

# Creation of the Food and Agricultural Materials Inspection Centre in Japan

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## Summary

The Food and Agricultural Materials Inspection Centre (FAMIC) of Japan was created in April 2007 with the task of improving the quality and labelling of agricultural products and of ensuring the quality and safety of fertilizer, agricultural chemicals, feed and feed additives and soil improvement materials in the interests of consumers. The authors outline the background to the establishment of the FAMIC and its functions. To achieve its mission, the FAMIC is engaged in the inspection of agricultural products and materials at every stage of the food chain. The FAMIC develops and validates analytical methods for food products and materials that should be used in official inspections and works in close collaboration with the Ministry of Agriculture, Forestry and Fisheries of Japan and other national agencies, prefecture governments and international organisations.

## Keywords

Administrative agency, Agriculture chemicals, Feed safety, Fertilizer safety, Food labelling, Food safety, Food standards, Japan.

## Creazione del Centro per il controllo degli Alimenti e dei Prodotti utilizzati in agricoltura in Giappone

### Riassunto

*Il Centro per il Controllo degli Alimenti e dei Prodotti utilizzati in agricoltura in Giappone (FAMIC) è stato istituito nell'aprile 2007 allo scopo di migliorare la qualità dei prodotti agricoli e la loro etichettatura, per il controllo di qualità e sicurezza dei fertilizzanti, dei prodotti chimici impiegati in agricoltura, degli additivi per mangimi e per i mangimi stessi, nonché dei prodotti per la bonifica del suolo, a tutela dei consumatori. Gli autori in questa pubblicazione illustrano il percorso che ha portato alla costituzione della FAMIC e le sue funzioni. Per realizzare i suoi obiettivi, la FAMIC si è impegnata nel controllo degli alimenti e dei prodotti agricoli ad ogni stadio della catena della produzione alimentare. La FAMIC sviluppa e valida metodi analitici per il controllo dei prodotti alimentari e dei materiali da adottare nelle ispezioni ufficiali e nelle attività effettuate in stretta collaborazione con il Ministero dell'Agricoltura, Pesca e Foreste giapponese, altre agenzie nazionali, istituzioni governative e organizzazioni internazionali.*

### Parole chiave

Agenzia amministrativa, Etichettatura degli alimenti, Giappone, Prodotti chimici per uso agricolo, Sicurezza degli alimenti, Sicurezza dei mangimi, Sicurezza dei fertilizzanti, Standard per gli alimenti.

## Introduction

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In April 2001, the Centre for Food Quality, Labelling and Consumer Services, Fertilizer and Feed Inspection Services and Agricultural Chemicals Inspection Station were changed in an administrative reform from being government agencies to becoming incorporated administrative agencies – executive agencies of the Ministry of Agriculture, Forestry and Fisheries (MAFF). In April 2007, these three agencies were merged into a single incorporated administrative agency, the Food and Agricultural Materials Inspection Centre (FAMIC). As stipulated in the Food and Agricultural Materials Inspection Centre Law (Law No. 183, 1999, last amended in March 2007), the overall purpose of the FAMIC is to improve the quality and labelling of agricultural products and to ensure the quality and safety of fertilizer, agricultural chemicals, feed and feed additives and soil improvement materials in the interest of consumers. To achieve this mission, the FAMIC is engaged in inspection of agricultural products and materials at every stage of the food chain. FAMIC's inspection task is based on six laws, as follows:

- Fertilizer control law (Law No. 127, 1950)
- Law concerning the safety assurance and quality improvement of feed (Feed Safety Law) (Law No. 35, 1953)
- Soil fertility enforcement law (Law No. 34, 1984)
- Agricultural chemicals regulation law (Law No. 82, 1948)
- Law concerning the standardisation and proper labelling of agricultural and forestry products (Japan Agricultural Standards Law) (Law No. 175, 1950)
- Law concerning the conservation and sustainable use of biological diversity through regulations on the use of living modified organisms (Law No. 97, 2003).

FAMIC's staff members enjoy official government status under the Food and Agricultural Materials Inspection Centre Law, and are authorised to make on-site inspections in accordance with the respective laws.

FAMIC undertakes its tasks in line with a five-year strategic plan developed by the Minister of Agriculture, Forestry and Fisheries; its performance is evaluated annually by MAFF's Performance Evaluation Committee.

## Organisational structure

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Figure 1 illustrates the organisational structure of FAMIC. Under the President, there are seven departments, an audit office and five local centres (Fig. 1). At 1 April 2007 there were 694 staff members. The head office is responsible for the overall administration of the centre as well as serving the region of Kanto (region including Tokyo and nearby prefectures). The local centres in Sapporo, Sendai, Nagoya, Kobe and Fukuoka are responsible for serving their respective regions (Fig. 2).

## Assurance of proper food labelling

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To enable consumers to make informed choices when purchasing food, the Minister of Agriculture, Forestry and Fisheries, in accordance with the Japan Agricultural Standards (JAS) Law, sets the standards for food labelling that includes: the name of the food product, raw materials used, desired method of storage and origin of production.

FAMIC purchases food samples from the market and submits them for laboratory analysis to ensure that the labelling is consistent with the food.

If mislabelling is suspected as a result of laboratory analyses, FAMIC makes an on-site inspection of food producers, distributors or importers, and examines production records.

In the 2006 fiscal year, 5 330 samples of processed food and 737 samples of fresh food were submitted to laboratory analysis, 360 of which were found to be mislabelled (4).

FAMIC has a telephone hotline inviting information from the public about suspected mislabelling of food.

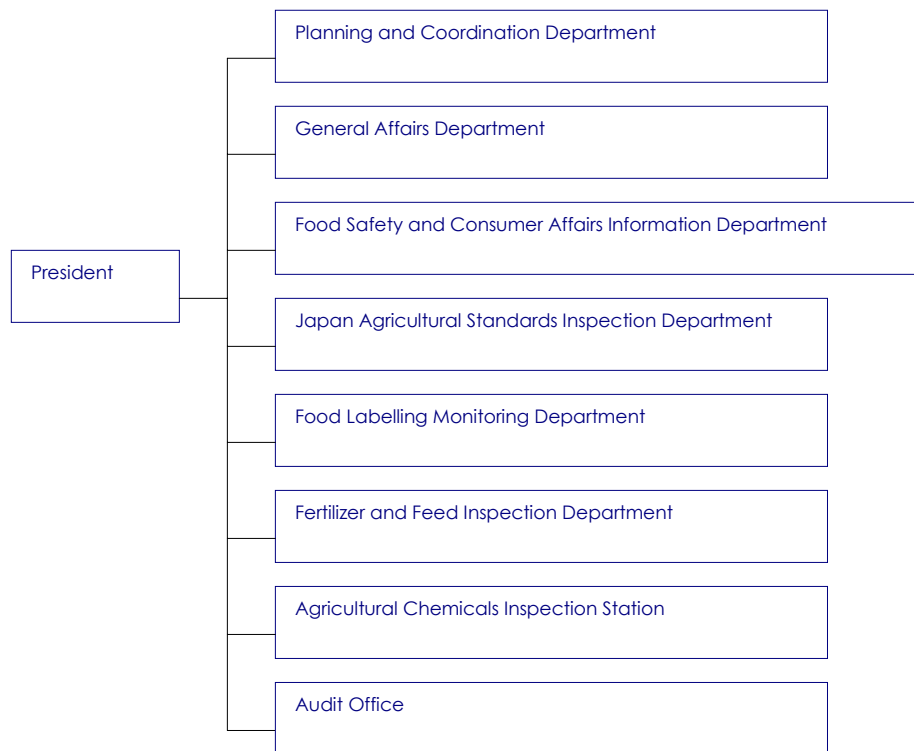


Figure 1 Organisational structure of the Food and Agricultural Materials Inspection Centre in Japan

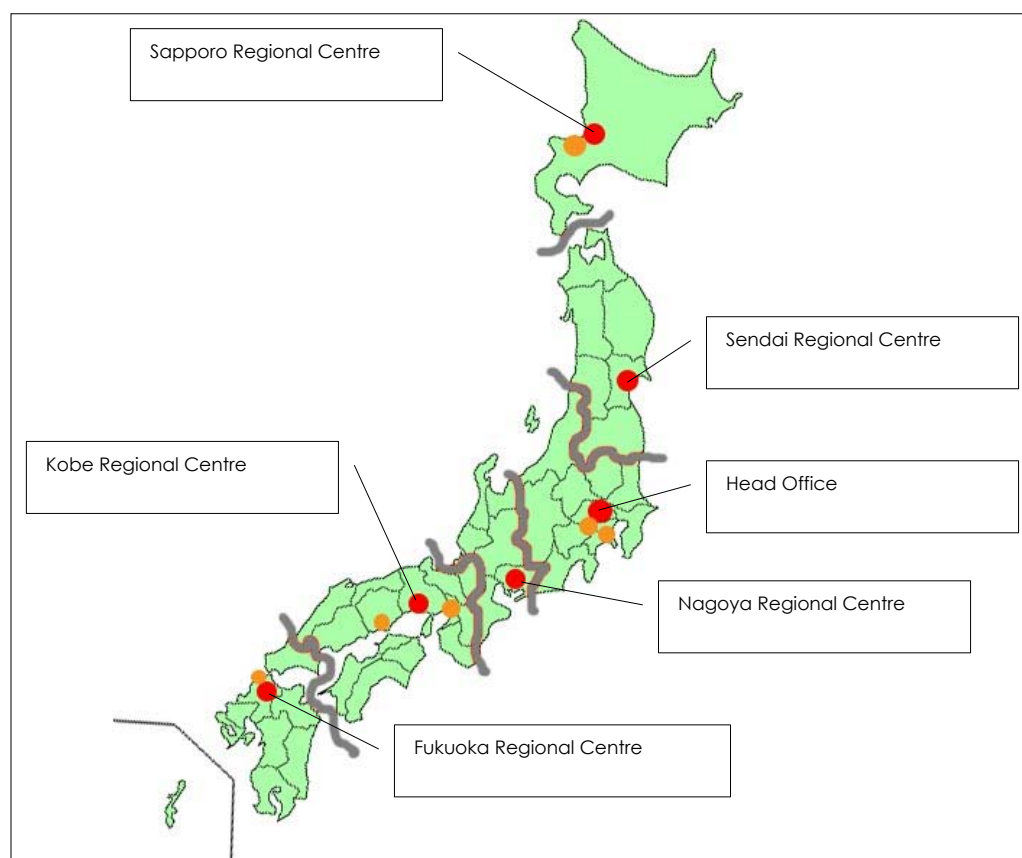


Figure 2 Location of the head office and local centres of the Food and Agricultural Materials Inspection Centre

## Assurance of proper maintenance of the Japan Agricultural Standards system

To improve the quality of agricultural products and to rationalise production and consumption, the Minister of Agriculture, Forestry and Fisheries, in accordance with the JAS Law, sets JAS standards for foods for quality purposes. Agricultural products that meet these standards are entitled to have a JAS label (Fig. 3). By the end of February 2007, JAS had been established for 71 types of agricultural products. Food producers accredited by a registered accreditation organisation are authorised to place a JAS label on their products.

### Inspection of Japan Agricultural Standards accreditation organisations for registration

FAMIC inspects potential accreditation organisations for registration upon receipt of their application. Documents submitted by the applicants are assessed by FAMIC and the inspection takes place in a manner consistent with international standards (ISO/IEC17011) to determine whether the applicant organisation meets the accreditation standard. Organisations in foreign countries are also eligible for registration as accreditation organisations. As of 30 September 2007, there were 98 accreditation organisations in Japan, 4 in the United States, 3 each in Canada and Italy, 2 each in Australia, Germany and New Zealand, and 1 each in Indonesia, the Netherlands, Norway and Switzerland (6).

## Information collection for revision of Japan Agricultural Standards

A JAS Revision Study Group composed of consumer and producer representatives and scientists examines the need for revision of JAS standards within five years of their adoption. FAMIC collects data and conducts the studies specified below, the results of which are used by the JAS Revision Study Group:

- extent of the use of standards
- consistency with *Codex Alimentarius* standards
- presence of valid analytical methods used to verify that the food meets the standard
- opinions by consumers, food producers and other users of standards.

## Analysis for surveillance and monitoring for risk management of food

Based on the guideline set by the MAFF on the surveillance and monitoring of hazardous substances in food, FAMIC takes food samples and submits them to laboratory analysis for residues of agricultural chemicals, fungal toxins and other trace substances. The results are reported back to the MAFF and used when possible risk management measures are considered. In the 2006 fiscal year, 1 925 food samples were subjected to analysis for agricultural chemical residues and 210 food samples for fungal toxins (deoxynivalenol, nivalenol and zearalenone) (4).

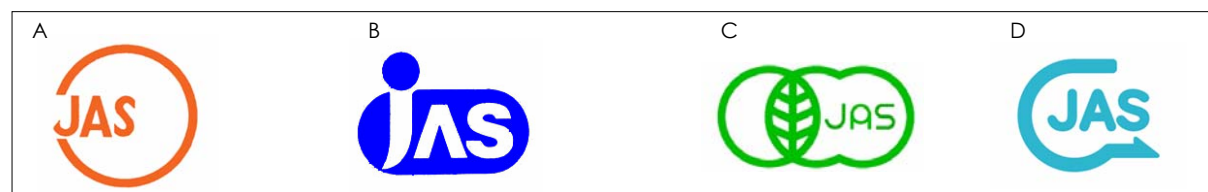


Figure 3  
Different Japan Agricultural Standards labels

- A. Ordinary JAS, used for foods of a certain quality, composition or performance
- B. Specified JAS, used for foods manufactured using a specific production process (manufacturing methods, raw materials used, etc.)
- C. Organic JAS, used for organic food or feed
- D. Traceable JAS, used for foods that provide production history information

## Quality and safety assurance of fertilizer

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Safety and quality of fertilizer is important to maintain and promote agricultural output and to ensure food safety. The following measures are taken in Japan to guarantee the safety and quality of fertilizer in accordance with the Fertilizer Control Law:

- establishment of official standards for certain types of fertilizer
- registration of fertilizer for which a specification exists, and provisional registration of fertilizer for which an official standard has not been established
- on-site inspection of fertilizer manufacture plants, store houses and other places.

### Setting standards for fertilizer

A specification of fertilizer established under the Fertilizer Control Law prescribes the minimum amount of effective components that a certain type of fertilizer should contain and the maximum amount of hazardous substances that it is allowed to contain. For specific types of fertilizers, the use of which may result in production of crops that are harmful from animal and/or public health viewpoints, specifications for application methods and withholding periods are also established. FAMIC conducts studies on the possible revision of standards based on the latest scientific findings and application by fertilizer manufacturers. This information is reported back to the Minister of Agriculture, Forestry and Fisheries. At the end of 2006, standards were established for 143 types of fertilizer (1).

### Registration of fertilizer

Manufacturing, importation and marketing of fertilizers besides special feed (rice bran, compost, fish meal and others that are designated by the Minister of Agriculture, Forestry and Fisheries) are prohibited in Japan unless they have been registered by the Minister. FAMIC examines applications submitted for registration. Specimens submitted are subjected to laboratory analysis and field application to confirm that the

fertilizer meets the specification established under the Fertilizer Control Law.

### On-site inspection of fertilizer manufacturers

By instruction from the Minister of Agriculture, Forestry and Fisheries, FAMIC officials make on-site inspections of fertilizer manufacturing plants, store houses, etc. to examine production records and other documents. They also take samples of fertilizer which are subjected to laboratory analysis to ensure that they meet the standards set by the Fertilizer Control Law. The results of inspections and laboratory analyses are reported to the Minister of Agriculture, Forestry and Fisheries. Depending on the results of the inspections and laboratory analyses, FAMIC provides technical advice to the fertilizer manufacturers and distributors.

## Assurance of safety and quality of feed

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The safety and quality of feed is important to ensure animal health and the safety of animal products. The following measures are taken in Japan to guarantee the safety and quality of feed in accordance with the Feed Safety Law:

- establishment of standards and specifications for production, usage, storage and labelling of feed and feed additives (production, marketing and use of feed and feed additives that do not meet these standards and specifications are prohibited)
- prohibition of marketing of specified feeds and feed additives which have not been tested by FAMIC or which are not produced by manufacturers registered by the Minister of Agriculture, Forestry and Fisheries
- prohibition of production, importation, marketing or use of feeds and feed additives containing hazardous substances or contaminated by micro-organisms.

### On-site inspection of feed and feed additive manufacturers

The FAMIC conducts on-site inspections of feed and feed additive manufacturers and examines production records and other

documents to ensure that they are produced in accordance with the standards set by the Minister of Agriculture, Forestry and Fisheries. Samples are also taken and submitted to laboratory analysis to ensure that they contain the acceptable amount of feed additives and hazardous substances within the maximum tolerable limits. FAMIC provides technical advice to the feed manufacturers and others concerned depending on the results of the inspections and laboratory analyses.

### Testing of feed and feed additives

Upon receipt of an application from a manufacturer of specified feeds and feed additives, FAMIC samples every production lot and tests the samples before they are marketed. For those manufacturers who seek registration from the Minister of Agriculture, Forestry and Fisheries certifying they are authorised to market their products without prior testing, the FAMIC conducts inspections of the applicants to verify that they observe good manufacturing practices (GMP) and are qualified for registration.

### On-site inspection of feed manufacturers for the prevention of bovine spongiform encephalopathy

To prevent the spread of bovine spongiform encephalopathy (BSE), the use of meat-and-bone meal that originates from mammals, poultry and fish for the production of feeds for cattle and other ruminants is controlled. Meat-and-bone meal from pigs and poultry is only permitted for use in the production of feeds for pigs and poultry, provided that it is produced in a plant approved by the Minister of Agriculture, Forestry and Fisheries. Under instruction from the MAFF, FAMIC conducts on-site inspections of those plants that are seeking approval from the Minister to confirm that cross-contamination preventive measures are in place. Samples are taken from these plants and subjected to microscopy, enzyme-linked immunosorbent assay (ELISA) and polymerase chain reaction (PCR) for detection of illegally processed proteins. In the 2006 fiscal year, a total of 428 feed samples were subjected to laboratory analyses (5).

## Assurance of safety and quality of agricultural chemicals

According to the Agricultural Chemicals Regulation Law, agricultural chemicals cannot be manufactured, imported or marketed in Japan unless they are registered by the Minister of Agriculture, Forestry and Fisheries. By registering agricultural chemicals, FAMIC is responsible for the following:

- reviewing registration applications
- audit inspections of laboratories responsible for testing agricultural chemicals to ensure that good laboratory practice (GLP) is observed.

To further ensure the safety of agricultural chemicals, FAMIC officials make on-site inspections of agricultural chemical manufacturers.

### Evaluation of agricultural chemicals for registration

FAMIC reviews registration applications. Specimens (of active substances and end-use products) are submitted for laboratory analysis to verify the data submitted. FAMIC reviews the data for toxicity to human/animals, residues in/on crops/environment and adverse effects to the environment including soil, water and ecosystems, as well as efficacy of the chemicals. The results of each review are sent to the Minister of Agriculture, Forestry and Fisheries with recommendations on the conditions for safe and appropriate use of the chemicals (i.e. dose, timing of application etc.). At 31 August 2007, 4 233 agricultural chemicals (523 active substances) were registered in Japan (Table I).

### Good laboratory practice-inspection of laboratories

As agricultural chemicals are a commodity of worldwide trade, it is important to mutually accept registration data on an international basis. The Japanese government adheres to the Organisation for Economic Co-operation and Development (OECD)-GLP principles and FAMIC is responsible for GLP inspection of laboratories responsible for testing agricultural chemicals in Japan. Toxicology, environmental

fate, physical/chemical properties and effects on aquatic organisms are subjected to the GLP-inspection. In the 2006 fiscal year, 18 laboratories were inspected (3).

Table I  
Number of registered agricultural chemicals at 31 August 2007

Types	Number of chemicals registered
Insecticides	1 212
Fungicides	946
Insect-fungicides	476
Herbicides	1 295
Plant growth regulators	87
Rodenticides	34
Others	188
Total	4 233

Source: Food and Agricultural Materials Inspection Centre (2)

### On-site inspection of agricultural chemical manufacturers

FAMIC officials make on-site inspections of agricultural chemical manufacturing plants and examine production records and other documents to ensure agricultural chemicals are properly manufactured. FAMIC officials also take samples of agricultural chemicals for laboratory analysis. In the 2006 fiscal year, 87 manufacturing plants were inspected (3).

### Development of analysis methods

FAMIC is also involved in research to develop and improve methods used for analysis of food, fertilizer, feed and other agricultural materials, in collaboration with other research institutes. Some of the analyses that the FAMIC has developed are as follows:

- DNA analysis using PCR techniques to identify different species of tuna, sea bass, sea bream, mackerel, etc.

- analysis of inorganic element composition using inductively coupled plasma atomic emission spectrometry (ICP-AES) and inductively coupled plasma mass spectrometry (ICP-MS) to verify the geographic origin of spring onions, pickled plums, wakame seaweed, etc.
- analysis for quantitative and qualitative detection of genetically modified organisms (GMO) in soybeans and other products
- analysis of stable isotope ratios in processed food to verify the presence of sugar and isomerised syrup in honey
- DNA analysis using PCR techniques to detect processed animal proteins in feed
- simultaneous analysis techniques using gas chromatography mass spectrometry (GC-MS) to detect different agricultural chemical residues in feed.

To maintain reliability in its analytical work, FAMIC endeavours to acquire accreditation for its quality management. It has recently acquired ISO/IEC17025 accreditation for its analytical work on alcohol content in soy sauce and GMO in soybean products.

### Conclusion

Since its establishment in April 2007, FAMIC has worked hard to achieve its task to improve the quality and labelling of agricultural products and to ensure the quality and safety of agricultural materials, thus contributing to regaining consumer confidence in food marketed in Japan. The role FAMIC plays in ensuring food safety and quality management will become more important as consumer interest in food safety and quality increases. FAMIC will continue to ensure that its analytical work is reliable by using validated methods and by working in close collaboration with the MAFF and other national agencies, prefecture governments, foreign governments and international organisations.

## References

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1. Anon. 2007. Establishment of official standards of fertilizer *In* Fertilizer Guidebook 2006. Norintoeki Kyokai, Tokyo, 445 pp.
2. Food and Agricultural Materials Inspection Centre (FAMIC) 2007. Agricultural Chemicals Registration Information. Food and Agriculture Materials Inspection Centre, Saitama ([www.famic.go.jp/english/index.html](http://www.famic.go.jp/english/index.html) accessed on 26 October 2007).
3. Food and Agricultural Materials Inspection Centre (FAMIC) 2007. Performance evaluation of the Agricultural Chemicals Inspection Station in fiscal year 2006. Food and Agriculture Materials Inspection Centre, Saitama, 68 pp.
4. Food and Agricultural Materials Inspection Centre (FAMIC) 2007. Performance evaluation of the Centre for Food Quality, Labelling and Consumer Services in fiscal year 2006. Food and Agriculture Materials Inspection Centre, Saitama, 82 pp.
5. Food and Agricultural Materials Inspection Centre (FAMIC) 2007. Performance evaluation of the Fertilizer and Feed Inspection Services in fiscal year 2006. Food and Agriculture Materials Inspection Centre, Saitama, 87 pp.
6. Ministry of Agriculture, Forestry and Fisheries (MAFF) 2007. List of accreditation organizations. MAFF, Tokyo, 9 pp ([www.maff.go.jp/soshiki/syokuhin/hinshitu/e\\_label/index.htm](http://www.maff.go.jp/soshiki/syokuhin/hinshitu/e_label/index.htm) accessed on 26 October 2007).