

The way in which the food industry implements safety standards to achieve safe products is described in this paper. It presents still another side of the topic considered in the two preceding contributions.

STANDARDS OF SAFETY FOR FOODS IN RELATION TO PUBLIC HEALTH

Donald M. Mounce, B.A., F.A.P.H.A.

IN 1908 there were three cans of food used per family, while in 1963, 680 cans and jars were consumed per family. Almost 30 billion cans of food are consumed annually in this country. This is only one segment of the food industry. The frozen food packers also have a spectacular story of product development and acceptance. In the last 25 years their production has increased from 648 million pounds to more than eight and one-half billion pounds.

It is obvious from this record that the food industry has been extremely busy over the years finding better ways of attracting and satisfying the consumer. Despite the obvious success, however, the food industry like many other industries has its share of critics.

We who work diligently to make foods better, more nutritious, and more acceptable to the housewife, are always shocked and a little saddened when the industry is abused as a whipping boy by some food faddist, extremist group, or misguided and ill-advised politician. And I think this is felt just as keenly by those in government agencies and universities who have worked in the world of food over the years—this resentment is not felt by business alone. We businessmen have no exclusive claim to the progress that has been made,

and we have no exclusive right to object to criticism born out of ignorance.

There are those who have decided that the housewife can no longer make selections in the best interest of her family and that she must have assistance from many directions. Some of these are sincere attempts to be helpful; others, unfortunately, are not. Nevertheless, we will have a better food supply next year because progress will be made as we develop and advance our frontiers of knowledge. This will be of far greater benefit to the consumer than will unfounded criticism of the food industry.

In the food business, most of the important pieces of knowledge have been developed in the last 100 years, and probably the greatest advances have been made during our lifetime. We understand heat penetration, the effects of freezing, the control of bacterial levels, nutrition. Knowledge has been generated by government, universities, and industry, and all of this has been broadly shared and put to prompt use, but always to the advantage of the consumer. If the food industry has had one slogan, it has been: "Make it better, make it better." We have done this to further the progress of our businesses and we have been successful.

Consumer Protection

When I entered the industry 35 years ago, cans were guaranteed against spoilage on the basis of three per 1,000 or less. Cannerymen used to can product, stack it bright in their warehouses, and then separate out the spoilage before labeling. Now we operate at about four cans of spoilage per 100,000 cans and are striving for further improvement. This is almost a 100-fold gain in a third of a century.

How is progress made and, more importantly, how is the consumer protected? I know generally what other companies do but to be absolutely accurate, I will try to demonstrate what my company does. The amount of work involved may surprise you. We estimate that we make 41 million tests, measurements, and observations each year to insure product quality.

Our residue laboratories made 6,000 analyses last year. We do not permit growers to plant root vegetables in soils treated with certain pesticides or herbicides unless our laboratory has tested soil samples and found them to be completely suitable. We control the pesticide and herbicide application on all contract crops. Only approved materials can be used. Field men visit growers weekly and a log is kept by both indicating that proper control is being exercised. Preharvest samples are taken of all ingredients that might have excess residues. Industry representatives, under the auspices of the National Cannerymen Association, exchange samples and methodology on pesticide work.

As new analytical methodology is developed by other laboratories, including those of the Food and Drug Administration, the chemical industry, and the Department of Agriculture, we update our techniques. We, too, are doing similar research and we make our information available through prompt publication in scientific journals. I know of no area

where there is more cooperation than in control of pesticide residues. If any one can tell us how to analytically measure the amount of the halogens that occurs naturally in plants versus that which is added by man, we want to know.

From this review of the pesticide and herbicide work we do, one might conclude that we must have a serious problem. When we equipped and staffed our laboratory for this endeavor, I expected we would open a Pandora's box of problems. This has simply not been true. Based on the very small number of samples in which we find any pesticide residue, I have trouble justifying in my own mind the continuance of this work. However, we are committed to a policy of closely controlling ingredient quality and, therefore, our analytical work will be continued.

We are convinced this country's food supply is not being endangered by the excessive use or misuse of chemicals. This is borne out by the periodic report of the Food and Drug Administration on their analysis of the food from several sampling areas that might be eaten by a 16- to 19-year-old boy, presumably the individual who consumes the most food.

Field Forces

In the procurement of contract ingredients we maintain field forces which work with farmers and vendors. Each farmer is visited at least once per week, and during harvest season we have resident inspectors in each vendor's plant. Each step of the work is monitored to assure the highest possible level of quality. Preventative activity guarantees the production of good, clean food and prevents any later problems.

We specify the varieties, the fertilizers, the herbicides, the pesticides, the harvest time. We wash it, sort it, test, and analyze it. This is based on almost 100 years of experience and is carried

on by scientifically trained personnel. How does this compare with activities in other countries, or, more importantly, to the United States citizen? Are we equipped to do a better job than the home gardener and the housewife in preparing clean, wholesome food?

We have outside consultants make simulated food and drug inspections of our plants several times per year to keep us sharp. A few years ago the president of our company outlined to our operating personnel our approach and attitude to the Food and Drug Administration, in part as follows:

1. Since it is our policy to operate our plants at consistently high standards of house-keeping, cleanliness, and sanitation, we welcome visits from the FDA at any time.
2. As it is also our policy to adhere strictly to product weight requirements, we are happy to have inspectors sample our products at any time to see that they conform to declared weights.
3. We favor government requirements that raise industry standards of plant sanitation, but we should regard them as minimum. Since we do our own policing, we should not be concerned about the presence of government inspectors, but rather, we should welcome them.
4. In summary, we treat FDA inspectors as allies in the maintenance of quality standards.

All of our plants producing consumer products have continuous inspection by the Department of Agriculture through the Meat and Poultry Inspection Divisions of the Consumer and Marketing Service. This means that we have their resident inspectors in our plants 24 hours per day. We also receive periodic visits by inspectors from the:

1. United States Public Health Service
2. State Food and Drug or Department of Health representatives
3. City Food and Drug representatives
4. State Board of Health
5. U. S. Army Veterinary Corps
6. County Department of Sanitation.

At one plant, five of these inspectors representing federal, state, and county

agencies and five separate divisions made their inspection in a body. This kind of cooperation between agencies is very helpful indeed.

As one might surmise, much of what is done by each of these agencies in its inspections is quite repetitious, and of course, this is costly to the food processor as well as to the government, and ultimately of course to the consumer through higher prices and taxes. Certainly there is much to be said for a uniform set of standards which would save time for both government agencies and food processors. The seriousness and consequences of a seizure by any agency of government is something no plant manager ever forgets for a moment.

Spoilage Control

To maintain control of spoilage, we incubate 20 million cans of product per year. We allow no frozen products to leave our control until representative samples have been bacteriologically plated and proved to be sound. This takes three days. These are a few of the things we do to maintain proper quality, and there are many more.

All ingredients are purchased guaranteed to meet all of the national and state pure food laws but, additionally, they are bought subject to receipt and acceptance at our plants. This means that each item is sampled, examined, and approved before it can be taken into a production area. We have a cardinal rule that everything must be sorted by competent and trained employees just prior to use even though it had been thoroughly prepared at some other point or by someone else.

Our definition of a clean plant is: (1) All areas in a plant shall be "broom" clean. This includes floors, walls, ceilings, fixtures, overhead installations, pallets, and other equipment; (2) in

addition, all areas and equipment used in the preparation and processing of foodstuffs shall be "scrub" clean and sanitized. Not a very complicated statement but one that is easily understood and, when administered, will protect the product at all times.

Every product is made according to a precise formulation or recipe. We break this into two parts to maintain security of the information and to simplify its use. One section is the "how much" and the other is the "how to." Each item in a product is checked in on a checklist to assure compliance with the recipe. To assure high-quality workmanship we have one supervisor or quality control inspector for each ten production workers. As we automate and mechanize, the ratio changes in favor of a higher relative number of quality control personnel.

Campbell is engaged in the "Zero Defects" program that has been helpful in the missile and defense industries to impress employees of the need for quality workmanship. We have always believed that the expression "To err is human" is nonsense and can only be considered a crutch. When someone in our organization uses this in a discussion, or similar cliches as "law of averages" or "statistical quality control results," and the like, we suggest that they go to a dissatisfied housewife and explain mathematically to her that she unfortunately got the one unsatisfactory product made in the fifth hour of production and here are the charts to prove it.

Consumer Satisfaction

Especially important in this area of consumer satisfaction is being sure the label on the product is an absolutely truthful representation of the product. When and if a processor should receive a consumer complaint that the label does not represent the product, the

processor should be able to go to the same city or town, buy product samples off the shelf of any supermarket nearby, then demonstrate personally to the complainant that the picture on the label is completely accurate. If the label shows a product containing six meatballs, for example, it will matter little if there are seven in the product when it is opened, but it will matter immensely if there are only five.

Another important point having to do with truthful representation is the matter of giving good measure. The container must always have the appearance of being "well filled." There is one foreign country, for example, that allows excessive headspaces—but the well-advised processor must realize that if he took advantage of this, his product would not look well filled to the consumer. The processor may be at a competitive disadvantage temporarily in such a country as that; but if he is planning to remain in business there for a good many years to come, he cannot help but realize it is in his long-term best interest to do everything he can to continue to deserve consumer trust.

If one of our salesmen wants to demonstrate our product to a prospective customer, he goes to a store that stocks the item and buys it. We have never made special samples for a salesman's use. As our often-published slogan states, "We blend the best with careful pains in skillful combination, and every single can contains our business reputation."

Summary

After all of this, what are we trying to say? Within the framework of our present knowledge, the food industry is doing a magnificent job of bringing good, nourishing food, in bountiful quantities, at low prices to the American consumer. We will do a better job as soon as we gain more knowledge.

Standards can only be changed as new developments will permit.

Through the cooperative efforts of government and industry, greater strides

will be made; but we can only progress as fast as new knowledge develops, so let us do it together on a friendly, helpful basis.

Mr. Mounce is vice-president, Technical Administration, Campbell Soup Company (375 Memorial Avenue), Camden, N. J.

This paper was presented before the Food and Nutrition Section of the American Public Health Association at the Ninety-Third Annual Meeting in Chicago, Ill., October 20, 1965.

Urgently Needed

Single copies of the following issues of the American Journal of Public Health are needed: January, February, April, May, June, July, August, September, October, and December, 1965. These are needed to fill out sets for libraries and other institutions.

The Association will be grateful if members wish to donate any or all of these issues for this purpose.

APHA ANNUAL MEETING

1966—October 31—November 4—San Francisco, Calif.