HACCP:

Prescription for Safer Food Or Smokescreen for Deregulation?

by Geoffrey S. Becker

> ➤ To your glossary of food and agricultural terms, add HACCP. One day it could be as ubiquitous in food safety regulation as the Federal meat inspector who has patrolled packinghouses for more than 80 years.
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> HACCP (pronounced "HASSip") is the acronym for an established quality control concept known as "hazard analysis and critical control point." Proponents believe it can bring the U.S. Department of Agriculture's aging meat and poultry inspection programs into the twentieth century. But HACCP is also the target of intense criticism. Some consumer and labor groups fret that it will merely serve as a smokescreen for industry deregulation—at the expense of public health.

USDA will soon begin testing HACCP in meat and poultry plants. However, its allure has already spread far beyond the department: HACCP techniques are being incorporated into the seafood inspection activities of the National Marine Fisheries Service and Food and Drug Administration, and they have been proposed for international food safety standards.

Other parts of the food industry (most of them regulated by the FDA) are closely watching these developments. HACCP's success—and shortcomings—will be carefully weighed in any efforts to overhaul other safety assurance programs.

What Is HACCP?

Most current inspection programs police the food supply by attempting to *detect* safety and health hazards *after* they occur. HACCP emphasizes their prevention, primarily by building safety (and/or quality) controls into the production process itself. HACCP involves three basic steps:

(1) Identifying hazards and assessing risks associated with each phase of food production (which could include growing, harvesting, processing, marketing, preparation, and/or use);

(2) Determining the critical points where identified hazards can be controlled;

(3) Establishing procedures to monitor these critical control points.

HACCP is not government inspection per se, but rather a series of procedures that can be used to comply with specified standards. In fact, private industries already use the system to produce goods other than food, and for reasons other than safety—such as to make a product more reliable or to insure consistency in size or weight. Consumers themselves practice HACCP when they remember to refrigerate milk to keep it from spoiling, or

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thoroughly cook meat to kill microbacteria, for example.

HACCP was born out of the U.S. space program in the 1960s. Researchers at Pillsbury, NASA, and the Army's Natick labs were seeking an alternative to traditional quality control methods, which at the time could not insure that astronauts' foods would be as free as possible from biological contaminants. HACCP's success encouraged other private food manufacturers to voluntarily adopt their own HACCP models.

But the only Federally mandated use of HACCP for food safety has been for the low-acid canned food industry, where FDA imposed the system in 1973-74. HACCP was the most significant of a series of regulatory initiatives FDA undertook in response to concerns about sanitation and contamination problems in parts of the industry. The most widely publicized were the discoveries of deadly C. botulinum in canned vichyssoise in 1971 and in canned mushrooms in 1973.

The FDA regulations provide specific and comprehensive instructions—such as on types of equipment needed, steps to be followed, temperatures to be maintained, and so forth—in manufacturing low-acid foods (generally those with a finished pH greater than 4.6), so as to avoid processing situations that could result in C. botulinum contamination in the absence of such instructions.

HACCP in Meat and Poultry Inspection

USDA became interested in the system in the late 1980s after expert panels sponsored by the National Academy of Sciences specifically recommended its application to meat and poultry safety programs.

The Academy earlier had been asked by USDA's Food Safety and Inspection Service (FSIS) to evaluate its inspection programs. The NAS panels concluded that the programs had largely achieved their original objectives of cleaning up plants and detecting visible lesions and diseases so that only healthy animals entered the food supply. However, the system's heavy reliance on organoleptic surveillance methods—sight, smell, and touch—was not adequate to detect and control the problems of most concern today: microbial contamination (from such bugs as salmonella and campylobacter) and chemical contamination (from such sources as pesticides or animal drug residues).

FSIS does sample and scientifically test for such contamination, but critics maintain that these efforts have fallen woefully short. And the agency has been finding it difficult to keep pace with major changes in the meat and poultry industries, such as ever faster plant operations and an increased variety of products.

HACCP, the latest in a series of modernization initiatives launched since the late 1970s, really caught fire at USDA with the arrival of Dr. Lester Crawford as FSIS Administrator. In late 1989, he announced an ambitious study of HACCP initially scheduled for two years, but now expected to run until mid-1993 or later. After informational meetings and public hearings in 1990, a special department team began workshops with industry to jointly develop model HACCP plans for five types of meat and poultry operations—refrigerated foods, cooked sausage, raw ground beef, young chicken slaughter, and swine slaughter.

HACCP will be tested in volunteer plants for about a year, after which another USDA team will evaluate the results. If successful, HACCP is to be gradually incorporated into meat and poultry safety regulations.

Implementation

The Department must negotiate a minefield of criticisms and technical problems on its way toward a HACCP-based system. Perhaps the most fundamental question is exactly how HACCP

will be retrofitted onto present procedures, which essentially require that Federal inspectors be on site daily to examine every animal and bird slaughtered and to monitor their transformation into products like hot dogs, chicken nuggets, and the like. Officials have repeatedly stated that current inspection requirements will not be reduced, but rather that HACCP would be integrated with, and enhance, the existing programs.

Nonetheless, as USDA itself acknowledges, the precise role government will play—such as its inspectors' day-to-day regimes, their relationship with company employees, enforcement powers, and available corrective tools—is still unclear. That has made industry officials and consumer groups wary, but for different reasons. Industry generally favors HACCP as an alternative to many traditional procedures rather than as an additional layer of regulation bolted onto existing rules. Consumer groups, on the other hand, fear that it could mean less protection for the public because the new system seems to rely primarily on company workers to monitor the safety of meat moving through plants. They also argue that USDA officials lack a real understanding of the objectives of food inspection—which is supposed to be public health protection and disease prevention. They contend that, at best, officials will be maintaining the status quo by institutionalizing the mechanics of quality control already used by industry.

There is also some concern that monitoring HACCP will prove costly and labor-intensive for government and industry alike. For one thing, virtually all plants (even those producing the same type of product) will likely require uniquely tailored HACCP plans. For another, critical control points and other aspects of the plan will have to be reviewed and updated frequently to keep up with the virtually constant product, processing, and equipment changes in each facility, some critics have suggested.

Also at issue is whether USDA will—or even can—develop an adequate risk assessment component, the first HACCP building block. The National Academy of Sciences describes risk assessment as the use of a factual base to define the health effects on people of their being exposed to hazardous materials or situations.

Critics contend that USDA and industry have been determining hazards through anecdotal experiences rather than through the more appropriate "science" of risk assessment. Careful, community-wide epidemiological studies have not been conducted to find and quantify the health problems meat and poultry may now be causing, particularly those relating to biological contaminants.

For example, experts do not know what percentage of salmonellosis cases among humans are linked to chicken. And they do not know whether cutting the presence of the bacteria by some specified percentage would achieve a commensurate reduction of salmonellosis cases in humans. Therefore, it is presently impractical, if not impossible, to set safety standards against which to measure industry's performance under HACCP.

While USDA officials concede that statistically based standards have not yet been established for meat or poultry products, they assert that experience is in fact a credible teacher. To illustrate, exhaustive scientific research was not necessary to learn pork must be adequately cooked to destroy trichinae. Nonetheless, USDA has requested nearly $12 million in its fiscal 1993 budget for a new initiative to gather microbiological data.

"The assessment of risks from food products or for specific populations is not required in order to assess hazards at various points in food manufacturing systems," Dr. Crawford's former deputy, Dr. Catherine Adams, now with the Grocery Manufacturers of America, wrote last summer. "However, the estimation of specific food safety risks is useful information, and the agency continues to work with the scientific community to develop an appropriate method for risk assessment. However, we *do not*

agree that applying HACCP without 'risk assessment' is an inappropriate use of HACCP systems."

Among other operational and policy hurdles that stand between HACCP in concept and HACCP in practice:

• **Training Needs.** An effective program will require extensive training of both plant employees and Federal inspectors. This element was cited as one of the factors contributing to the effectiveness of HACCP for low-acid canned foods. Critics have questioned whether USDA has the wide-ranging and highly technical expertise needed to train its employees in HACCP methods, which may have to be constantly modified to keep pace with frequent changes in industry products and processing procedures. USDA officials say they are now hiring more persons with such expertise.

• **Research and Technical Support.** Another oft-cited need is more funding for research into specific agency-industry problems related to HACCP. In addition, improved, faster diagnostic and testing procedures might help to identify and monitor critical control points—and to detect any safety hazards that slip through the system.

• **International Issues.** Several working groups of the 140-member Codex Alimentarius Commission are considering the incorporation of HACCP principles into food safety standards. If HACCP-leavened Codex standards are subsequently adopted by signatories to the pending General Agreement on Tariffs and Trade, they could become the basis for resolving international trade disputes over health and sanitary requirements. Might that place additional pressure on USDA to relax domestic inspection requirements to be equivalent to the international standards, as one consumer advocacy group has predicted? Or will any international food guidelines that include HACCP be regarded only as minimums, thereby permitting the United States and other countries to continue to enforce higher standards?

• **Recordkeeping.** Will USDA have clearly delineated guidelines for keeping and reviewing records, so that the records will provide accurate, verifiable information for Federal inspectors? How can recordkeeping requirements be made effective without imposing an excessive burden upon the industry?

• **Roles of Employees and the Public.** Do employees need "whistleblower" protection so that they will not be afraid to report safety problems, or would that unduly interfere with plant management? Should the public have access to health and safety records as a way to deter potential abuses of the system by industry or Government?

All of these questions, and others, have made the road toward HACCP a long and rocky one. But many Government regulators, industry officials, and scientists seem intent upon making the journey, hopeful that they will find a much improved system for protecting consumers from unsafe food.

For More Information

From the National Academy of Sciences, National Academy Press, Washington, DC 20418: • *An Evaluation of the Role of Microbiological Criteria for Foods and Food Ingredients* (1985). • *Meat and Poultry Inspection: The Scientific Basis for the Nation's Program* (1985). • *Poultry Inspection: The Basis for a Risk-Assessment Approach (1987) Seafood Safety* (1991).

From the Food Safety and Inspection Service, USDA, Washington, DC, 20250: • FSIS *Information Kit* on HACCP, which includes: "HACCP Principles for Food Production," by the National Advisory Committee on Microbiological Criteria for Foods (November 1989, now being revised). • "The HACCP System and the Food Safety and Inspection Service: Concept Paper" (October 1989). • "HACCP Questions and Answers—Part I" (April 1990) and "Part II" (October 1990). • "The Food Safety and Inspection Service's HACCP Implementation Study: Strategy Paper" (January 1990).