

For inquiries, please contact:
Pharmaceutical Safety and
Environmental Health Bureau,
Ministry of Health, Labour and Welfare

Food Inspection and Safety Division, Office of Import Food Safety

(Ext. 2474, 2496)

Results of Monitoring and Guidance Based on the Imported Foods Monitoring and Guidance Plan for FY 2021

Interim Report

December 2021

Pharmaceutical Safety and Environmental Health Bureau, Ministry of Health, Labour and Welfare

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1. Introduction

In order to ensure the safety of foods, etc., imported into Japan (hereinafter, "imported foods"), the government established the Imported Foods Monitoring and Guidance Plan for 2021 (hereinafter, "the Plan") as per the regulations of Article 23, paragraph 1 of the Food Sanitation Act (Act No. 233, 1947; hereinafter, "the Act"), and monitoring and guidance for imported foods is being conducted based upon the Plan.

(The Plan is formulated based on the Guidelines for Monitoring and Guidance for Food Sanitation (Ministry of Health, Labour and Welfare Notification No. 301 of 2003) after conducting collection of public comments and risk communication. The plan is published in the Official Gazette as an official report according to the regulations of Article 23, paragraph 3 of the Act.)

This document publishes an outline of the implementation status of the monitoring and guidance for imported foods, conducted in accordance with the plan, for the period from April to September 2021.

Reference: "Imported Foods Monitoring: To Ensure the Safety of Imported Foods"

https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/kenkou_iryou/shokuhin/yunyu_kanshi/index_00017.html (English)



2. Overview of the Imported Foods Monitoring and Guidance Plan for FY 2021

1. What is the Imported Foods Monitoring and Guidance Plan?

This is the plan for the implementation of monitoring and guidance for the import of foods by the Japanese government as stipulated by Article 23, paragraph 1 of the Act.

Purpose: To further ensure the safety of imported foods by the national government by promoting intensive, effective and efficient monitoring for imported foods and guidance to importers.

2. Principles of Monitoring and Guidance for Imported Foods

The basic concept is implementation of measures to ensure food safety at each stage, from the production in the exporting countries to domestic distribution after import, in light of Article 4 ("food safety shall be ensured by taking the necessary measures appropriately at each stage of the food supply process both in and outside of Japan") of the Food Safety Basic Act (Act No. 48 of 2003).

3. Priority Items for Monitoring and Guidance

- Check for the compliance to the Act at the time of import
- Implementation of monitoring inspections*1 (FY 2021 Plan: 171 food groups, 100,000 cases)
- Inspection orders*2
- Regulations for comprehensive import bans*3
- Emergency measures based on oversea information
- *1: Systematic inspection based on a statistical approach considering the import volume and violation rate for each type of food.
- *2: Inspection for products with a high probability of violation where inspection is ordered for the importer, each time of the import. Import and distribution is not permitted unless the results comply with the Act.
- *3: Measures whereby the Minister of Health, Labour and Welfare prohibits sale or import of specific foods without requiring an inspection, in cases where it is deemed necessary to prevent harm.

4. Promotion of Hygiene Control Measures in Exporting Countries

- Disseminate food hygiene regulations in Japan to the authorities and exporters in exporting counties
- o Request for the investigation of a cause of violation of the Act and the establishment of

corrective and preventive measures through bilateral consultations, as well as the promotion of hygiene control at production stages, building up a monitoring system and pre-export inspections, etc

- Systematic collection of information on hygiene control measures for foods exported to Japan
- Technical cooperation that helps to build up a food hygiene monitoring system in exporting countries

5. Guidance to Importers on Voluntary Hygiene Control

- Pre-import guidance (known as import consultation)
- Guidance on voluntary inspections at import consultation, initial import and continued import
- Guidance on preparation and storage of records on the import and distribution of imported foods
- Raising awareness of food safety amongst importers

3. Results of Monitoring and Guidance Based on the Imported Foods Monitoring and Guidance Plan for FY 2021 (Interim Report: Tentative)

Figures in brackets are for the same period in the previous year.

The number of import notifications made from April through September 2021 was 1,246,313 cases 【1,164,822 cases】, and the weight of notified items was 11,891 thousand tons【11,684 thousand tons】.

Inspections were carried out on 102,352 cases [98,296 cases] (monitoring inspections on 26,614 cases [25,184 cases], ordered inspections on 32,819 cases [33,233 cases], and voluntary inspections on 43,742 cases [41,417 cases], deducting duplicates). Of these, 398 cases [305 cases] were found to be in violation of the Act, and steps were taken for reshipment or disposal, etc. (Table 1).

Regarding violations categorized by provision, violations of Article 13 of the Act (standards for food (e.g., microbiological criteria, agricultural chemical residues, and veterinary drug residues) and standards for use for food additives) were the most common with 295 cases, followed by 83 cases of violation of Article 6 (e.g. contamination with harmful or toxic substances such as aflatoxin, cyanide), 22 cases of violation of Article 12 (use of undesignated additives), 22 cases of violation of Article 18 (standards for apparatus, containers and packaging), 2 cases of violation of Article 10 (non-attachment of health certificates for meat) (Table 2).

Monitoring inspections were conducted for 26,614 cases (58,234 cases compared to the planned cumulative total of 99,995 (implementation rate: approx. 58%)), and of which, 78 cases (running total of 78 cases) were confirmed to be in violation of the Act, and steps were taken for their recalls, etc. (Table 3). For the same type of imported foods that were found to be in violation of the Act by monitoring inspections, the inspection rate was increased as necessary, to determine the probability of violations (Table 4). Additionally, for imported foods that are considered to have a high probability of violation to the Act, inspections were strengthened by making them subject to ordered inspections (Table 5).

As of September 30, 2021, 15 items from all exporting countries, and 85 items from 30 countries and one region were subject to ordered inspections. The inspections have been carried out for 32,819 cases (running total of 41,804 cases), 87 cases of which (running total of 87 cases) were found to be in violation of the Act, and steps

were taken for reshipment or disposal, etc. (Table 6).

As emergency measures based on overseas information, measures were taken to reship processed shellfish products from China contaminated with hepatitis A virus, natural cheese from Ireland contaminated with *Listeria monocytogenes*, and dried sausages from Spain contaminated with *Salmonella* spp. (Table 7).

Table 1 - Notifications, Inspections, and Violations (Apr-Sep 2021: Tentative)

| Notifications*1 | Imported Weight*1 | Inspections*2 | Proportion*3 | Violations | Proportion*3 |
|-----------------|-------------------|-----------------------|--------------|------------|--------------|
| (cases) | (thousand tonnes) | (cases) | (%) | (cases) | (%) |
| 1,246,313 | 11,891 | 102,352 (32,819*4) | 8.2 | 398 | 0.03 |
| (FY2020) | | | | | |
| 1,164,822 | 11,684 | 98,296 | 8.4 | 305 | 0.03 |

^{*1} Cargoes of planned import system (excluding the time of first importation) are not included.

^{*2} Number of inspections by authorities, registered inspection oranaizations and foreign official laboratories, deducing dupulications.

^{*3} Proportion compared to notifications.

^{*4} Number of ordered inspections.

Table 2 - Violations by Legal Provision (Apr-Sep 2021: Tentative)

| Provision violated | Violations (cases) | Proportion | Major Violation Details |
|--|---|------------|---|
| Article 6 (Foods and additives prohibited to distribute) | 83 (Gross) 83 (Actual) | 19.6% | Aflatoxin contamination in almonds, dried figs, spice (chili pepper), corn, nutmeg, pistachio nuts, peanuts, etc., detection of cyanide from flax seeds, manioc, decay and deterioration (e.g. unpleasant smell or mold) due to accidents during the transport of rice, wheat and rape seeds, etc. |
| Article 10 (Prohibition for distribution, etc. of meat from diseased animal) | 2 (Gross) 2 (Actual) | 0.5% | Non-attachment of health certificate |
| Article 12 (Limitation on distribution, etc. of additives, etc.) | 22 (Gross) 22 (Actual) | 5.2% | Use of undesignated additives (TBHQ, Methylene chloride, Cyclamic acid, Zinc oxide, Patent blue V) |
| Article 13 (Standards and criteria for foods and additives) | 295 (Gross) 274 (Actual) | 69.6% | Violations of standards for vegetables and its processed products (agricultural chemicals residues exceeding the standards, coliform bacteria test positive, etc.), violations of standards for livestock foods, aquatic foods and their processed products (coliform bacteria test positive, veterinary drugs residues exceeding the standards, etc.), violations of standards for other processed products (coliform bacteria test positive, etc.), violations of standards for use of additives (Sodium benzoate, Sorbic acid, Sulfur dioxide, etc.), and violations of specifications for additives, detection of radioactive substances, detection of genetically modified food that has not undergone safety assessment, etc. |
| Article 18 (Standards and criteria for apparatus, containers and packaging) | 22 (Gross) 17 (Actual) | 5.2% | Violations of materials standards |
| Total | (Gross) ^{*1} (Actual) ^{*2} | 424 398 | |

^{*1} Number of inspection cases by inspected substance

^{*2} Number of inspection cases by notification

Table 3 - Implementation of Monitoring Inspections (Apr-Sep 2021: Tentative)

| Food Groups | Inspected Substancces *1 | Planned Number in FY | Actual Number | Violations |
|--|---------------------------------|----------------------|--------------------------------------|------------------|
| | Antibacterial substances, etc. | 2,208 | 1,205 | C |
| | Residual agricultural chemicals | 1,281 | 943 | (|
| Livestock Foods | Additives | 118 | 96 | (|
| Beef, pork, chicken, horse meat, | Pathogenic microbes | 717 | 358 | (|
| other poultry meat, etc. | Standards, etc. | 385 | 195 | (|
| | Radiation irradiation | 29 | 7 | |
| | Removal of SRMs | - | 596 | |
| | Antibacterial substances, etc. | 1,996 | 1,042 | C |
| | Residual agricultural chemicals | 1,817 | 1,236 | C |
| Processed Livestock Foods | Additives | 1,247 | 1,049 | C |
| Natural cheese, meat products, | Pathogenic microbes | 3,764 | 1,903 | C |
| ice cream, frozen food (meat), etc. | Standards, etc. | 2,057 | 1,258 | 3 |
| | Mycotoxins | - | 12 | C |
| | Radiation irradiation | - | 5 | C |
| | Antibacterial substances, etc. | 1,817 | 1,113 | C |
| | Residual agricultural chemicals | 1,698 | 1,000 | C |
| Fishery Foods | Additives | 297 | 138 | C |
| Bivalves, fish, crustacea (shrimps, | Pathogenic microbes | 1,493 | 956 | C |
| crabs, etc.), etc. | Standards, etc. | 534 | 229 | C |
| | Genetically modified food | 59 | 28 | C |
| | Radiation irradiation | 64 | 37 | C |
| | Antibacterial substances, etc. | 3,035 | 2,450 | C |
| Processed Aquatic Foods | Residual agricultural chemicals | 3,243 | 2,719 | <u> </u> |
| Processed fish products (fillet, dried or | Additives | 1,564 | 1,672 | C |
| minced fish, etc.), | Pathogenic microbes | 5,376 | 3,041 | C |
| frozen food (marine animals, fish), processed fish egg products, etc. | Standards, etc. | 5,495 | 2,753 | 19 |
| processed hish egg products, etc. | Mycotoxins | - | 6 | C |
| | Radiation irradiation | - | 6 | C |
| | Antibacterial substances, etc. | 2,410 | 2,090 | C |
| | Residual agricultural chemicals | 10,959 | 5,440 | 22 |
| Agricultural Foods | Additives | 983 | 580 | 1 |
| Vegetables, fruit, wheat, corn, beans, | Pathogenic microbes | 1,434 | 1,505 | C |
| peanuts, nuts, seeds, etc. | Standards, etc. | 415 | 239 | C |
| | Mycotoxins | 2,297 | 1,268 | 1 |
| | Genetically modified food | 502 | 215 | C |
| | Radiation irradiation | 119 | 128 | C |
| | Antibacterial substances, etc. | 598 | 344 | C |
| | Residual agricultural chemicals | 7,160 | 4,994 | 12 |
| Processed Agricultural Foods Frozen foods (vegetables), processed | Additives | 3,683 | 3,323 | 1 |
| vegetable products, | Pathogenic microbes | 1,970 | 1,257 | C |
| proessed fruit products, spices, | Standards, etc. | 3,398 | 2,470 | 7 |
| instant noodles etc. | Mycotoxins | 3,313 | 1,728 | 2 |
| | Genetically modified food | 302 | 191 | 1 |
| | Radiation irradiation | 458 | 276 | <u> </u> |
| | Residual agricultural chemicals | 1,074 | 778 | C |
| Other Foods | Additives | 2,565 | 1,761 | C |
| Other Foods Health foods, soups, seasoning, | Pathogenic microbes | = | 6 | C |
| confectionary, | Standards, etc. | 1,196 | 452 | C |
| cooking oil and fat, frozen food, etc. | Mycotoxins | 1,135 | 634 | 2 |
| | Genetically modified food | - | 6 | C |
| | Radiation irradiation | - | 8 | C |
| Beverages | Residual agricultural chemicals | 118 | 149 | C |
| Mineral waters, soft drinks, | Additives | 1,075 | 714 | C |
| alcohol drinks, etc. | Standards, etc. | 657 | 320 | 1 |
| | Mycotoxins | 118 | 79 | 2 |
| Additives Apparatus, Containers and Packaging Toys for infants | Specifications, etc. | 1,762 | 1,226 | 3 |
| Total (gross) | | 99,995 *2 | 58,234 *3 Implementation rate of 58% | 78 ^{*3} |

*1 Examples of inspected substances

Antibacterial substances, etc.
 Residual agricultural chemicals

- Additives - Pathogenic microbes

Antibiotics, synthetic antimicrobials, hormon agents, etc.
Organophosphorus, organochionne, carbamates, pyrethroid, etc.
Preservatives, coloring agents, sweeteners, antioxidants, fungicides, etc.
Enterohemorrhagic Escherichia coli (E. coli) 026, 0103, 0104, 0111, 0121, 0145 and 0157, Listeria monocytogenes, Vibrio

parahaemolyticus, etc.

- Standards Items stipulated in the standards (bacterial count, coliform bateria, radioactive substances, etc. (excluding pathogenic microbes)),

shellfish poisons (diarrhetic shellfish poison and paralytic shell fish poison), etc.

- Mycotoxins

Aflatoxin, deoxynivalenol, patulin, etc.
Genetically modified food etc. that have not been assessed for safety
Whether irradiation is applied

⁻ Mycotoxins : ATIATOXIII, deoxynivalenol, patumir, etc.
- Genetically modified foods : Genetically modified food etc. that have not been assessed for safety
- Radiation irradiation : Whether irradiation is applied
*2 Gross number of cases with the 10,000 cases planned for strengthened inspections added.
*3 Gross number of inspection cases by inspected substances. The number of notification cases is 26,614 cases. The number of violations by notifications is 78.

Table 4 - Items Subject to Enhanced Monitoring Inspections^{*1} (Apr-Sep 2021)

| Country / Region | Subject Items (Inspection order item, etc.) | Inspected Substances | |
|------------------|---|-------------------------------|--|
| Italy | Non-glutinous rice | Deltamethrin and tralomethrin | |
| Iran | Pistachio nut | Imidacloprid | |
| India | Processed almond products | Aflatoxin | |
| iliula | Black tea | Ethion | |
| Ecuador | Banana | Pyriproxyfen | |
| Ghana | Cacao beans | Cypermethrin | |
| | Red hot pepper | Propiconazole | |
| South Korea | Red flot pepper | Hexaconazole | |
| | Oriental melon | Procymidone | |
| Spain | Non-glutinous rice | Deltamethrin and tralomethrin | |
| Sri Lanka | Red hot pepper | Triazophos | |
| SII Laiika | Black tea | Diuron | |
| | | Diniconazole | |
| Thailand | Immature peas | Flusilazole | |
| | | Hexaconazole | |
| Taiwan | Banana | Imidacloprid | |
| Talwan | Danana | Deltamethrin and tralomethrin | |
| | Green soybeans | Difenoconazole | |
| | Okra | Methomyl | |
| | Wood ears | Imidacloprid | |
| China | Wood ears | Chlorpyrifos | |
| Crima | Rape flower | Pyridaben | |
| | Chinese chive | Procymidone | |
| | Spinach | Pyraclostrobin | |
| | Immature peas | Hexaconazole | |
| Turkey | Chickpea | Aflatoxin | |
| Paraguay | Chia seeds | Aflatoxin | |
| Brazil | Processed brazil nuts products | Aflatoxin | |
| Burkina Faso | Sesame seeds | Aflatoxin | |
| | | Iprobenfos | |
| | Limnophila aromatica | Diflubenzuron | |
| Vietnam | | Hexaconazole | |
| | Pitahaya (Dragon fruit) | Metalaxyl and mefenoxam | |
| | Lychees | Tricyclazole | |
| Venezuela | Cacao beans | Cypermethrin | |
| South Africa | Apple juice and Apple juice concentrate | Patulin | |
| Mexico | Avocado | Bifenthrin | |

^{*1} Include the Items which were rescinded from inspection orders. Exclude the items which were transferred to inspection orders.

Table 5 - Items Transferred to Inspection Order (Apr-Sep 2021)

| Country/Region | Subject Items (Inspection order item, etc.) | Inspected Substances | |
|----------------|--|------------------------|--|
| Argentina | Kidney beans | Aflatoxin | |
| Italy | Foods containing red pepper or pistachio (manufacturer limited) | Aflatoxin | |
| Iran | Foods containing almond or pistachio (manufacturer limited) | Aflatoxin | |
| India | Pearl millet | Aflatoxin | |
| Australia | Apple juice and Apple juice concentrate | Patulin | |
| South Korea | Green hot pepper | Tebufenpyrad | |
| South Rolea | Отеен пос реррег | Hexaconazole | |
| Spain | Foods containing dried fig or almond | Aflatoxin | |
| Okina | Foods containing almond, chia seed or peanut (manufacturer limited) | Aflatoxin | |
| China | Foods (manufacturer limited) | Cyclamic acid | |
| | Sunflower seeds | Aflatoxin | |
| Nepal | Buckwheat | Aflatoxin | |
| Pakistan | Foods containing pistachio (manufacturer limited) | Aflatoxin | |
| Bangladesh | Foods containing red pepper, turmeric, chickpea or peanut (manufacturer limited) | Aflatoxin | |
| France | Foods containing red pepper or pistachio (manufacturer limited) | Aflatoxin | |
| | Natural cheese (manufacturer limited) | Listeria monocytogenes | |
| | | Isoprothiolane | |
| | Limnophila aromatica | Tricyclazole | |
| Viotnam | | Lufenuron | |
| Vietnam | Foods (manufacturer limited) | Cyclamic acid | |
| | Durian | Procymidone | |
| | Banana | Permethrin | |
| Poland | Foods containing dried fig (manufacturer limited) | Aflatoxin | |
| Myanmar | Mung bean | Thiamethoxam | |

Table 6 - Major Items Subject to Ordered Inspections and Inspection Results (Apr-Sep 2021: Tentative)

| Country/Region | Major Subject Foods | Major Inspected Substances | Inspections (cases) | Violations (cases) |
|--|--|---|---------------------|--------------------|
| All exporting | Almonds, Chili peppers, Peanuts, etc. | Aflatoxin | 6,051 | 40 |
| countries (15 items) | Manioc, Beans containing cyanide | Cyanide | 158 | 4 |
| | Salted salmon roe | Nitrite | 83 | 0 |
| | Vegetables (Onion, Carrot, Spinach, etc.), Short-neck clam | Agricultural chemical residues (Endrin, Chlorpyrifos, Dimethomorph, Thiamethoxam, Triadimenol, Haloxyfop, Procymidone, Prometryn) | 18,275 | 18 |
| China (18 items) | Bivalves | Paralytic shellfish poison, Diarrhetic shellfish poison | 4,120 | 0 |
| (10 items) | Eel, Soft-shelled turtle | Veterinary drug residues etc. (Enrofloxacin, Oxolinic acid, Sulfadimidine) | 273 | 0 |
| | Sichuan pepper, Sunflower seeds, Sorghum | Aflatoxin | 208 | 0 |
| | Processed foods | Cyclamic acid | 53 | 0 |
| 0 11 16 | Bivalves | Paralytic shellfish poison, Diarrhetic shellfish poison | 2,203 | 0 |
| South Korea (13 items) | Green hot pepper, Perilla | Agricultural chemical residues (Tebufenpyrad, Fluquinconazole, Hexaconazole, Indoxacarb, Paclobutrazol) | 257 | 2 |
| | Shrimp, Filefish | Veterinary drug residues etc. (Enrofloxacin, Chloramphenicol) | 4,811 | 3 |
| Vietnam (13 items) | Green hot pepper, Red pepper,Capsicum frutescens, Carrot, Durian, Banana | Agricultural chemical residues (Tricyclazole, Propiconazole, Hexaconazole, Procymidone, Permethrin) | 270 | 2 |
| | Processed foods | Cyclamic acid | 29 | 0 |
| | Proso millet | Aflatoxin | 1 | 0 |
| | Cultured shrimp | Furazolidone | 1,059 | 5 |
| India (9 items) | Cassia tora , Pearl millet, Corn, Basil seeds | Aflatoxin | 49 | 1 |
| (o nomo) | Chili pepper, Fennel seed | Agricultural chemical residues (Triazophos) | 42 | 0 |
| Thailand (9 items) | Feverweed, Okra, Greeen asparagus, Durian, Banana, Mango, Mangosteen | Agricultural chemical residues (EPN, Imazalil, Chlorpyrifos, Cypermethrin, Procymidone, Propiconazole) | 1,197 | 2 |
| USA (8 items) | Dried dates, Corn, Pistachio nuts | Aflatoxin | 1,620 | 3 |
| (o items) | Corn | Deltamethrin and tralomethrin | 47 | 0 |
| Other (29 countries and 1 region; total of 43 items) | | | | 7 |
| Grand total | | (Gross)*1 (Actual)*2 | 41,804 32,819 | 87 87 |

^{*1} Number of cases by inspected substance

^{*2} Number of cases by notification

Table 7 - Major Enhanced Monitoring Based on Overseas Information (Apr-Sep 2021: Tentative)

| Month of Enhancement | Country | Food Items and Risks | Background and Measures Taken |
|-------------------------|----------------------|--|--|
| June | China South Korea | Processed shellfish products (Possible contamination with hepatitis A virus) | Based on the additional information that hepatitis A virus was detected from the processed shellfish products from China and that they were voluntarily recalled in South Korea, the notice was revised and measures such as reshipment were taken when an import notification of the recalled product was made. |
| July August | Ireland | Natural cheese (Possible contamination with <i>Listeria</i> monocytogenes) | Based on the information that <i>Listeria</i> monocytogenes was detected from the natural cheese and that they were voluntarily recalled in Ireland, measures such as reshipment were taken when an import notification of the recalled product was made. |
| September | Spain | Dried sausage (Possible contamination with Salmonella spp.) | Based on the information that <i>Salmonella</i> spp. was detected from the dried sausage and that they were voluntarily recalled in Spain, measures such as reshipment were taken when an import notification of the recalled product was made. |

(Reference) Description of Key Terms

| Term | Description |
|-------------------------------|---|
| Aflatoxin | Mycotoxin produced by fungi Aspergillus flavus and Aspergillus parasiticus, which belong to fungi |
| Allatoxili | inperfecti. |
| Bifenthrin | Agricultural chemical (pyrethroid insecticide) |
| Chloramphenicol | Veterinary drug (synthetic antibacterial agent) |
| Chlorpyrifos | Agricultural chemical (organophosphorus insecticide) |
| Cyanide | Harmful or poisonous substance (cyanide compounds (e.g. cyanogenic glycosides)) found in plants |
| Cyanide | such as some varieties of beans |
| Cyclamic acid | Undesignated additive |
| Cypermethrin | Agricultural chemical (pyrethroid insecticide) |
| Deltamethrin and tralomethrin | Agricultural chemical (pyrethroid insecticide) |
| Diarrhetic shellfish poison | Shellfish poison (mainly refers to toxins produced by harmful planktons accumulated in bivalves) |
| Difenoconazole | Agricultural chemical (triazole fungicide) |
| Diflubenzuron | Agricultural chemical (benzoylphenylurea insecticide) |
| Dimethomorph | Agricultural chemical (cinnamic acid derivative fungicide) |
| Diniconazole | Agricultural chemical (triazole insecticide) |
| Diuron | Agricultural chemical (herbicide) |
| Endrin | Agricultural chemical (insecticide) |
| Enrofloxacin | Veterinary drug (new quinolone synthetic antibacterial agent) |
| Enterohemorrhagic | Pathogenic microorganism (a bacterium that exists in the intestines of animals. It contaminates foods |
| Escherichia coli (E. coli) | and drinking water via faeces and urine, and causes early cold-like symptoms followed by severe |
| ` ' | abdominal pain and bloody diarrhea with a large amount of bright red blood). |
| EPN | Agricultural chemical (organophosphorus insecticide) |
| Ethion | Agricultural chemical (insecticide) |
| Fluquinconazole | Agricultural chemical (triazole fungicide) |
| Flusilazole | Agricultural chemical (triazole fungicide) |
| Furazolidone | Veterinary drug (nitrofuran synthetic antibacterial agent), generates AOZ when metabolized |
| Haloxyfop | Agricultural chemical (aryloxyphenoxy-propionate herbicide) |
| Hexaconazole | Agricultural chemical (triazole fungicide) |
| Imazalil | Agricultural chemical (fungicide) |
| Imidacloprid | Agricultural chemical (neonicotinoid insecticide) |
| Iprobenfos | Agricultural chemical (organophosphorus fungicide) |
| | Pathogenic microorganism (a bacterium that exists widely in the natural environment. It commonly |
| Listeria monocytogenes | contaminates dairy products and processed meat products, and causes influenza-like symptoms |
| | including malaise and fever) |
| Metalaxyl and mefenoxam | Agricultural chemical (phenylamide fungicide) |
| Methomyl | Agricultural chemical (insecticide) |
| Oxolinic acid | Veterinary drug (quinolone synthetic antibacterial agent) |
| Paclobutrazol | Agricultural chemical (triazole plant growth regulator) |
| Paralytic shellfish poison | Shellfish poison (mainly refers to toxins produced by harmful planktons accumulated in bivalves) |
| Patulin | Mycotoxin (produced by the fungi such as Penicillium spp. and Aspergillus spp.) |
| Permethrin | Agricultural chemical (pyrethroid insecticide) |
| Procymidone | Agricultural chemical (dicarboximide fungicide) |
| Prometryn | Agricultural chemical (triazine herbicide) |
| Propiconazole | Agricultural chemical (triazole fungicide) |
| Pyraclostrobin | Agricultural chemical (strobilurin fungicide) |
| Pyridaben | Agricultural chemical (pyridazinone group insecticide) |
| Pyriproxyfen | Agricultural chemical (4-phenoxyphenyl group insecticide) |
| Salmonella spp. | Pathogenic microorganism (a bacterium that exists widely in nature. It commonly contaminates poultry eggs and meat, and causes abdominal pain, diarrhea and fever.) |
| Sulfadimidine | Veterinary drug (synthetic antibacterial agent) |
| Tebufenpyrad | Agricultural chemical (pyrazole insecticide) |
| Thiamethoxam | Agricultural chemical (neonicotinoid insecticide) |
| Triadimenol | Agricultural chemical (fungicide) |
| Triazophos | Agricultural chemical (organophosphorus insecticide) |
| Tricyclazole | Agricultural chemical (benzothiazole herbicide) |
| Vibrio parahaemolyticus | Pathogenic microorganism (a bacterium living in seawater (estuaries, coastal areas, etc.) that commonly contaminates fish and shellfish, and causes abdominal pain, watery diarrhea, fever and vomiting.) |