

(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

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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.

Table 1. Comparison of Meat Traceability System between Japan and Other Countries

	Laws and institutions concerning meat traceability	The particulars of legal regulations and obligatory matters	Targeted animals	Share of cost and responsibility by national and local governments, private sector and producers
EU	Law: Regulation (EC) No 1760/2000 of the European Parliament and of the Council of 17 July 2000 establishing a system for the identification and registration of bovine animals and regarding the labelling of beef and beef products and repealing Council Regulation (EC) No 820/97 Organization: the competent authority of each member country in charge of the animal database	According to Reg. 1760/2000 the following matters are obligatory to each animal keeper: - to report and to register all birth, movements, deaths and slaughters of animals - tag attachment to each ear - keeping and supplying of the animal passport on request of the competent authority	Bovine animals: individual identification Other animals: identification by farm	Dependant on member countries
Germany	Law: Direction concerning Animal Transport (Viehverkehrsverordnung latest amended in 1998) Organization: animal databanks both on central and states' levels	According to the national direction concerning animal transport the following matters are obligatory to each animal keeper: - to report and to register all birth, movements, deaths and slaughters of animals - tag attachment to each ear - to keep and to supply the animal passport on request of the competent authority	Bovine animals: individual identification Pigs: identification of the moving routes	The cost of database is borne mainly by the association of producers and meat companies in charge of the database and their fees, while the cost of ear tags (3.3€ per pair) and registration fee are paid by producers.
France Note	Law: The government ordinance dated on October 19th 1998 ("laying down enlargement of the agreement on the labelling of the bovine animals concluded by the national union of animal and meat industry", the government ordinance dated on April 2nd 1999 ("concerning the labelling and the traceability of bovine animals") Organization: The Ministry of Agriculture and Fishery of France (since 2000) and the prefecture committee of animal breeding or the association delegated by it manage the animal databases.	According to the government ordinance dated on April 2nd 1999 the following matters are obligatory to each animal keeper: - to report and to register all birth, movements, deaths and slaughters of animals - tag attachment to each ear - to keep and to supply the animal passport on request of the competent authority	Individual identification: bovine animals using single tag since 1995, sheep and goats since 1997, pigs since 1999	Farm owners bear the cost. Farm owners pay money in accordance with the sort and the number of livestock (averagely 22FF per head) to the association for public health (GDS).
the USA	The federal and states' governments started the traceability system of bovine animals from farms to slaughterhouses (NAIS), but in the voluntary way.	NAIS is not yet obligatory while the concern about privacy and the cost bearing problem are pointed out.	Gradually implemented from beef to pork and mutton	The costs of NAIS, reader, ear tags etc. are 545.42 million dollars for 5 years. The percentage of ear tags to the total cost is 78% and federal government is not willing to bear it.
Japan	Law: The Law for Special Measures Concerning the Management and Relay of Information for Individual Identification of Cattle (Beef Traceability Law) Organization: The National Livestock Breeding Center (NLBC), Regional Agricultural Administration Offices	According to Beef Traceability Law the following matters are obligatory to each animal keeper and beef distributor: - animal keeper: to report at birth and movements, to attach ear tags since Dec. 1st 2003 - beef distributor (slaughter, retailer, restaurant): to label beef with individual identification numbers, and to keep registers recording the beef information since Dec. 1st 2004.	Domestic beef	In the budget of 2003 FY 1.1 billion yen was expensed, mainly for the DNA judge in order to prevent disguise.
China	No national legislation, but some local ones as 'The rules of keeping animals and poultry of Shanghai City'.	To hold the traceability throughout the whole process in the keeping facilities from breeding, feed mixing, medicine use to sales. To mark immunity is obligatory, while to attach ear tags is not.	Animals and poultry kept in the keeping facilities of Shanghai City	All costs are borne by producers.

Note: Based on the information of Bureau Européen de Recherches SA, May, 2000.

5. Meat Traceability in China

In China, the institution for food safety has been improving recently, while a traceability system has just started. Some pork companies have had success in establishing cold chains and integrated production systems from farm, to transportation, to sales. Actually, these advanced companies work closely with and are assisted by their local governments.

6. Comparison between Japan and Other Countries

We compared the public support and regulations for the traceability system, their implementations and the voluntary measures by the food industry between Japan and some foreign countries, especially on the following points: 1) particulars and scope of legal regulations, 2) animal identification, labeling and quality control, 3) obligatory matters, 4) targeted animals, 5) share of cost and responsibility by national and local governments, the private sector, and producers (see Table 1). The particulars of legal regulations and obligatory matters are almost identical between Japan and EU, but the Japanese system is distinguished in

that the main part of costs are borne by the national government and a huge amount of money is budgeted in order to guarantee quality and to prevent counterfeiting.

Additionally, the identification system of bovine animals has been introduced not only in EU member countries, but in Australia, Canada, Brazil, Argentina, Mexico and Uruguay as well.

7. Related Publications

Ichida, T. (2005) Traceability System of Meat after BSE in Germany: Institution and Actual Situation, *Research on the Establishment of a Risk Management System for Food and Agriculture on the Viewpoint of Social Science 2, Research Paper of Risk Management Project 3*:

Kondo, H.(2005) Administration for Food Safety by the U. S. Department of Agriculture, Food Safety and Inspection Service, Ibid.

Kawahara, S.(2005) The Institution for Food Safety and the Traceability of Animal Product in China, Ibid.

List of Research Members

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Institutional Design of Agri-Environmental Payment: An Application of Behavioral Economics for Policy Analysis

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1. Purpose

Agri-Environmental Payment is a policy which could bring out the multifunctionality of agriculture. It is necessary to design institutions which farmer can assent to and attend in a positive manner, when policy makers make consideration an aspect of volatility to attend a scheme. However, it is not easy to clarify the relationship between amount of subsidy and effect. Specifically, some cases in Europe say that the amount of subsidy and policy effect have an inverse relation. Consequently, this research was conducted to get policy implications as follows: (1) when total amount of (inter temporal) subsidy is same, which payment scheme is preferred by farmers; and (2) institutional design of agri-environmental policy which can reduce farmer's excessive risk aversion strategy.

2. Process

This paper uses behavioral economics for its theoretical base. Behavioral economics is a field which combines cognitive psychology and

economics. It is gathering attention due to Daniel Kahneman's Nobel prize in 2002. Unlike neo-classical economics, behavioral economics is not based on homo-economics. Moreover, behavioral economics is being applied to policy analysis gradually as Behavioral Law and Economics, especially in the US. Data used in this paper is gathered from questionnaires handed to farmers in Yonezawa, Yamagata.

3. Brief Results

Two assumptions were set by theoretical research on behavioral economics and existing case studies in Europe. The following are the two main results found.

Firstly, farmers do not prefer inter-temporal payment systems in which the amount paid per year is small at the early stages, then increases. However they do not prefer the case that is widely supported by theoretical models and labor-economics research, but prefer a constant amount of payment (see Table 1). In recent cases in Europe where agri-environmental is a common measure, some indications said that monetary compensation for