

Discussion

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There are a couple of items we should think about before we start the discussion. The first area is the menu board which can not be too long or complex. When a customer first comes into a fast-food store, he initially tends to stand back and study the menu board. The order taker is trying to hurry the process along so that the order station does not become a bottleneck.

The second point is to look behind the counter at the people preparing the product. In most instances, they are part-time help filling an entry level position at, or close to, minimum wage. Many times they are young high school students who have had minimal training. These workers are under the supervision of one or two more experienced full-time employees. Therefore, the preparation of the food must be made "idiot proof," a term heard in the fast-food industry. The preparation cycle must be simple, for example, place the product in the cooker and press the button. When the timer beeps, remove the cooked product and prepare for serving. These circumstances present some very real constraints and opportunities for the innovative fast-food companies.

Session One

E. Ray: How do you perceive pre-rigor meat processing fitting into the operation of suppliers of the fast-food industry?

D. Huffman: Much of the pork sausage comes from hot-processed sow carcasses. There are other specialty items, such as the restructured pork rib, which would benefit by utilizing pre-rigor meat.

N. Marriott: How mature is the fast-food industry?

R. Mandigo: The rate of growth of the traditional fast-food industry may be slowing somewhat; however, there is still plenty of room for the good operator. The firm with the good menu board, excellent management, building their own specialized equipment for good preparation, etc., will prosper. After having spent the past two weeks in Europe, I think the fast-growing area will be the deli food items. We will probably see our traditional fast-food operators face more competition from deli operations or add deli items. The total market will still continue to grow as we eat more meals away from home.

R. Henrickson: Many items served in the fast-food industry are deep-fat fried. How are they going to prepare "lite" menu items in the future?

Huffman: Many of the fast-food firms are very dependent on certain types of equipment, such as a grill or deep-fat cooker. They will close down their breakfast operation in order to start their lunch menu. There is a new operation that uses only a deep-fat fryer to prepare chicken. They have been very successful utilizing small corners in high density shopping malls. There have been predictions that we will move away from deep-fat frying but I think it's anybody's guess as to how soon this will happen. We have used covers (breeding and battering) of 10% to 30% because it is expedient. We will probably see lighter covers in the future.

G. Davis: What is the situation related to in meat tenderness when the microwave oven is utilized at home?

G. Taki: We need some innovations in microwave cookery for meat. If you combine enzymes with condiments in the meat cooking process, you can produce a product that is acceptable from a tenderness and taste standpoint.

D. Naumann: A major food chain has introduced a line of "microwavable" precooked steaks and roasts. How does this fit into the discussion we are having here today?

Huffman: I have tried some of these new products and detected a slight warmed over flavor (WOF). However, I was looking for it.

Mandigo: I agree with Dale. This is one of the very fertile areas for research. Wilson's has come out with an excellent line of microwavable precooked meat products. However, they are very easy to overcook in the reheating cycle and become quite objectionable.

Another cooking method being looked at by a large hamburger chain is the top and bottom grill, just like grandma used to make cheese sandwiches. Nobody knows what changes will take place if a frozen pattie is placed in one of these grills. Some equipment manufacturer will make thousands of grills if this technology is adopted.

C. Calkins: How can some of the knowledge from academia be transferred to the fast-food industry?

Huffman: We need to make better use of the trade journals. They are an excellent outlet for new ideas and, particularly, results from small studies. By the time scientific journals publish research results, the timeliness is lost. But of greater importance is the fact that many of our industrial colleagues do not read the scientific journals.

J. Price (1st session) and R. Bray (2nd session): Should a university research program be involved in product development?

Mandigo: As meat scientists, we should not be directly involved in product development. Private companies can do this job so much better and faster. Academic institutions should be training meat scientists and attempting to answer the "why" questions.

J. Secrist: The academic institutions need to make a major effort in studying oxidative changes so we can reduce the cost of packaging meat products. With our present knowledge, a tremendous amount of money is spent for protective packaging to prevent degradative changes in the food distribution chain.

T. Jenny: I would agree with John Secrist that we need help on the basics.

Huffman: Could I ask which is the best way to communicate between university and industry?

Jenny: We maintain fairly active contact with universities through their former graduate students and meetings such as this.

H. Herring: Will the trend continue in frozen precooked food items for the microwave?

Huffman: Probably, but are there any thoughts on this one from the audience?

Secrist: Yes, I think this is an expanding area because you can design certain characteristics into a food product to take advantage of our cooking systems.

Henrickson: Do we hot-air cook rather than deep-fat cook?

Huffman: On precooked items, hot-air cookery is probably the principal method. The other method is the continuous deep-fat fryer. The breading and batter will have to be set by deep-fat frying, and then the product moves into a hot-air counter-flow oven because it is more efficient.

J. Leising: We are going to move away from deep-fat frying. Vegetables and gourmet sauces will be utilized to a greater extent. Meat will become a smaller part of the whole entree. We had better learn how to make gourmet sauces.

Huffman: There is considerable interest in the heat impingement oven. Can anyone give us more detail on this?

S. Moore: The impingement oven is one of the most exciting innovations to come along for fast cookery. Many pizza chains either are utilizing or testing the impingement oven. There are many unanswered questions about why the impingement ovens work as fast, and as well, as they do. The impingement oven works by sweeping away the layer of air immediately above and below the food product with 90° angle air currents. This speeds up the cooking process tremendously, so small pizzas can be cooked in 5 minutes.

Davis: Are we going to have an accountability problem when we have to start nutritional labeling of fast foods? How long will it be before the consumer realizes how many calories there are in deep-fat fried, breaded foods?

Mandigo: I don't have a number.

M. Hunt: Are we limited more by technology or science?

Mandigo: They go hand in hand. If technology gets too far ahead, there is usually a retrenchment until we get some of the basic answers. It probably is a matter of timing where the technology and science need to get together at the same point in time.

Leising: A good example of this might be microwave cookery of meat. We are in a retrenchment phase right now, trying to find out more basic information.

Session Two

N. Hale: What is going to happen as these people, who grew up on fast food, work their way through the age progression? Will the fast-food industry change to different entrees that appeal to an aging population?

Mandigo: My guess is that whenever there is an opportunity to market a product to a sizable group, the fast-food industry will respond.

Huffman: The fast-food industry will probably respond to the elderly, who still want to eat out and enjoy that experience.

R. Terrell: The fast-food industry will develop products that appeal to the palatability profile of the elderly.

J.W. Carpenter: What is going to happen on nutritional labeling of fast foods?

Huffman: During the break between sessions, somebody told me there is a bill before Congress to require nutritional labeling on fast-food items. Is this good or bad news?

C. Melton: Beef will probably be helped by comparison to heavily breaded chicken and fish entrees that are deep-fat

fried. Some food manufacturers never discard any cooking oil. They just filter it and keep adding more oil, which is then sold in the product.

Huffman: What about oxidative rancidity?

K. Rhee: I think oxidative rancidity is a problem, but industry does not always think so. We can reduce WOF by using antioxidants, but then consumers are suspicious of additives.

Huffman: How much salt would you find in a typical batter? It will be 2+ percent.

G. Trout: One program on Wall Street noted there wasn't much change in the consumption of beef, pork, chicken, and fish. However, there was a significant increase in one area, which was pizza.

K. Jones: How important will the microwave oven be in fast-food restaurants? (See Session One).

M. Adolf: Many foodservice facilities are having their microwave ovens removed and are considering impingement ovens. If you aren't familiar with this new piece of equipment, it is a very exciting new development. The preparation time is not quite as fast as a microwave, but the visual and palatability characteristics are far superior.

Trout: What sizes do the impingement ovens come in?

Adolf: They can manufacture impingement ovens in sizes comparable to microwave ovens. Some institutional ovens are in the \$2000 range.

Mandigo: You can see an impingement oven in the Chicago O'Hare airport where they cook pizza. They have to be careful because you can blow the topping right off the pizza if it isn't tightly bound.

W. Varnadore: Is home cookery going to change from microwave to impingement?

Adolf: There is a possibility as one company is planning to unveil an impingement oven in 1987 for home use.

G. Wilson: Before we do away with deep-fat frying, we should be aware that we use about 1.3 billion pounds of beef tallow every year.

Huffman: This begs the question, Dr. Wilson. Is it wise for the beef industry to put that much fat on the cattle in the first place?

Wilson: It is certainly more fat than we need. Another session on research priorities discussed the whole area of reducing fat in meat production. We also need to think more about food safety.

J. Sofos: If we have nutritional labeling on fast foods, that will be an incentive to lower fat in products.

Carpenter: Industry depends on us for students with inquisitive minds to develop new ideas. Some new products were invented at universities, such as Gatorade, and then marketed by industry.

J. Godber: I have an observation that I made on a problem such as WOF. Some of these problems can be overcome by using polyphosphates. However, there was a paper pointing out that monophosphates chelate iron, which would negate one of the outstanding nutritional attributes of red meat products.

Huffman: If there are no other comments, I want to thank everyone for making this a very productive session.