

From Concept to Market with a Meat-Soy Protein in Dry Sausage

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I would like to point out some aspects of TSP application under the conditions of our meat industry. During the last year and in the course of this year, we have examined the application of textured soy proteins in production of some domestic kinds of dry sausages. Some results of these examinations we reported in the paper presented at the last European Meeting of Meat Research Workers held in Kulmbach. Now, I would like to summarize our results obtained in that field. "Corned beef color," minced TSP produced by "ADM"-USA proved to be the most suitable one for our kinds of dry sausages such as "Sremska" sausage and "Tee" sausage, due to its specific color which corresponds to meat color. Before use, we hydrated this protein to 65% of water, the same percentage of water as in the frozen beef and pork being used in these products. Afterwards, we ground it so as to obtain pieces of about 3 to 4 mm in size. We have established that about 8 to 10% of the total meat content can be substituted by hydrated TSP without negative influence on the quality of finished products. This was proved by comparative examination of experimental and control sausages. Examining some physico-chemical indices, we established that during the whole drying (aging process) weight losses in sausages containing TSP were lower by 2.0 to 2.6% on the average. Experimental sausages containing TSP had somewhat higher quantity of proteins, somewhat lower quantity of fat, and somewhat lower pH values in relation to control samples. They had better appearance, that is, their casing was less or not at all wrinkled. As for taste and odor, we could not

establish any difference between experimental and control sausages. Meat pieces on the cut surface did not differ from ground TSP pieces. Slices of sausages containing TSP were of the same compactness and binding ability as those of control sausages. By measuring the dryness and the consistency, we have concluded that experimental sausages with TSP can be sent to market one to two days earlier. This results in a reduction of time necessary for their production of 5 to 10%.

Results of our experiments have already been applied in regular production of some kinds of dry sausages, whereby our experimental results have been confirmed. Up to present, there have not been any remarks from the market on the quality of these products. In addition, during that period we gained the following experiences: (a) "corned beef color," minced TSP should always be hydrated because the use of dry protein did not give good results (it remained dry and visible); (b) dependent on the relation to frozen beef and pork in the sausage stuff, "corned beef" TSP should be darker or lighter in color so that TSP pieces could completely correspond to meat color; (c) the use of other TSP types of red color (for example, Ham Color and Pink Color) did not show good results, because they considerably differ from the color of the meat pieces used for the production of these sausages.

From an economical point of view, this type of TSP application in dry sausages results in lower cost of stuffs (~3%), lower weight losses (2%) and in reduction of production time (1-2 days).

Vegetable Protein – Tomorrow's Replacer?

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This paper asks the question – do we see vegetable protein as tomorrow's replacement for meat?

I should like to talk very briefly to you about the role of vegetable protein – predominantly soy in this area from our experiences in the U.K. In this, the last session on the last day of our conference, we will all have heard a great deal about the positive attributes of vegetable protein in our diet, and the future prospects. Press coverage for soy in the U.K. is generally titled "New Food of the Future," or something similar, and suggests that we, the vegetable protein industry, are about to infiltrate the meat industry with our new fangled product.

We, as consumers in the U.K., having struggled to survive for centuries on our predominantly meat protein-based diet, are about to be rewarded by the "arrival" of vegetable protein, and we shall immediately make the complete change to a totally soy protein-based diet. Only the minor details remain to be agreed before we can make the change.

How much of the soy protein will we eat in the form of steaks, joints, etc., which of course will be indistinguishable from meat? How much of the soy protein will we eat as mince, pasties, pies, sausages? Again, a perfect match for the products they have replaced – the outdated meat products. Will we make the change overnight, or will we have a gradual transition? How will we solve the nagging little problems?

Unfortunately, for instance, we will have to phase out livestock farming completely, as meat will no longer be required for food, but then we can always keep the animals as pets. Obviously, a lot of farmers will lose their livelihood and the queues of land rovers outside the job centers will become a part of life. But while this may initially cause a bit of a problem, I'm sure we can overcome it, because as we all know, the advantages make it all worth while. The most obvious advantage of making this complete change is that as the products will be completely indistinguishable from the old meat products, we won't have to change the housewife's buying patterns, nor her eating habits, and we won't have all of the problems associated with partial replacement or extensions. And thinking about it, as the products are identical and as the change to soy protein has nothing but advantages, why should we even tell her that we're making the change? It is much more convenient that way, and after all, if we publicized it, she might not understand and not realize that it was for her own good.

Yes, it is far better to make the change completely unannounced, and then perhaps we could mention it a bit later on. With a carefully prepared advertising campaign, I'm sure the housewife would understand and would develop a more modern concept of meat. Butchers and meat processors might be a little reluctant initially, but if we take a strong line with them I'm sure they'd understand

the obvious advantages.

Now, all of this is ridiculous and totally unrealistic, and to go back to our original title, of course vegetable protein isn't going to be tomorrow's meat replacer, but the example I've given isn't too difficult to imagine from some of the views expressed outside the industry. We've heard this week all of the undeniable advantages of using soy and Gordon Harrington has spoken of soy complementing the meat industry, not competing with it, but the success and the

growth rate of our industry depends upon its image. Dr. Willner discussed the problems associated with the launch of vegetable protein into Sweden — from poor quality products and mistakes being made. It is vital that we continue to work to create the right image for our products, so that the situation I described earlier doesn't become a widespread concept of our industry aims.

We must ensure that we are seen as "angels" rather than "devils."

How the Consumers Perceive Proteins

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This presentation will be limited to how consumers perceive soy proteins. When I began writing this paper, my thoughts touched on the following questions which I would like to cover during this short paper and the following discussion: (a.) why are consumer perceptions important; (b.) what is the available data on consumer perceptions of soy proteins; (c.) how have the consumers obtained their perceptions and how will they augment these perceptions in the future?

At least three factors argue for the importance of considering consumer perceptions.

First, the greatest importance generally associated with consumer perceptions derives from the psychological model that a person's attitudes and perceptions are a determinant of the person's behavior. Although this model is intuitively attractive, I personally am only a cautious and conditional supporter of this model. I do believe that the consumers' perceptions of a food can affect the consumers' propensity to buy that food, but this is a very difficult model to apply in commercial practice. Scientists have had more success refuting this psychological model than in confirming it.

A second importance of consumers' perceptions is the effect these perceptions can have on the writing of regulations. In general, regulators are limited to writing laws which are within the range of the consumers' perceptions.

A third importance of consumers' perceptions of soy proteins is the value of these in defining marketing strategies and tactics for foods which contain soy proteins. As an example of this practice, Cummings described how Cadburys used measures of consumer perceptions to determine their product objectives, product name, and colors for packaging.

The most complete consumer research on soy proteins which is public comes from the United States. This is the data base which I have relied on and on which I have developed my own conclusions to consumers' perceptions. Those of you who are interested in markets outside of the United States should still be able to find some value in this information as a standard for comparison; a base from which you can make adjustments to reflect the differences between the markets you are interested in and the U.S. markets. The available public research in the United States includes: (a.) focus groups discussions with housewives; (b.) telephone surveys of consumers; (c.) a national sample of consumer interviews; (d.) a test market of sausage containing isolated soy protein; (e.) and a national sample attitude survey sponsored by Food Protein Council and conducted by the Gallup Organization.

We could take the time to review each of the specific findings of these research efforts, but I do not believe it is appropriate to this forum or in the short time period we have. Therefore, I will review what I believe are some key findings from the Gallup study and then conclude with some of the observations that I have made on the combined

body of available consumer research. With respect to awareness, the Gallup study has two findings that are relevant. The first is that 33% of the consumers stated that the soybean would be the most important source of the protein in the future. This is the largest number of people to make this conclusion for any of the foods mentioned. The rest of the foods receiving less frequent mentions included beef, fish, powdered milk, cheese, peanuts and pork.

A second observation from the Gallup study relevant to awareness is that 54% of the consumers stated that they had eaten foods containing soy proteins during the last year. I believe these two observations indicate an exceptionally high level of awareness by consumers of soy proteins. This, therefore, gives a great deal of credibility to the other findings within the Gallup study. The Gallup study indicates an important finding with respect to relationship between soy proteins and food quality. Thirty-nine percent of the consumers said that soy protein improves the quality of the finished food. Twenty-six percent said that soy protein will have no effect on the finished foods quality. For the marketers of finished food products, this indicates that soy proteins can have a positive effect on the quality image of the foods in which they are used. However, from the soy protein industries' point of view, this result defines the consumers' expectations on the quality of foods which contain soy proteins, and in marketing you must meet the consumers' expectations in order to be successful.

Another significant finding of the Gallup study is the effect of soy protein being declared on the label of food products. Fifty percent of the consumers stated that the declaration of soy protein would have no effect on whether they will purchase the product or not. Additionally, 11% stated they are more likely to buy food products which declare soy protein as an ingredient. This finding is similar to other research that has been done in the area of soy protein declaration's effect on purchase behavior. In my own research, I have come to the conclusion that about 6% of the consumers do not want to buy any foods which contain soy protein. On the other hand, there is also another 6% of the consumers who would prefer to buy products because they contain soy protein. However, this implies that for about 85% to 95% of the consumers, the presence or absence of soy protein is not a significant factor in their purchase decision.

We can continue on like this — reciting specific data from research — but as I have indicated, this is probably not the proper place or time for this review. Therefore, we will not present the complete patchwork of data that has been accumulated. I will state a few of the conclusions that I have reached after analyzing the total body of available research.

From the analysis of the Gallup study and from Ralston