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# Food Safety: Meal Planners Express Their Concerns

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**P**articipants in a recent national survey expressed a general lack of confidence that the existing regulatory system protects them from risks of unsafe food. Most of those surveyed thought using antibiotics or hormones in livestock, or pesticides on crops—even at approved levels—was not safe. Echoing this perception was a large group that did not believe pesticide risks were well understood or that pesticides should be used in food production.

Such concerns over food safety were broad-based. Of the five foods and practices considered unsafe by at least three-fifths of respondents, two were related to the threat of microbial pathogens (in very rare beef and raw shellfish), one to new technologies (irradiation), one to preservatives (nitrite), and one to pesticide residues on food.

Some respondents could not judge whether certain food production practices (such as the use of nitrite, irradiation, and hormones) and imports were safe, and may have lacked the necessary information to decide.

A variety of factors may have worked in concert to raise society's concerns over food safety in the last decade: extensive media attention given to food-safety problems; greater awareness of the relationship between agricultural production techniques, food quality, and human and environmental safety; and a growing general awareness

of the relationship between diet and health.

These factors, among others, have contributed to the deterioration of consumer confidence in the regulatory system's ability to protect them from harm. Part of this reflects the public's growing skepticism regarding the Government's ability to regulate risks and its abil-



*Forty-two percent of those responding to the survey said that they have become more concerned about food safety. They expressed concern over a broad spectrum of issues surrounding foods and food production and processing practices.*

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ity to regulate the food industry. Compounding the uncertainty may be a lack of scientific consensus regarding the magnitudes of health risks posed by pesticide residues and microbial pathogens in food and in the environment.

## The Diet and Health Knowledge Survey

To understand such concerns, USDA's Agricultural Research Service (ARS) asked some questions regarding food-safety issues in the Diet and Health Knowledge Survey (DHKS)—a major nationally representative survey on meal planners' attitudes and perceptions of the relationship between diet, nutrition, and health.

This article reports on information gathered in the 1990 survey (data from the 1991 survey were not available when this article was written). The survey questioned the main meal planners and/or preparers, about 80 percent of whom were women, in roughly 1,900 households. Thus, the findings reported in this article may not represent all consumers in the Nation.

## Food-Safety Concerns on the Rise

Many of those responding to the survey said that they were more concerned in 1990 than in 1989 about food safety: 42 percent indicated that their concern about food safety was "higher now than a year ago." Over half (55 percent) felt no different, and only 2 percent were less concerned.

Bacteria and parasites in foods were cited by nearly half the respondents as the most important of four food-safety concerns listed (table 1). Almost a quarter were most concerned about pesticide residues on fruit and vegetables. Smaller groups identified drug residues in animal products and food addi-

Table 1

Respondents' Most Important Food-Safety Concerns

Issue	Food-safety issues concerning respondents
	Percent
Bacteria and parasites in food	49
Pesticide residues on fruit and vegetables	23
Drug residues in animal products	12
Food additives	3
Not concerned about any of the above	8
Don't know or no response	5

tives as their most important food-safety concern.

## Concern Over a Wide Array of Issues

A broad spectrum of food-safety issues concerned respondents (fig. 1). Survey participants were asked to judge the safety of a list of foods and food production and processing practices. They were offered the choice of responding "safe" or "not safe" to the questions posed.

### Foods

The majority of respondents were not aware of a major health hazard: raw eggs. Eggs contaminated with *Salmonella enteritidis* have been associated with increasing cases of foodborne illness. While pasteurized eggs used in some commercially prepared foods are free from the microbial pathogen, raw eggs sold in retail markets may be contaminated. Homemade foods containing raw eggs can pose a health threat. However, over half the survey respondents thought foods made at home containing raw eggs were safe, while 40 percent judged them unsafe.

Respondents seemed to be better informed about risks from seafood (fish and shellfish). The greatest number of seafood-associ-

ated illnesses stem from raw mollusks (oysters, clams, and mussels) harvested from waters contaminated with raw or poorly treated human sewage. Lack of adequate cooking allows viruses or bacteria (normally killed by heat) to be ingested. Sixty-five percent of respondents considered raw shellfish unsafe.

A large majority of respondents (80 percent) felt that eating cooked fish was safe, while 16 percent thought that it was not safe. According to the Centers for Disease Control and Prevention (CDC), people face a smaller risk of foodborne illness from eating cooked fish (finfish and crustacean shellfish such as shrimp) than from eating cooked chicken or raw molluscan shellfish, if the same quantity of each is eaten (the CDC document refers to "fish" and "chicken;" we assume most fish and chicken are cooked prior to eating).

Respondents also were aware of the risk from eating raw and undercooked beef. Seventy-one percent said that very rare beef was not safe. Raw and undercooked beef may contain excessive amounts of parasites and microbial pathogens, which exist naturally in the animal's environment. Microbial pathogens may be introduced dur-

ing animal-raising, slaughtering, processing, handling, and final preparation. Food-safety experts recommend that consumers cook meat thoroughly and avoid the consumption of raw and undercooked meat, particularly ground meat, in order to avoid foodborne illness.

**Food Production**

The percentage of respondents who were concerned about specific food production and processing technologies varied.

For example, 43 percent indicated that foods containing addi-

tives or preservatives were not safe, and 46 percent believed foods with artificial coloring were not safe (fig. 1). Meat from animals given antibiotics or hormones at approved levels was viewed as unsafe by 53 and 56 percent of respondents, respectively. Sixty-seven percent felt that meat with nitrite was unsafe (nitrite is added to cured meats to improve flavor and color and serves as a food preservative). Fifty-two percent considered the waxing of fruit and vegetables to be unsafe (waxing is used mainly to enhance appearance and to retard spoilage and water loss, but also as a medium for applying fungicides). Sixty-nine percent of the respondents perceived irradiated foods as unsafe (irradiation is used to kill foodborne microbes, thereby improving product safety and shelf-life). Respondents were almost evenly split on the perceived safety of imported foods.

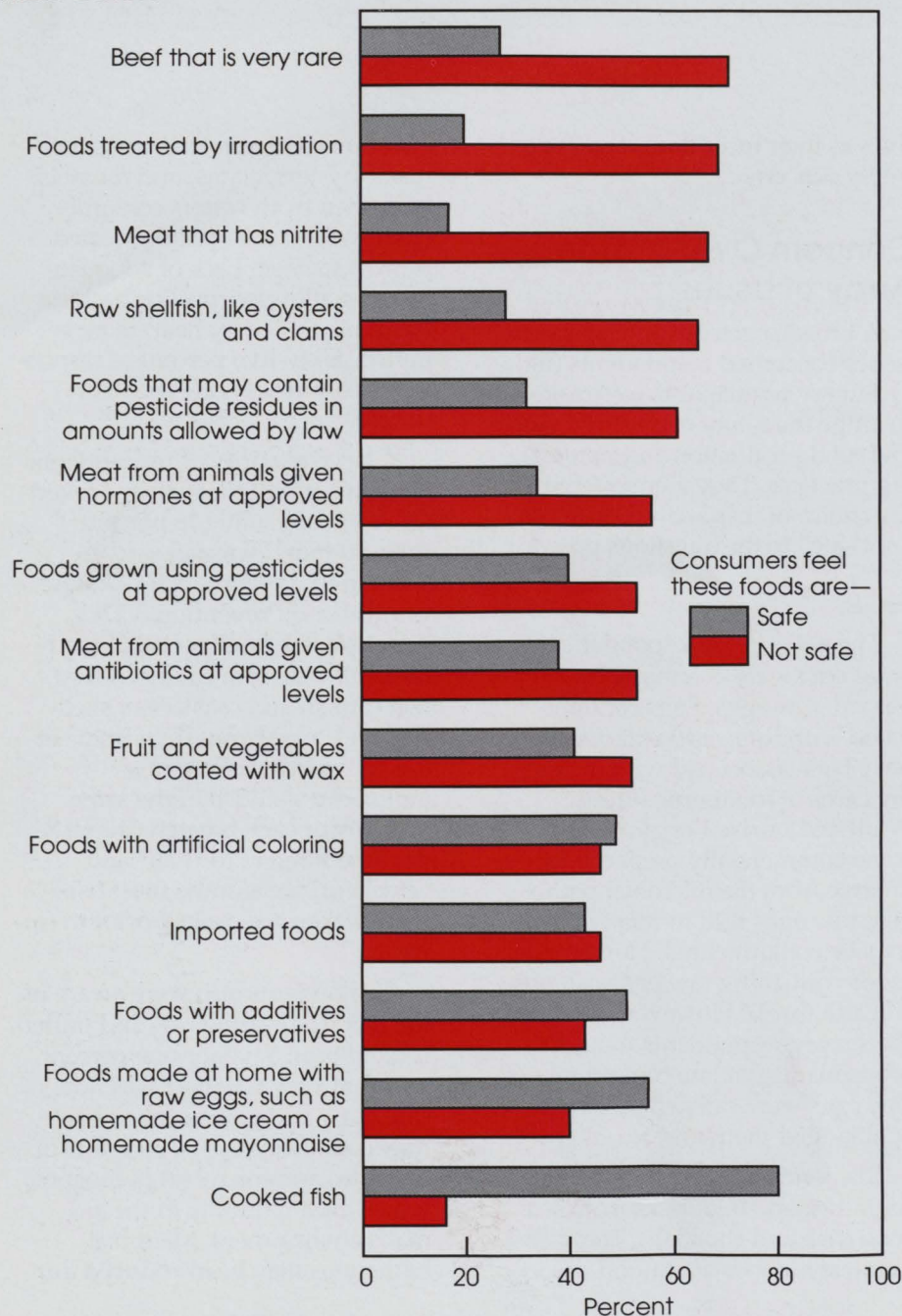
However, on certain food-safety issues—such as the use of nitrite, irradiation, hormones, and imports—some respondents appeared unable to judge whether or not a certain food or practice was safe. This is reflected in the relatively high percentage of respondents who said they “don’t know” or did not provide answers. This observation suggests that some consumers may lack the necessary information to decide.

**Respondents Question Pesticide Safety**

A majority of respondents was concerned about the safety of pesticides. They were slightly more concerned about residues on food than about the use of pesticides in general.

The survey included two questions related to pesticides: one on pesticide use in general and one on pesticide residues left on food. The first asked respondents to judge the safety of foods grown using

Figure 1  
**Respondents More Worried About Certain Foods and Practices Than Others**



pesticides at approved levels to control weeds and other pests. Over half (53 percent) said these foods were not safe; only 40 percent declared them safe (fig. 1). In the second question, a larger majority (61 percent) indicated that it was not safe to consume foods that may contain pesticide residues in the amounts allowed by law. Just under a third of the respondents viewed legal pesticide residues on food products as safe.

In a different series of questions, participants were asked how much they agreed or disagreed with three pesticide-related statements. Respondents expressed their opinion on a rating scale of 1 to 6, with 1 meaning strongly disagree and 6 being strongly agree (fig. 2).

Respondents were not confident in pesticide regulations. Fifty-nine percent strongly to mildly disagreed (scale points 1-3) that "the current laws adequately protect me from eating foods with dangerous amounts of pesticide residues in them." Of the extremes, 22 percent strongly disagreed with that statement, while only 13 percent strongly agreed.

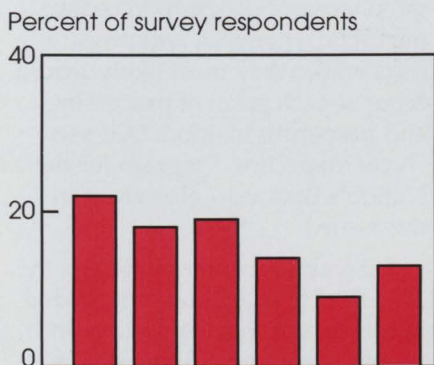
Respondents' uncertainty about health risks posed by pesticide use may reflect the difficulty in communicating risk information and the lack of consensus in the scientific community regarding the exact magnitude of health risks posed by pesticide use. Sixty-four percent strongly to mildly disagreed that the health risks from pesticide use were well understood. Only 14 percent strongly agreed, while 27 percent strongly disagreed.

A majority of respondents (64 percent) strongly to mildly agreed (scale points 4-6) that "pesticides should not be used on crops grown for food because the risks are greater than the benefits." Of the extremes, 35 percent strongly agreed that the risks are too large to justify use of pesticides in food

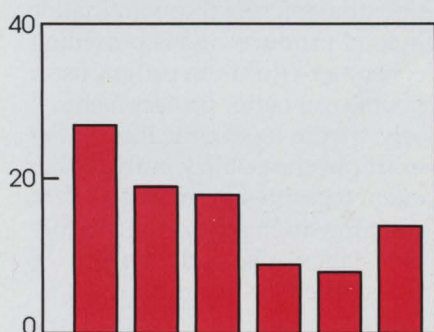
production, while only 6 percent strongly disagreed.

Figure 2  
**Respondents Feel Unsure About Pesticides**

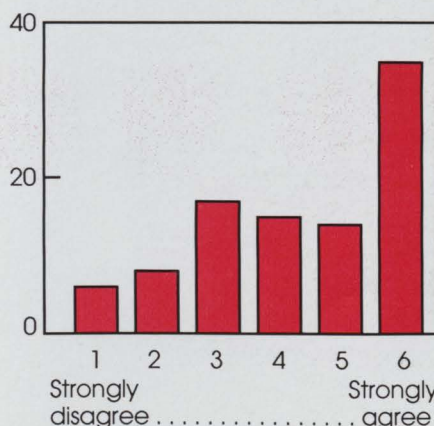
Current laws adequately protect me from eating foods with dangerous amounts of pesticide residues in them



Health risks of pesticide residues in food are well understood



Pesticides should not be used on crops grown for food because the risks are greater than the benefits



## Proposed Regulatory Reforms

One area of ambiguity in the discussion of food-safety concerns centers around whether people considered microbial contamination more serious than pesticide residues. Food-safety experts suggest that consumers are much more likely to get sick from food-borne microbial contamination than from pesticide residues. The DHKS and some other consumer surveys show that consumers felt more concerned about microbial contamination than about pesticide residues. The opposite result, however, also has been found in some surveys. Regardless of the overall ranking of specific consumer concerns about pesticides, these surveys strikingly reflect that the concerns were both broad and deep.

The widespread and persistent expression of consumer concerns about the safety of food and its production and processing, coupled with better scientific knowledge about the risks, have contributed to the momentum for reforming existing food-safety regulations. (See "New Approaches To Regulating Food Safety," elsewhere in this issue.)

For example, in late 1993, the Clinton Administration proposed a substantial overhaul of current food-safety legislation regarding pesticides. The proposal calls for a health-based risk standard for pesticide residues on fresh and processed foods. The reform legislation incorporates recommendations made by the National Academy of Sciences in its 1993 report *Pesticides in the Diets of Infants and Children* in order to ensure that the pesticide-registration process considers the unique aspects of children's diets and potential sensitivities to pesticide risks. New registration procedures will streamline the registration process for pesticide products

and will encourage the development of low-risk and minor-use products. The proposal also encourages the use of nonchemical agricultural practices and further promotes the use of integrated pest management (IPM) to reduce pesticide use.

In addition, USDA's Food Safety and Inspection Service (FSIS), the Food and Drug Administration (FDA) of the U.S. Department of Health and Human Services, and the food industry are collaborating to minimize risks of foodborne illness from meat, poultry, and seafood. For example, current USDA inspection systems for meat and poultry are being improved from the traditional organoleptic (sight, smell, and touch) inspection approach toward an approach of controls founded on quantitative risk assessments at various production and processing stages. This change will add preventative measures to the inspection of final products.

Labels are now required by USDA on all uncooked meat and

poultry products to provide consumers and foodservice industry employees with safe handling and cooking instructions.

FDA is proposing to improve the safety of the Nation's seafood supply by revamping seafood inspections. Known as Hazard Analysis Critical Control Points (HACCP), the approach requires seafood processors to adopt a safety-control program to reduce microbial, chemical, and physical risks where they most likely would occur at each stage of processing and preparing seafood. (Also see "New Inspection Program for the Nation's Seafood," elsewhere in this issue.)

FDA also recently published the 1993 *Food Code*, guidance intended to modernize food sanitation and preparation procedures used by the retail foodservice industry.

The industry is using improved safety-control measures to reduce potential microbial contamination in food products and is providing consumer-education programs so people can better protect themselves from foodborne illness. For example, the poultry industry has taken measures to control bacterial contamination at various production stages. Also, industry-prepared safe food handling

instructions about eggs, meat, and poultry are distributed on product packages and in supermarkets.

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