the fact that the product may be responsible. If it is, then the technical service representatives must take steps that will cause the least problem for both the supplier and the processor. Obviously, the goal is to keep a satisfactory customer.

It would be good to point out that there are processors who will automatically turn to a supplier for help, if through past experience he has received good advice and/or service. I have seen cases where an equivalent product was priced far below a competitor's product, yet the processor would not buy. The reason given was that in paying more he obtained services that far exceeded the price differential.

We said that there are companies that will automatically accuse a supplier's product as causing a problem in an effort to get technical help. We need to recognize the fact that there are others who may believe that an ingredient is the cause of a problem, right or wrong, and will stop using the ingredient. If these same processors were to have ongoing contact with the supplier's technical service group, this would be less likely to happen.

An area of concern in recent years has been regulatory affairs. Activity in this area has been on the increase as a result of the consumer advocate movement. Regulatory affairs affect all phases of the food business. In some companies, a full-time staff is often used to cope with governmental agencies, both in advising and guiding the company in conforming with the law. This staff is used to rectify conditions when the company inadvertently breaks the law. It is used also to advise and guide the company's customers.

When technical service advises a processor in the use of a product, excellent knowledge in regulatory affairs is needed. Hence, the recommendations that are made must be legal. In cases of onsite government inspection, permission usually must be obtained from the inspector before an experimental run can be carried out. Much time and effort can be saved if the technician is familiar with the regulations.

If the trial run is successful and the processor wishes to produce and market the product, he will often seek help from the supplier as to the proper labeling of the new product. The supplier must be prepared to supply the needed information.

A final point worth bringing up in our considerations is that a technical service staff can aid the marketing department in training salesmen.

Many companies hire salesmen who have no technical background, yet have a great deal of experience in sales. These persons must be given sufficient technical information to allow them to properly sell their products. Having information is not enough; these persons must have an understanding to allow them to make judgments and recommendations. This of necessity requires some type of training program which can be provided by a technical service staff.

There are other reasons why a food ingredient supplier should have a technical service department, but the areas brought out here are the most important.

In the functioning of a technical service department there are many questions to be considered such as the following. Should the group be a part of the marketing department or a part of some other technical group? What will the procedure be in scheduling a service man? What degree of expertness is needed? Education? Experience? How much time should be spent on a particular customer? How does one handle frequent nuisance calls? Should the technical service group have its own laboratory or test kitchen? A shared laboratory or a shared test kitchen?

Many more questions could be brought out, but we feel these are sufficient to stimulate a discussion on our part.

The Trials of a Traveling Technician

D.D. BASS, Archer Daniels Midland Co., Decatur, IL USA

I could talk at great length about the trials a traveling technician faces when he has to spend long periods of time away from home, living out of a suitcase and fighting airline schedules. I have done these things for a number of years as has every other member of this panel. These are not the trials I want to discuss. I want to talk to you about the trials that should be taking place in your labs and plants and the type and quality of assistance that is available to you in conducting these trials. I want to point out some of the many advantages you can derive by using the technicians available to you from the various suppliers of ingredients. More specifically, I want to talk about ways a good technician working with soy proteins can save you time, material, and money, and insure the success of your trials.

I read recently that the sum total of knowledge in the world had doubled from prehistoric to the industrial revolution, had doubled again around 1900, again by 1940, again by 1955, again by 1960, and so on until at the present time, the sum total of knowledge is doubling every six months with the interval still decreasing. Knowledge in the food industry is no exception, and if you think about it, this is staggering.

As advancements are made in all the many areas from ingredients to equipment, research and development people are under ever-increasing pressure just to keep up with developments in their specific area of interest, yet they are expected to know the interaction of all the many different ingredients and how they may be used in their specific product. They are expected to keep up with all the new equipment advances and make recommendations for adapting these advances to their production lines. There are ever-increasing pressures to cut costs and maintain quality, develop new products, do market research, keep up with ever-changing government regulations, and be the resident expert in all areas from energy to sanitation.

Let me give you an example to illustrate what I'm talking about. I am basically concerned with soy proteins, more specifically, soy proteins in meat products. We have available for use, in this limited area, four different PDI grits in five different piece sizes, five different soy flours, about 300 different sizes and flavors of textured vegetable protein, plus functional and nonfunctional soy protein concentrates. In addition, there is a variety of isolated soy proteins that are used in meat systems that we don't manufacture. These represent only one ingredient in a formulation, yet determining which one or combinations to use and using it correctly can mean the difference in success and failure.

All manufacturers of soy products have qualified people available to show you how to use their ingredients in just about any food item you can imagine. Utilizing this service will insure that you are using the correct ingredient,

adapted to your operation, to manufacture the best product that can be made within the parameters you set.

Let me expand on this last statement just a moment. The parameters within which we technical people work are what you give us based on your given market situation. You have to set the parameters; we cannot. What we can do is give you the best product within those parameters. For example, if you want a sausage equal in quality to all-meat products but cheaper in cost, we can give you this. If you want to upgrade your second and third quality sausages at equal to or reduced cost, we can do this. We can make sausages with little or no meat and make them acceptable to certain markets. We can use just about any meat block imaginable in making these sausages. I have personally made sausages from beef, pork, chicken, turkey; carabao, whale, reindeer, rabbit; horse, tuna, sailfish, codfish; dolphin, mutton, goat, deer; elk and moose. I'm sure others on the panel could add to this list. Having done this is not important in itself, but serves to point out the kind of experience available. Set realistic parameters and a good technical man will make a satisfactory product.

In addition to formulation work, there are other areas in which an outside technician can benefit your operation. By the very nature of the job, a traveling technical man visits many plants, works with many different kinds of equipment, and gets to see a wide variety of ways to make products. Without revealing proprietory secrets, better ways of doing things can be passed on, and much planning time can be saved.

The third major area in which technical assistance can really be of value is in trouble-shooting. Problems can occur in any formulation; ingredients are not constant in quality; a worker can see an easier way to do something and change a procedure; equipment performance can vary over a period of time, plus any number of other variables, and you have trouble. In this case an outside technician can come closer to solving the problem quickly, simply because he is not emotionally involved in the problem and does not have the distractions that plague plant people.

There is ample technical assistance available in all areas, whether it be ingredients or equipment. It would certainly be to your advantage to use it whenever possible. I believe in technical service and have seen its value. If you avail yourself of the services available, you will too!

Providing Technical Services to Meat Food Processors

S.L. MOORE, A.E. Staley Mfg. Co., USA

The bulk of technical service for protein-meat food systems is running plant trials and troubleshooting problems. The importance of technical service in this area cannot be stressed enough. A comparison of the protein industry to the meat processing industry exemplifies the need for quality technical service. Various forms of processed meat and processing technology have been used for 2400 years. The technology of modern food proteins for use in meat products has been a development of only the past 20 years. The meat processor who utilizes available protein technical knowledge will produce the best product at the least cost. Today, only a handful of companies offers experienced technical service in this area.

The basic technical knowledge of meat processing is common throughout the world. Raw materials of muscle and fat tissue are known variables adjusted for accordingly. Spice blends, processing procedures, and cooking cycles for processed meats are important variables specific for each product in each plant.

The choice of protein, level of protein, proper incorporation, and processing are also important variables to the meat processor. The best selection can only be made by experienced technical protein people. A processor just "dumping some in" will probably create a worse product than without any protein at all.

Protein products, just as meat products, vary greatly from processor to processor. The responsibility of knowing what protein will perform a certain task at a minimal cost lies upon each protein producer. A meat processor is not aware of differences in the rate of water absorption, fat absorption, and their effects on final product. The meat processor cannot be expected to know each protein company's line or products and their specific applications.

A protein technical service representative should sit down with a meat processor, discuss the formula, the specific goal or goals, and then recommend a protein and usage level. The next step is to run a plant trial under normal plant conditions.

The value of a plant trial is three-fold. First, a plant trial with a technical representative minimizes the risk involved for the meat processor. Second, it assures the meat processor that the product will perform in such a real system. Third, a plant trial with a technical representative assures the soy protein manufacturer of correct material usage.

A plant trial is the only way to test protein products for a meat system. The plant trial is run on plant equipment with a plant formula and plant personnel. A seemingly alternate test is a model system test. Most model systems have been designed around the protein product; therefore, they display great results. A model system test is usually run without plant production equipment, without a plant formula, and probably without plant personnel. A major problem with most model systems is the inability to correlate a result with an actual product. Most model systems will show functionality, but won't show over-functionality, such as too dry of a product, rubber-like texture, etc. The result of model system testing is the same in the end – the need to run a plant trial.

A common occurrence with the use of soy protein in meat systems is improper protein selection. Many meat processors could be utilizing more economical proteins with technical assistance. The use of highly functional proteins in many cases has created less juicy and tougher products at higher costs. A solution to this problem is for the meat processor to give several soy protein companies a chance to test their protein product in his system. This provides a competition which will offer more choices and better guidance to the meat processor.

A problem similar to improper protein selection is over-use of a given protein. The use of too much protein in a product can cause several problems. The buyer or consumer becomes displeased, which reflects in the sale or consumption. The consumption will directly affect the meat processor's sales, and the processor becomes disappointed with the soy protein supplier. The protein suppier will offer assistance to corret such a problem. How do you tell your customer that he is using too much of your product? Technical service and their involvement from the start of formulation will help prevent such problems. Any further modification with increased levels should also