

In these circumstances, it will be necessary to strengthen the correspondence capabilities of domestic production for food processing and services demand to improve the self-sufficiency rate of vegetable. However, the conventional production-supply correspondence required for household consumption is insufficient for that, because the main characteristics required for household consumption and for food processing and services are different (Table 1). For instance, as for the point of the content of the quality, the characteristics required according to the usage are various in

food processing and services while externals are valued in household demand. Moreover, when the handling form is seen, the purchase in preprocessed form is a feature for food processing and services while the distribution in a whole form is basic for household consumption.

Therefore, not only will low-cost production be needed, but also production of the varieties and to the specifications corresponding to needs according to the usage and the year-round stable supply by the relay between production regions and the like in domestic production.

Table 1. Main Characteristics of Household Consumption, and Food Processing and Food Services Demand

	For household consumption	For food processing and food services
Quality (varieties, specifications)	External qualities are valued.	Characteristics required according to the usage are varied.
Shipment from	The number is valued. Cardboard	Weight is valued. Returnable container
Handling from	Whole	Preprocessed
Correspondence to shipment amount change	Correspondence according to amount of shipment	Fixed quantity (year-round stable supply)
Correspondence to price fluctuation	Correspondence by change of sales unit	Fixed price (mid/long-term stabilized price)

Food Safety/Peace of Mind and Food Information: A Survey of Consumer Attitudes

Yuki SUZUKI

1. Objective

Consumer fears about food safety have grown more serious than ever because of several food-related incidents in recent years. Foods perceived as risky end up being left on the shelf; foods rumoured to be safe or healthy, by contrast, often become hot commodities. The present study involved conducting a consumer opinion survey and analysing the results. Three points were examined: 1) the factors behind consumer fears about food safety; 2) correlation between those factors and the objects of consumer fears; and 3) how the objects of consumer fears, sources of information about them, and the triggers for them correlate with scientific knowledge and the factors behind those fears. Directions in risk communication were then considered.

2. Method

A survey of consumer attitudes relating to

fears about food safety was conducted in June 2004. (A total of 2,000 people were selected at random in the twenty-three wards of Tokyo and the city of Shizuoka. The questionnaire, which was anonymous, was then mailed out to these subjects; 725 valid responses were received.) The resulting data was then processed using such methods as cross-analysis and factor analysis (a statistical technique for exploring the mentality behind responses).

3. Overview of Findings

(1) Results of factor analysis

As Table 1 shows, five factors were identified behind fears about food safety: 1) preference for safe, healthy foods; 2) distrust of society; 3) sympathy with slogans about getting back to nature; 4) aversion to artificial foods; and 5) nostalgia for a plain, rustic image.

Table 1. Factor loading table

Variable	Factor 1. Preference for safe, healthy foods	Factor 2. Distrust of society	Factor 3. Sympathy with slogans about getting back to nature	Factor 4. Antipathy to artificial foods	Factor 5. Nostalgia for rustic life
Q3.4 Like organic processed foods	0.6687	0.0376	0.2896	-0.0308	0.2426
Q3.8 Like foods with no additives	0.7369	0.0774	0.1817	-0.0833	0.0582
Q6.6 Distrust media	-0.0208	0.3574	-0.2353	0.2234	0.0104
Q6.4 Distrust producers	0.1145	0.4790	-0.0293	0.1491	-0.1525
Q6.5 Distrust government	-0.0224	0.9224	0.0113	-0.0355	0.0812
Q6.3 If it's natural, it's safe	0.0635	-0.1263	0.3348	0.0243	0.1111
Q6.2 Don't scrimp on health	0.3204	-0.0311	0.4186	0.0559	-0.0180
Q6.10 Value the spiritual more than the material	0.0766	0.0255	0.4257	0.0279	0.0574
Q6.9 Healthy foods have good aura	0.2257	-0.0441	0.5363	-0.0388	0.1099
Q3.2 Dislike foods for specified health uses and Japan Agricultural Standards (JAS)	-0.3282	0.0544	-0.1582	0.4179	-0.1354
Q3.1 Dislike fast food	0.0963	0.0532	0.2526	0.4882	-0.0468
Q3.8 Dislike processed health foods	-0.0684	0.1125	-0.0154	0.6146	-0.0585
Q3.5 Prefer items showing producer's name and photo	0.3743	0.0453	0.2064	0.0255	0.4526
Q3.6 Like homemade-style foods and items that mimic Grandma's cooking	0.0971	-0.0844	0.1152	-0.1800	0.6340

Notes: 1. The actual questions were more detailed; here they are given in abbreviated form.

2. The term "slogan" here refers to the unscientific or profit-motivated claims that frequently appear in health magazines and in food ads emphasizing that a product as being natural, e.g., "If it's natural, it's safe," "Healthy foods have good vibes on those around," or "You should eat healthy even if it costs more." Incidentally, it is not true that "natural" equal "safe," since so-called natural foods contain minute amounts of natural toxins.

(2) Correlation between the factors and objects of consumer fears

Upon classification of consumers according to the type of fears they have about food safety, a significance test was performed. As Table 2 illustrates, in the case of Factors 1-4, a significant difference exists in the average factor score. (Roughly speaking, a positive score with a long series of symbols to the left indicates that the factor in question is strongly at play; conversely, a negative score indicates contrari-

ness to the factor in question.) Consumers fearful of food additives and GMOs, Factor 2 (i.e., displayed a high level of social distrust) scored high. Those fearful of GMOs, food additives, and residual pesticides showed a tendency to sympathize with slogans about getting back to nature. Those fearful of BSE and bacterial food poisoning showed a tendency to trust society, to prefer foods seen as being artificial, and to be critical of slogans about getting back to nature.

Table 2. Factor score for "biggest fears" relating to food safety

Biggest fear	Factor 1 (preference for safe, healthy foods)	Factor 2 (distrust of society)	Factor 3 (sympathy with slogans about getting back to nature)	Factor 4 (antipathy to artificial foods)	Factor 5 (nostalgia for rustic life)	No. of respondents
Residual pesticides	Aab0.1352	Aa_0.1466	AB0.0998	ABa0.1139	a0.0452	129
Food additives	BCc0.2168	ABCD0.3163	CD0.0775	Cbc0.1025	b0.1108	100
Bacterial food poisoning	ABD_0.1747	Bb_0.1319	ACEa_0.1865	ADbd_0.1444	abc_0.1372	113
BSE	-0.0541	Cc_0.1407	bc_0.0594	BCEf_0.2317	-0.0331	64
GMOs	Dde0.2528	Eabc0.2932	EFb0.2350	-0.0333	-0.0680	36
Bovine Growth Hormone	0.1561	0.1647	d0.0681	DEGe0.4441	d_0.2301	12
Radiation	-0.0725	d0.2427	e0.0768	-0.0871	0.0854	18
Dioxin	0.0447	e0.1889	f0.1228	Gacf_0.3055	cde0.2866	21
Heavy metals	Cad_0.1837	DEde_0.3058	Ga0.0960	Fdf0.1682	e_0.1148	53
Contamination	bce_0.4076	0.1464	BDFGdef_0.5036	e_0.2291	-0.1013	12

(3) How the objects of consumer fears, sources of information about them, and the triggers for them correlate with scientific knowledge and the factors behind those fears

Fears were often triggered by reports in the media or by school education. In the case of consumers with fears about BSE, those fears were mainly triggered by the media: such consumers regarded television and such as primary sources of information. On the other hand, consumers with fears about residual pesticides and food additives commonly cited school education as the trigger. Consumers with fears about food additives and GMOs regarded information supplied by producers (through catalogs, labels, Web sites, or the like) as a primary source of information. Those sympathetic to slogans about getting back to nature displayed a tendency to misunderstand certain scientific facts; however, no correlation was found between the amount of scientific knowledge that people possessed, or the misunderstandings they had about specific

issues, and the types of fears they felt.

(4) Directions in risk communication

The study revealed that sources of information, food preferences, degree of mistrust of society, and tendency to sympathize with slogans all varied depending on the type of fear. One school of thought on the subject of risk communication with consumers holds that providing them with scientific information should allay their fears; the present findings indicate the importance of understanding consumer mentalities when communicating that information.

4. Publication of Findings

Yuki Suzuki, "Food Safety and Peace of Mind and Food Information: A Survey of Consumer Attitudes" in *Research on the Establishment of a Risk Management System for Food and Agriculture on the Viewpoint of Social Science Part 2, Research Paper of Risk Management Project 3*, PRIMAFF: 8-88. (in Japanese)

Comparative Study on Institutions and Policies for Food Safety: Focusing on the Meat Sector

Tomoko ICHIDA

1. Objective

The study aims to analyze the trends of organizations and related associations for food safety, and changes of labeling and examining systems in foreign countries. It focuses on institutions and policies for safety and traceability, mainly of the meat sector, comparing Japan and other countries. Its final aim is to clarify the extent of traceability and the relationship between cost-bearer and beneficiary.

2. Procedure

- (1) Recent trends of administration for food safety in the US were analyzed based on data collected via the Internet.
- (2) Institutions and their application for meat traceability in the EU and member countries were described based on a 2003 field study in Germany and Internet data.
- (3) Institutions and policies concerning food safety and traceability and their influences in China were analyzed based on a field study.
- (4) In conclusion, we compared laws and organizations related with meat traceability after BSE crises between Japan and other countries.

3. Recent Trends in Meat Traceability in the US

In December 2003, the first BSE case was confirmed in the US. The Animal and Plant Health Inspection Service of the US Department of Agriculture (USDA) began urging the introduction of the National Animal Identification System (NAIS) in 2004. According to the scheme, under NAIS, animal, farm, slaughterhouse and animal market etc., are to be identified by their own numbers. In the case of cattle RFID (Radio Frequency Identification) ear tags are to be attached to each head, while pigs are to be identified with bar code numbers distributed to each lot, then their moving records are immediately sent to and stocked into the governments' database. NAIS is being voluntarily implemented.

4. Institution and its Application for Meat Traceability in EU

An obligatory and voluntary traceability system is implemented. The obligatory one is based on the EU Regulation (1760/2000) every member country let the competent authority establish the nation-wide database on bovine animals and employ the identification and labeling system of them from farms to tables. Additionally, the pig database has partly started in 2004. While the database was initially financed by national governments, it is managed by the competent authorities, namely the association of animal breeders and their fees.