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PRODUCTIVITY FOR THE FUTURE: FOOD PROCESSING

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Now that the era of cheap energy is over what approaches does the food processing industry need to take to improve productivity.

My assignment appears to be such that it gives me wide latitude to discuss with you various problems that may relate to productivity and manufacturing of foods.

It is redundant for me to tell you that each of you is undergoing a transition, the likes of which has not been witnessed in our history insofar as the industrial revolution dates back.

It is brought about by a number of factors and these include, but are not limited to:

- a. the increasing cost of labor,
- b. the high cost of energy,
- c. batch processing,
- d. changing food habits,
- e. changing marketing concepts,
- f. other.

I would like to touch upon these points insofar as they relate to food processing of the future.

We have been living in an era of cheap energy and producing food in this era. Thus, the needed agricultural inputs of water, petrochemicals for fertilizer, herbicides, pesticides, power machinery etc. have been cheap.

If we look more closely at the energy picture, it is obvious that this transcends the entire thinking on our part.

Now, what does it do to the food production part? There have been two important studies on this subject that have come out in two of the April issues of Science Magazine. We see the amount of energy used in food manufacturing is increasing since the dawn of civilization. We also are getting very little for the increased energy production input since 1940. It simply takes more energy to feed ourselves. So the thoughts come to mind, energywise--the need of developing foods that are now conventionally frozen that might be stored in the refrigerator; those now in the refrigerator to be marketed as shelf stable--such foods do actually exist (e.g., frozen orange concentrate of high brix marketed in the refrigerator; the use of intermediate food technology to move foods from the refrigerator to the shelf). We must simply face the fact that we must do all we can to recognize that we are no longer on an energy cheap economy and that the price of food is going to rise. Another way to look at this could perhaps be to revert back in history to a more labor-intensive agriculture and then solve some inner city problem.

There is no question that we must automate more and utilize our computer technology not only to do so but also to help us in our purchasing, inventory control, and to help us develop continuous processes where more labor-intensive batch processes now exist.

Our labor is expensive. The Northeast lost the textile mills to the south; and the shoe factories to foreign competition. Moreover, our labor is not as

productive as it might and should be. This leads to importation of canned mushrooms from Taiwan, canned pineapple from the Philippines and Thailand instead of Hawaii, etc., from where we will get only our fresh pineapples.

Maybe we should look at it not as to how we can increase productivity but as Dr. Skinner has done in a recent issue of the Harvard Business Review (May, June/1974, p. 113) but rather as to "how can we compete". In so doing, one must, therefore, look at the problem as encompassing the efficiency of the entire manufacturing organization and not only the efficiency of the direct labor and work force. We must learn, says Dr. Skinner, to focus on a limited, concise, manageable set of products, technologies, volumes and markets, and to learn to structure basic manufacturing policies and supporting services so that they focus on one explicit manufacturing task instead of on many inconsistent, conflicting, implicit tasks.

We need to marry the manufacturing, research and marketing arms together. A single factory that is focused on a narrow product mix can out-perform one that focuses on a broader product mix--from all these three aspects.

In the food industry, there are very many companies that have built plants to produce a great variety of products by several different manufacturing technologies--canning, freezing, dehydration, etc. They were built when money was cheap, energy was cheap, and labor costs were much cheaper.

What if we were to take a fresh look at a new plant based on the issues that confront us today? Would we do it the same way? I do not know but we have techniques to help us do this kind of long range thinking.

Remember, in the past we have looked at manufacturing management in many industries in then a nature of productivity, (i.e., a good plant is a

low-cost plant). But what about the sacrifices one makes in achieving the low-cost plant if they are in delivery, quality, flexibility, etc.? Perhaps, simplification is the answer rather than complexity of one plant to do many things.

Let us realize, however, that we are living in the era of shortages and high costs of energy, raw materials and labor and take a new look. Let us apply our research preeminence in looking for cheaper substitutes for expensive raw materials in short supply. This is particularly important in processed foods which are "engineered foods"--bread, cake mixes, sausages, etc.

Let us look at other problems that plague the food industry. The need to not only simplify production but convert batch production to continuous production. This is vital if we are to lower food costs, and this need transcends the entire food industry.

Continuous production focuses on a single process or product and often, when the engineering is done, simplifies rather than complicates the process. Computers today are tremendous aids in manufacturing and their use has never been optimized in the food industry. Continuous production, to a large measure will depend upon their use in the fullest--from the ordering of raw materials to the shipping of the finished products.

No talk, at this time, would be complete, if I did not touch upon raw materials but differently from the point of Jack Francis. Were we able (by changes in Federal Laws and Statues), we could almost double our chopped and minced meat products from over seven billion pounds per year to over 11 billion pounds per year.

Now, in this era of high food costs, we must learn to utilize vegetable protein, have our laws changed to permit us to do this, and manufacturing practices altered accordingly. This is another means of lowering food--particularly

protein prices. These may require alterations in manufacturing procedures. They certainly do, for the first time offer an opportunity to realize a marketing profit based on nutritional considerations.

Now, I do not know whether I have answered the questions asked of me nor covered the topic assigned to me. But these are changing times and there is rapid need to respond to these challenges, the problem of the food industry a year ago is not the problem today. The solutions of a year ago are not those of today. Look at the costs of protein and you will see why I have designed my talk in this fashion. I may have raised more questions than I have answered, but if so, perhaps that will stimulate discussion. The needs of the industry are means of satisfying the consumer by producing safe foods, cheaper foods, and nutritious foods at the lowest cost price.