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Ensuring safety of food in Japan

May 2015

Food Industry Bureau
Ministry of Agriculture, Forestry and Fisheries

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1. Basic knowledge of radioactive substances

The Standard limits for radionuclides in foods.

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- ✓ Codex establishes the standard limit as less than 1,000 Bq/kg for radioactive caesium in food as the international standards.
- ✓ Japan establishes 100 Bq/kg (general foods) as the standard limit based on the international standard to ensure food safety strictly.

Unit: Bq/kg

Nuclear species	CODEX	EU	US	Japan
Radio caesium (134Cs, 137Cs)	Infant foods 1,000 general foods 1,000	drinking water 1,000 daily products 1,000 Infant foods 400 general foods 1,250	all foods 1,200	drinking water 10 milk 50 Infant foods 50 general foods 100

【Note】

Codex: establishing the standard limit based on the Operational Intervention Level 1 mSv, and assume 10% of all foods was harvested in radioactive contaminated area.

EU: establishing the standard limit based on personal additional exposed dose as not more than 1 mSv/Year, and assumed that 10% of all foods for human consumption in lifetime was harvested in the radioactive contaminated area.

USA: establishing the standard limit based on the collective effective dose 5 mSv, and assume 30% of all foods intake is radioactive contaminated.

Daily life and radiation dose

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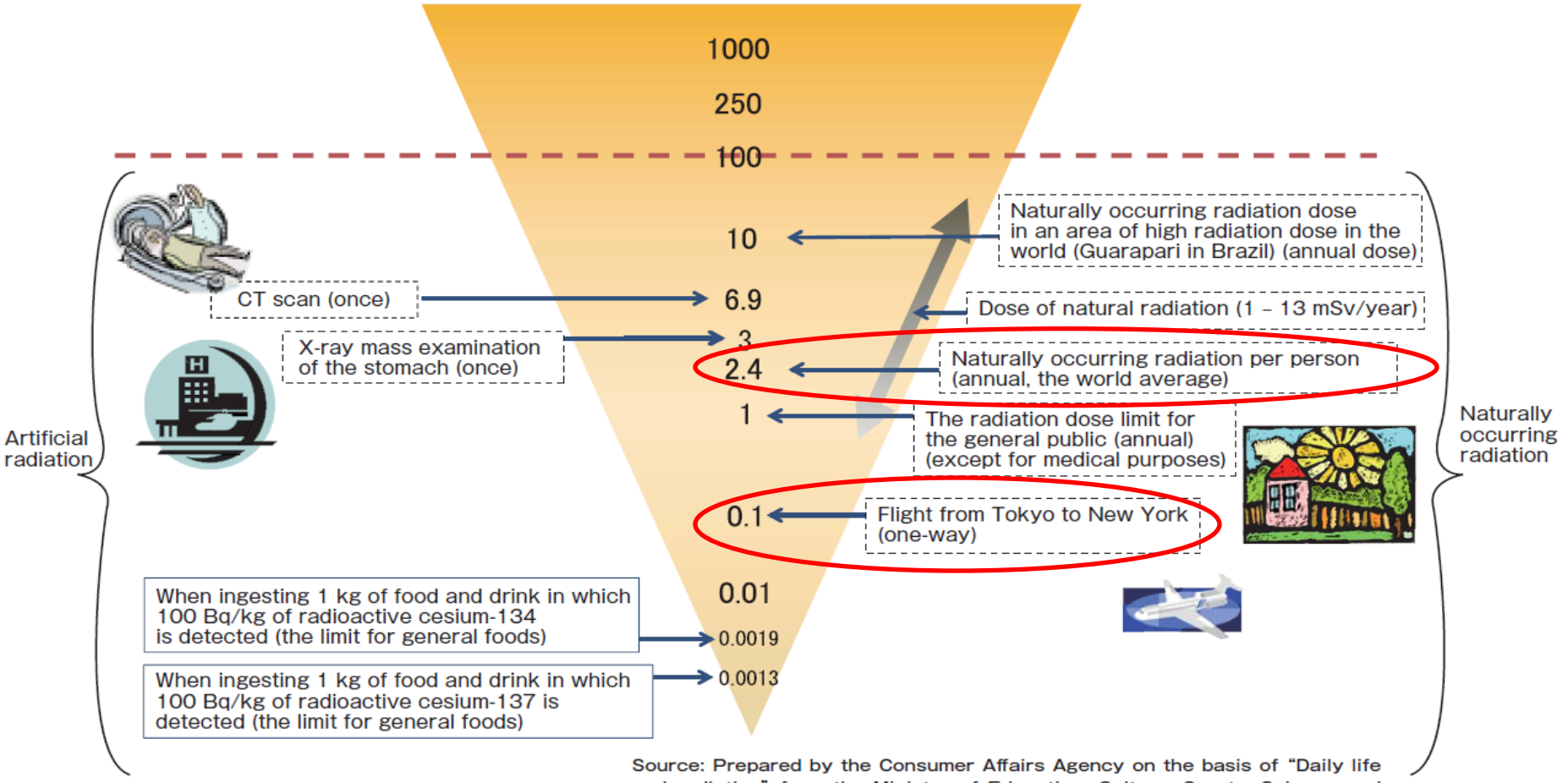
- ✓ People are exposed to radiation in our daily life.
- ✓ For example, we receive a dose of radiation during the airline flight. (0.2 mSv / a round trip from Japan to New York)

Reference

Daily life and radiation (Unit: mSv [millisievert])



Source: Prepared by the Consumer Affairs Agency on the basis of "Daily life and radiation" from the Ministry of Education, Culture, Sports, Science and Technology, and the website of the National Institute of Radiological Sciences.

A dose of natural radiation

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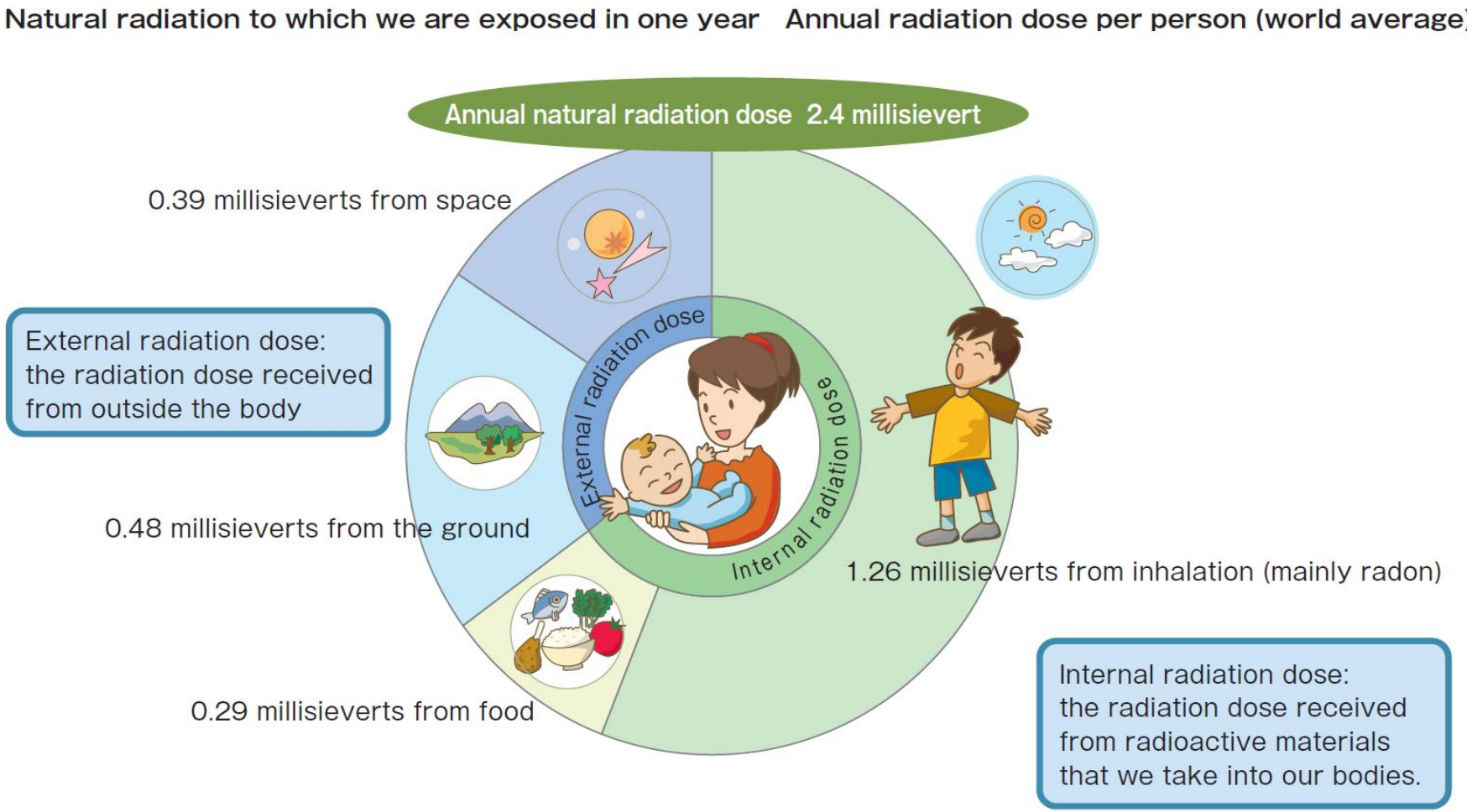
- ✓ “Natural radiation” is defined as radiation which is originally present in nature. There are various radiation. We are exposed to natural radiation from both external and internal radioactive materials.
- ✓ We receive a dose of 2.4 mSv per year from natural radiation in our daily life.



Source: “Radiation and Life” from the Agency for Natural Resources and Energy

Decrease in dose rate of radioactive cesium (Cs134 & Cs137)

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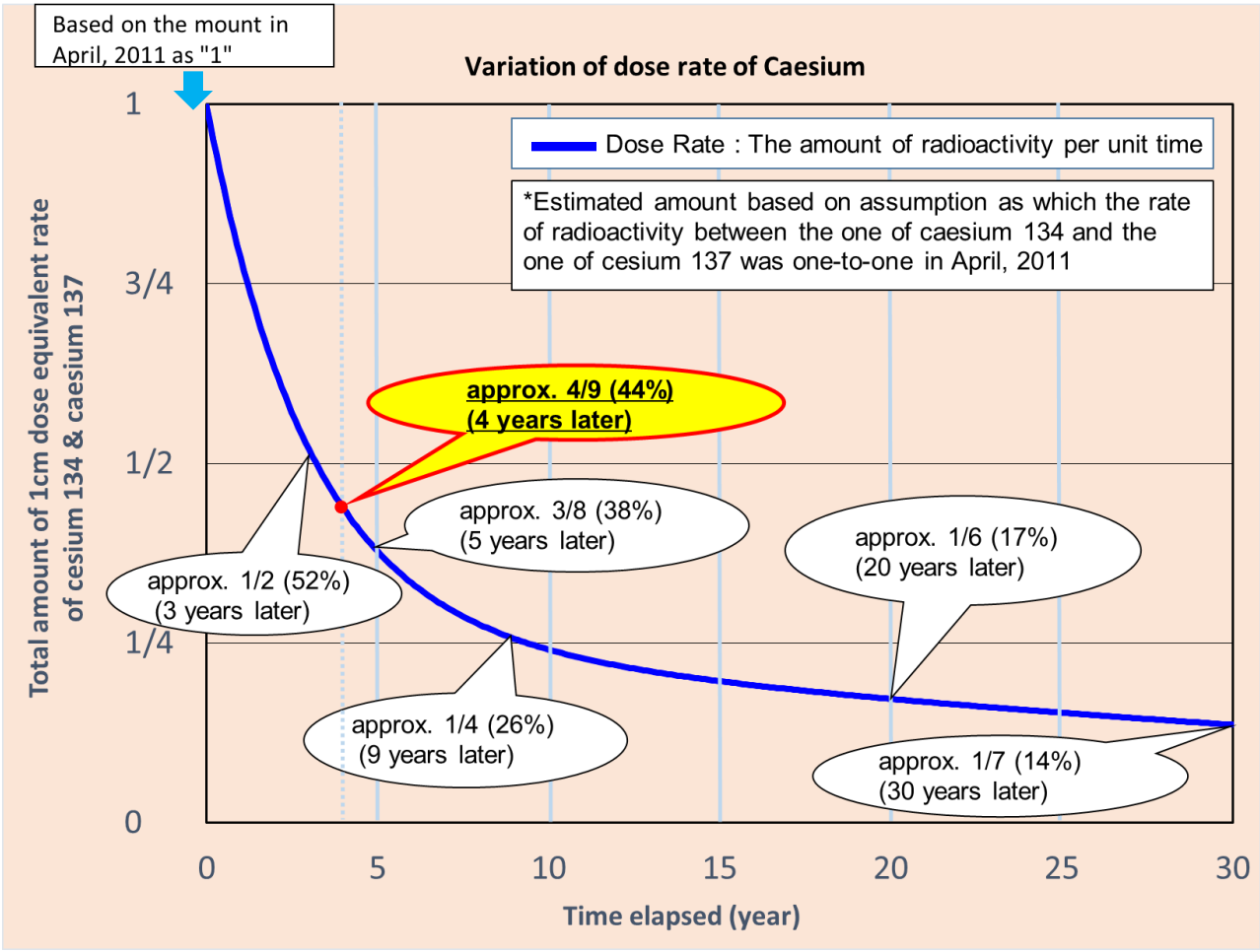
- ✓ There are two types of radioactive cesium (Cs-137: half-life of about 30 years, Cs-134: half-life of about 2 years).
- ✓ On the assumption that the ratio of cesium 137 and cesium 134 immediately after the Great East Japan Earthquake was about 1:1 and that the dose was not later decreased by movement of the radioactive substances, the dose rate of cesium was calculated taking only attenuation in the half-life into consideration. It is estimated as a result that the cesium dose rate will decrease to a half 3 years later, four ninths 4 years later, three eighths 5 years later, one fourths 9 years later, and one sevenths 30 years later.
- ✓ However, it is expected to decrease slightly faster than that due to the influences of rainfall, etc. (weathering effect).



Source: Created by MAFF based on experimental data supplied by Radiation Science Center of High Energy Accelerator Research Organization

2. Measures to ensure safety of food

Appropriate distribution management based on food monitoring

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- ✓ Food monitoring inspection has been conducted based on standard limits in accordance with the international standard.
- ✓ Food exceeding standard limits is restricted from being shipped and prevented from reaching the market.

<<Japan's standard limits of radioactive cesium>>

Food	standard limits* (Bq/kg)
Drinking water	10
Milk	50
Infant Foods	50
General Foods	100

(*) Enforced in April 2012 based on the index of annual dose of 1 mSv of CODEX committee

- More than 1 million cases of monitoring inspection have so far been conducted immediately after the Great East Japan Earthquake. In addition, 100% inspection was conducted on more than 32 million bags of rice. (As of May 2015)

- The percentage of cases exceeding the standard limits is on the decline. In 2014FY (April(2014) to March(2015)), it stands at 0.2% of the total.
  (In addition, agricultural products exceeding the standard limits is very few. Those that exceed are wild mushroom and bird and animal meats in most of the cases.)

- Food exceeding the standard limits, if found, is prevented from reaching the market by distribution restriction and other measures.

Source: Created by MAFF

Restriction of distribution and/or consumption of foods

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✓ Food exceeding standard limits is restricted from being shipped and prevented from reaching the market.

Order by Act on Special Measures Concerning Nuclear Emergency Preparedness

"**Restriction of Distribution**"

When areas producing the items exceeding the limits have been spread out, relevant areas and items become subject to restriction.

"**Restriction of Consumption**"

When significantly high level of concentration is detected in items, the restriction of consumption is immediately established.

■ **The requirements for establishing items and areas of restriction**

- When it is considered that areas producing the items exceeding the limits have been spread out, relevant areas and items become to restriction.
- Unit of Restriction is prefecture basis. Prefectures can be divided into multiple number of areas if they can be administered by prefectures and municipalities.

■ **The requirements for cancellation of restriction**

- Based on the application of the relevant prefecture.
- Prefectures can be divided into a multiple zones, in the light of the actual situations of the shipments of the items.
- As a general rule, the results of radioactive cesium inspections conducted at 3 or more locations per municipality within the last month must all fall below the limits.

Identify the ***spreading out***

Identify the ***significantly high level***

Monitoring → **Exceed the limits** → **Restriction of Distribution** → **Restriction of Consumption**

※ Monitoring of radioactive materials in food are mainly carried out before shipment. Most of the food items exceeding the limits are derived from areas where restrictions of distribution have been instructed.

Source: Ministry of Health, Labour and Welfare

IAEA's evaluation of measures to ensure food safety

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✓ The IAEA positively evaluated Japan in their report (February 2015), and is saying that "the measures taken (by Japan) to monitor and respond to issues regarding radionuclide contamination of food are appropriate, and that the food supply chain is under control".

The IAEA continues to consider that systems are in place and are being implemented that prevent food and agricultural products with levels of caesium radionuclides in excess of the national regulatory limits from entering the food supply chain.

Food restrictions continue to be revised and updated as necessary, in line with food sampling and monitoring, and this indicates the continued Vigilance of the authorities in Japan and their commitment to protecting consumers and trade.

Based on the information that has been made available, the Joint FAO / IAEA Division understands that the measures taken to monitor and respond to issues regarding radionuclide contamination of food are appropriate, and that the food supply chain is under control.

Source: IAEA report

Food monitoring result (annual transition of rate of exceeding standard limits)

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- ✓ Excess of the standard limits in 2014 FY (from April 2014 to January 2015) was 447 cases (0.17%).
- ✓ The percentage is on the decline year after year, 0.86%(2012FY), 0.31%(2013FY) and 0.17%(2014FY).

All Prefectures	2012.04～2013.03			2013.04～2014.03			2014.04～2015.01		
	No. of samples	No. of samples more than the standard	Excess ratio	Number of samples	No. of samples more than the standard	Excess ratio	Number of samples	No. of samples more than the standard	Excess ratio
Grains	19,488	127	0.65%	12,573	83	0.66%	5,456	2	0.04%
Vegetables	19,209	7	0.04%	21,104	0	0.00%	15,079	0	0.00%
Fruits	5,647	15	0.27%	5,397	0	0.00%	3,869	0	0.00%
Edible Fungi (cultivated)	4,397	328	7.46%	4,031	9	0.22%	3,729	7	0.19%
Fishery products (other than freshwater)	18,919	835	4.41%	20,444	194	0.95%	17,021	42	0.25%
Fishery products (freshwater)	3,394	246	7.25%	3,385	105	3.10%	2,797	42	1.50%
Cattle meat	190,677	6	0.00%	232,337	0	0.00%	189,986	0	0.00%
Livestock products (other than cattle meat)	2,189	2	0.09%	2,285	0	0.00%	1,390	0	0.00%
Game meat	1,375	519	37.75%	1,360	394	28.97%	1,122	249	22.19%
Wild plants and wild edible fungi	2,488	274	11.01%	3,688	186	5.04%	3,862	97	2.51%
Milk・Infants Use	5,259	0	0.00%	5,082	0	0.00%	3,567	0	0.00%
Tea and drinking Water	1,689	13	0.77%	1,142	0	0.00%	677	0	0.00%
Processed foods	8,592	69	0.80%	10,031	25	0.25%	7,546	8	0.11%
Unclassified	0	0	0%	0	0	0%	0	0	0%
Total	283,323	2,441	0.86%	322,859	996	0.31%	256,101	447	0.17%

※The standard limits are 100Bq/kg (except Milk・Infants Use (50Bq/kg), Tea and drinking Water (10Bq/kg)).

Food monitoring result (transition of rate of exceeding standard limits in each quarter) (1)

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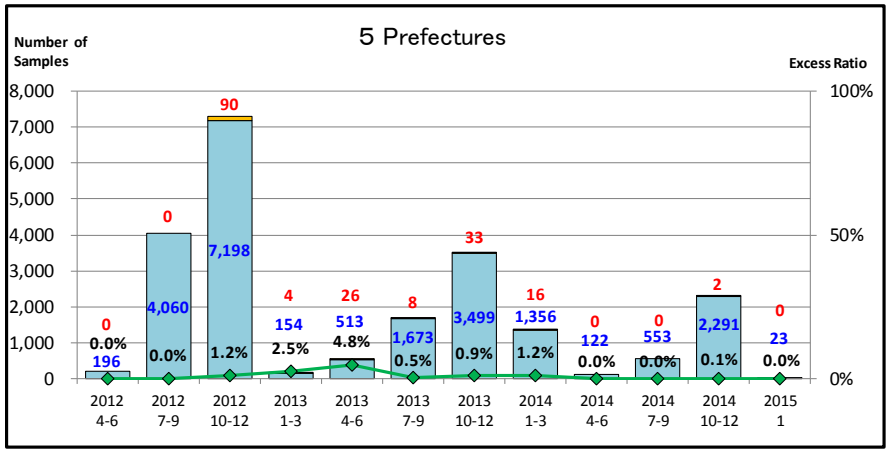
Grains

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

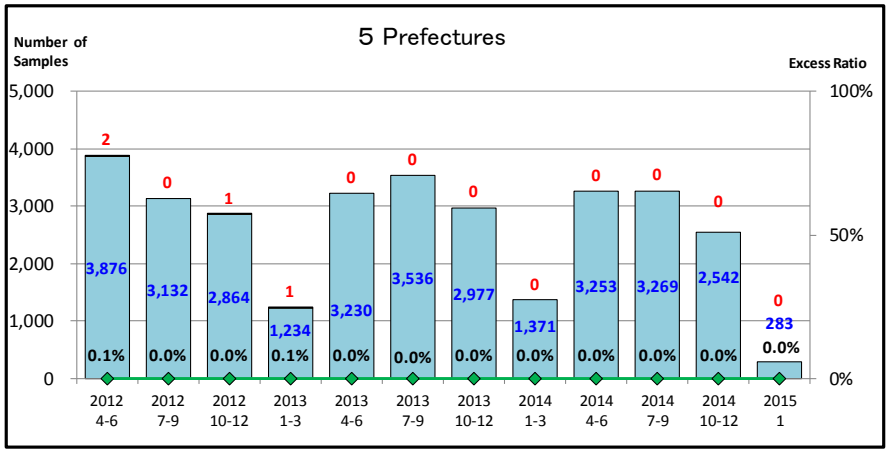
Total: 21,817 samples
No. of samples more than 100Bq/Kg: 179
No. of samples less than 100Bq/Kg: 21,638



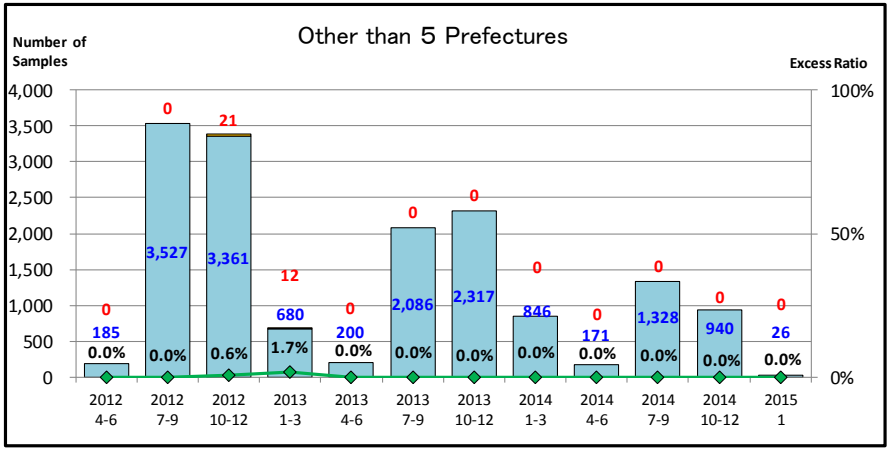
Vegetables

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

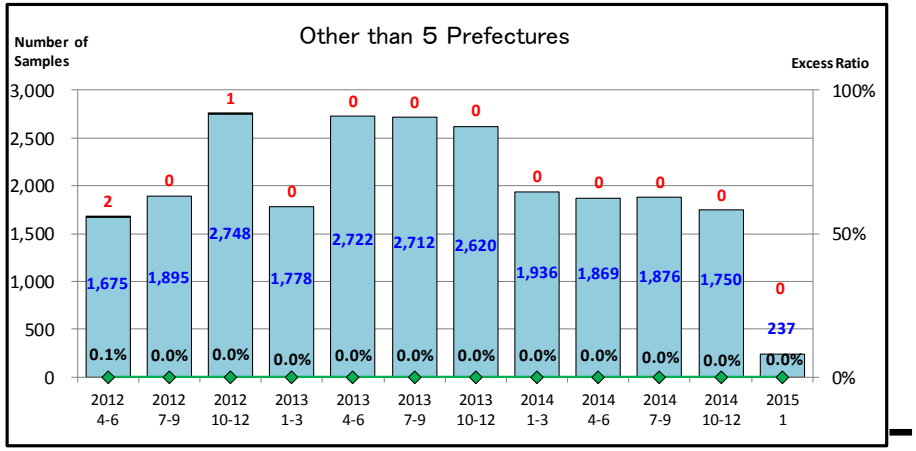
Total: 31,571 samples
No. of samples more than 100Bq/Kg: 4
No. of samples less than 100Bq/Kg: 31,567



Total: 15,700 samples
No. of samples more than 100Bq/Kg: 33
No. of samples less than 100Bq/Kg: 15,667



Total: 23,821 samples
No. of samples more than 100Bq/Kg: 3
No. of samples less than 100Bq/Kg: 23,818



Food monitoring result (transition of rate of exceeding standard limits in each quarter) (2)

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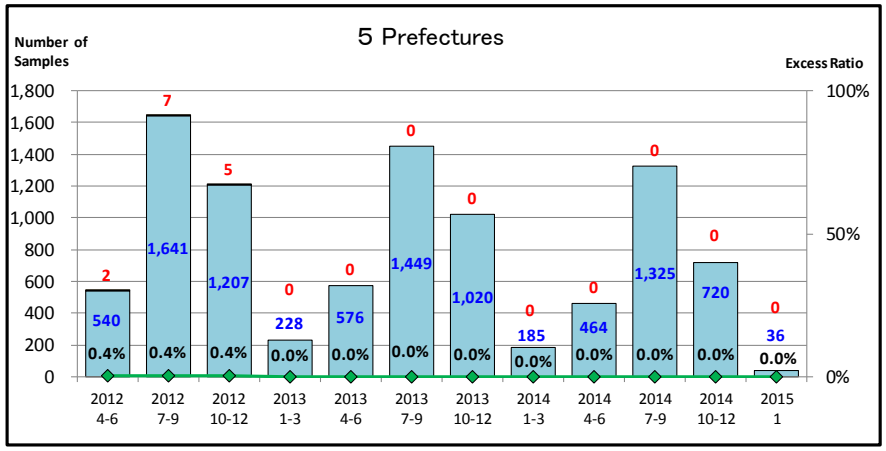
Fruits

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

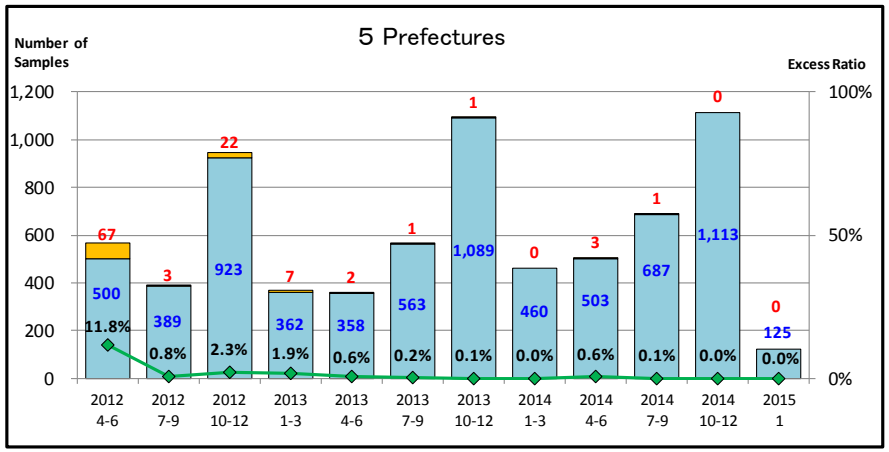
Total: 9,405 samples
No. of samples more than 100Bq/Kg: 14
No. of samples less than 100Bq/Kg: 9,391



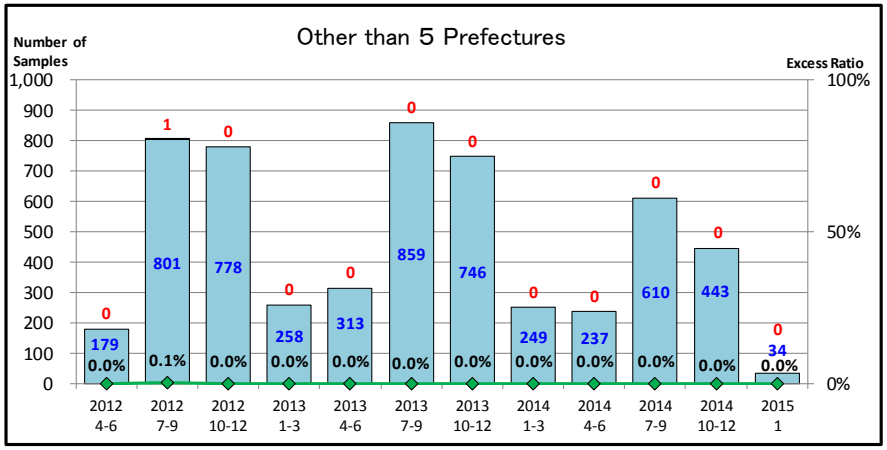
Edible Fungi(cultivated)

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

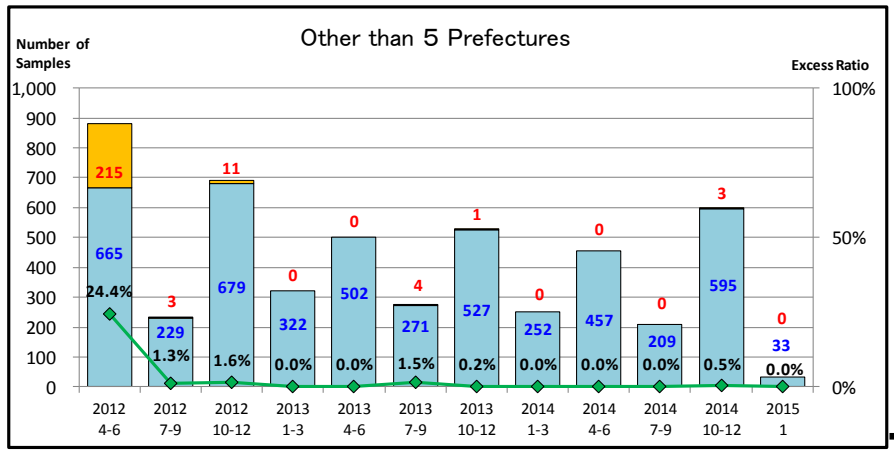
Total: 7,179 samples
No. of samples more than 100Bq/Kg: 107
No. of samples less than 100Bq/Kg: 7,072



Total: 5,508 samples
No. of samples more than 100Bq/Kg: 1
No. of samples less than 100Bq/Kg: 5,507



Total: 4,978 samples
No. of samples more than 100Bq/Kg: 237
No. of samples less than 100Bq/Kg: 4,741



Food monitoring result (transition of rate of exceeding standard limits in each quarter) (3)

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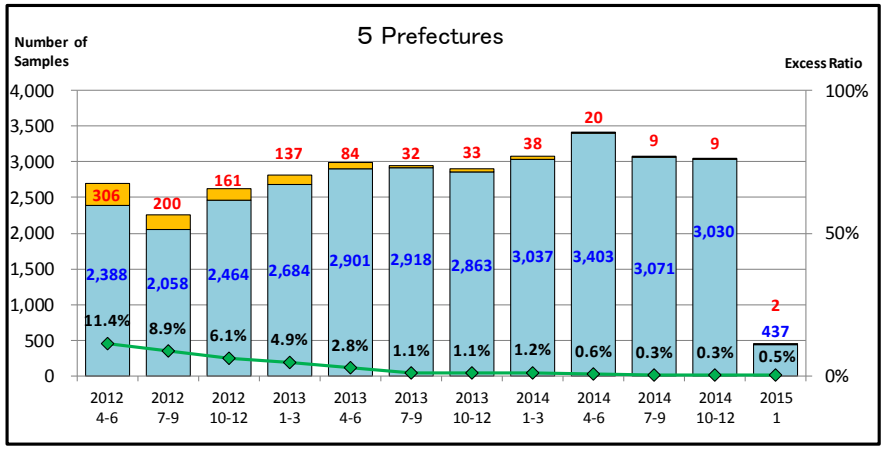
Fishery products(other than freshwater)

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

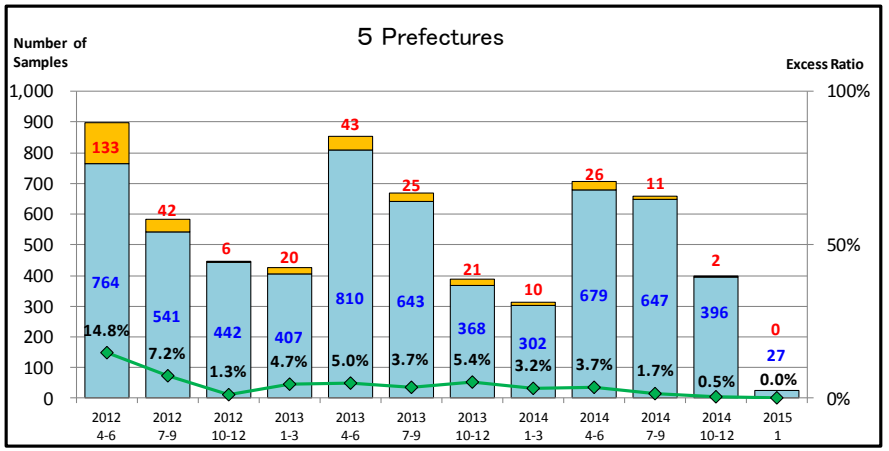
Total: 32,285 samples
No. of samples more than 100Bq/Kg: 1,031
No. of samples less than 100Bq/Kg: 31,254



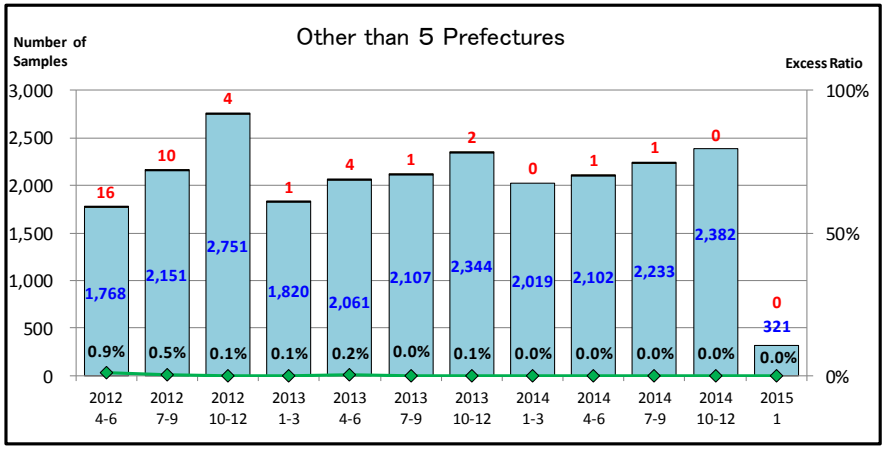
Fishery products(freshwater)

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

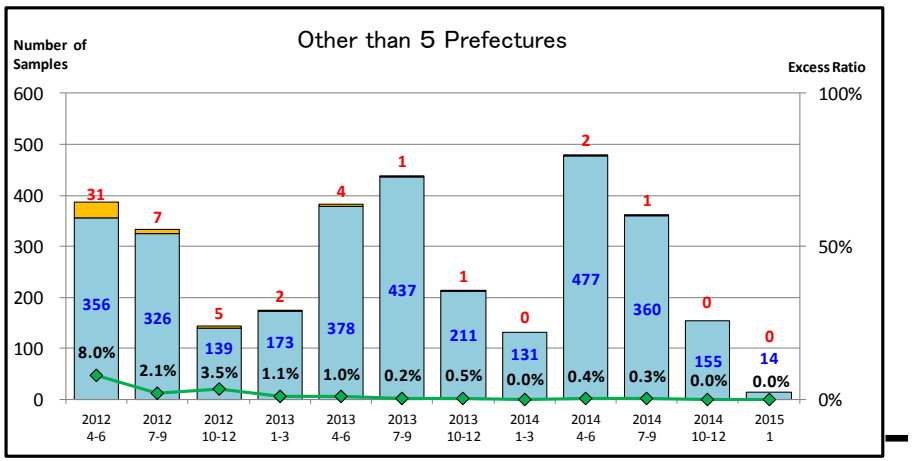
Total: 6,365 samples
No. of samples more than 100Bq/Kg: 339
No. of samples less than 100Bq/Kg: 6,026



Total: 24,099 samples
No. of samples more than 100Bq/Kg: 40
No. of samples less than 100Bq/Kg: 24,059



Total: 3,211 samples
No. of samples more than 100Bq/Kg: 54
No. of samples less than 100Bq/Kg: 3,157



Food monitoring result (transition of rate of exceeding standard limits in each quarter) (4)

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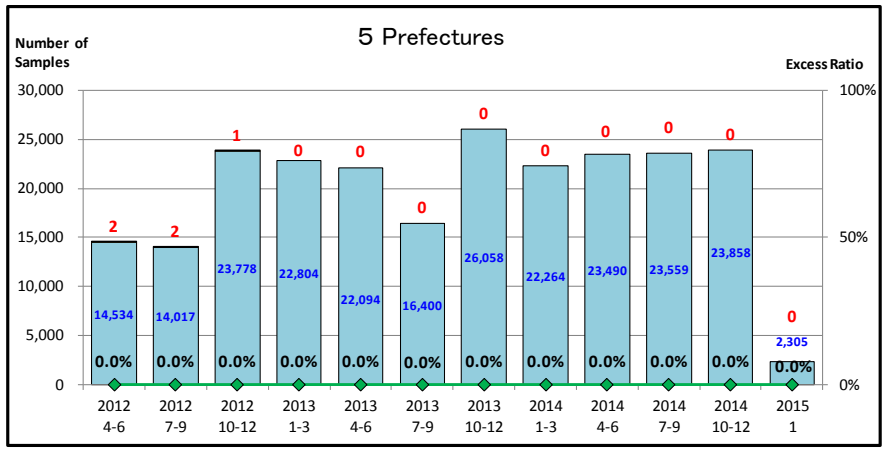
Cattle meat

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

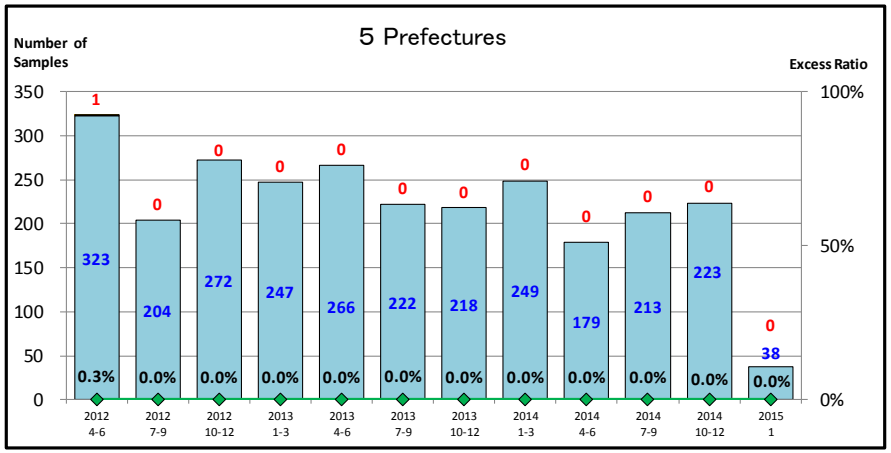
Total: 235,166 samples
No. of samples more than 100Bq/Kg: 5
No. of samples less than 100Bq/Kg: 235,161



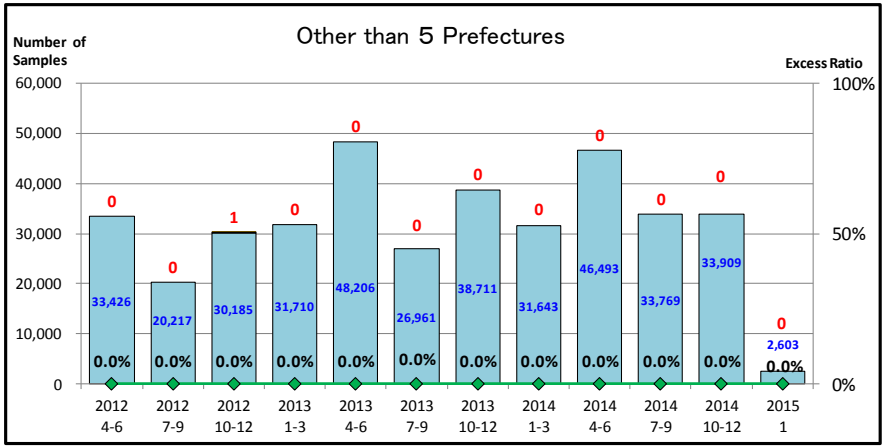
Livestock products(other than cattle meat)

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

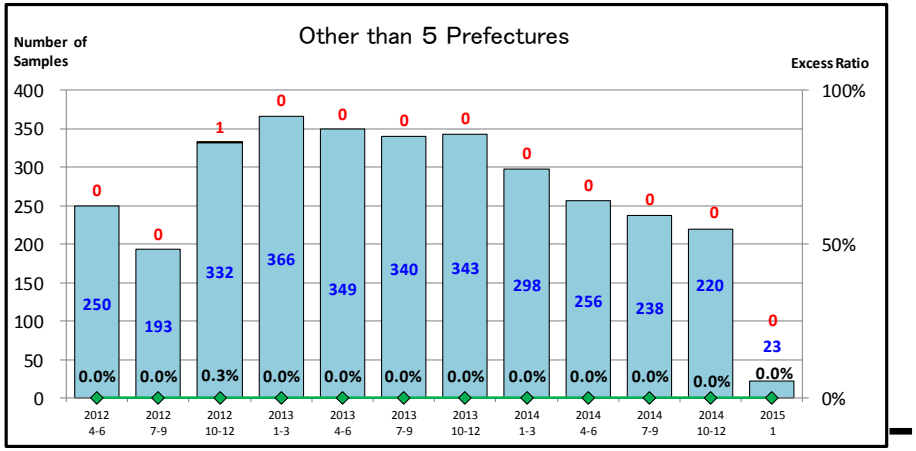
Total: 2,655 samples
No. of samples more than 100Bq/Kg: 1
No. of samples less than 100Bq/Kg: 2,654



Total: 377,834 samples
No. of samples more than 100Bq/Kg: 1
No. of samples less than 100Bq/Kg: 377,833



Total: 3,209 samples
No. of samples more than 100Bq/Kg: 1
No. of samples less than 100Bq/Kg: 3,208



Food monitoring result (transition of rate of exceeding standard limits in each quarter) (5)

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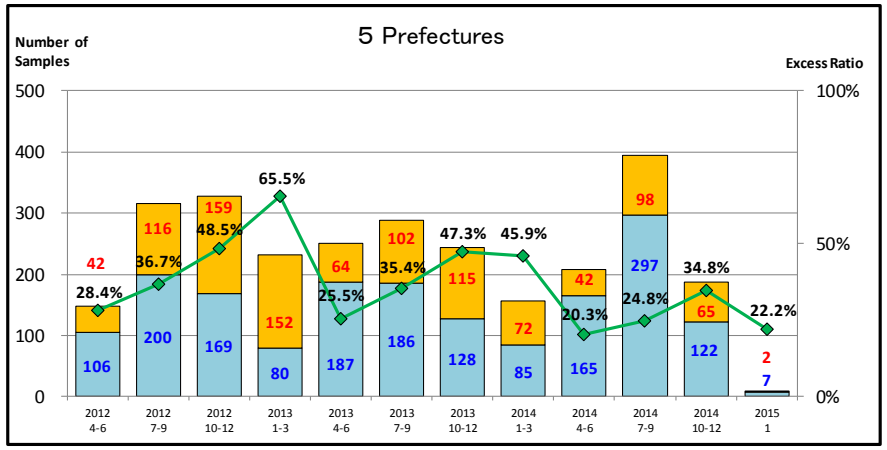
Game meat

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

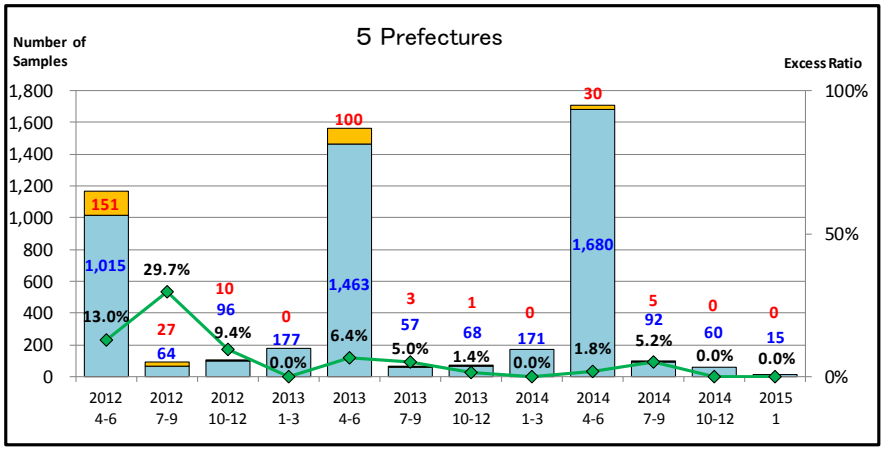
Total: 2,761 samples
No. of samples more than 100Bq/Kg: 1,029
No. of samples less than 100Bq/Kg: 1,732



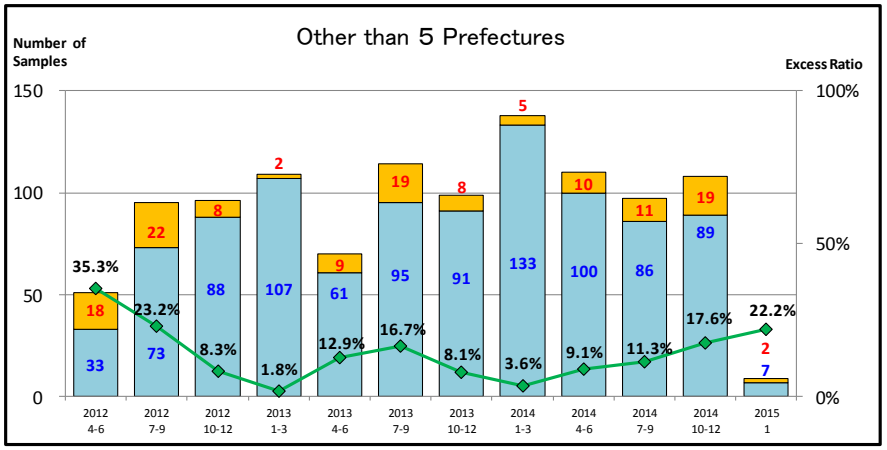
Wild plants and wild edible fungi

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

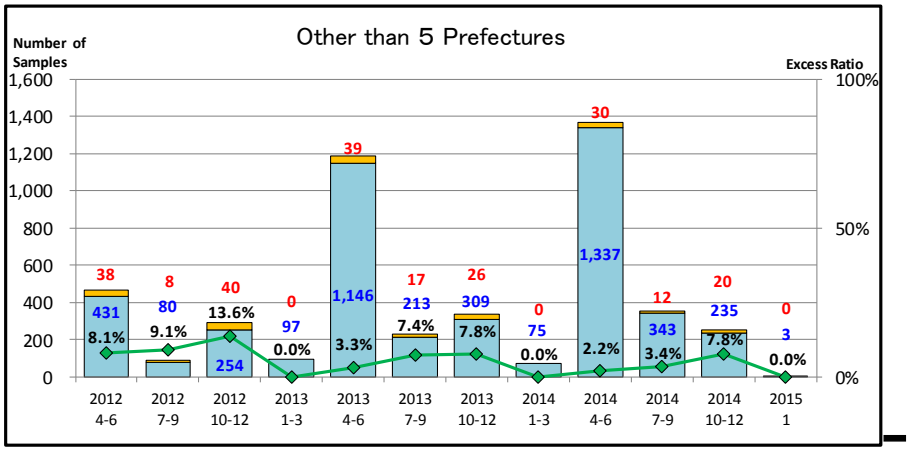
Total: 5,285 samples
No. of samples more than 100Bq/Kg: 327
No. of samples less than 100Bq/Kg: 4,958



Total: 1,096 samples
No. of samples more than 100Bq/Kg: 133
No. of samples less than 100Bq/Kg: 963



Total: 4,753 samples
No. of samples more than 100Bq/Kg: 230
No. of samples less than 100Bq/Kg: 4,523



Food monitoring result (transition of rate of exceeding standard limits in each quarter) (6)

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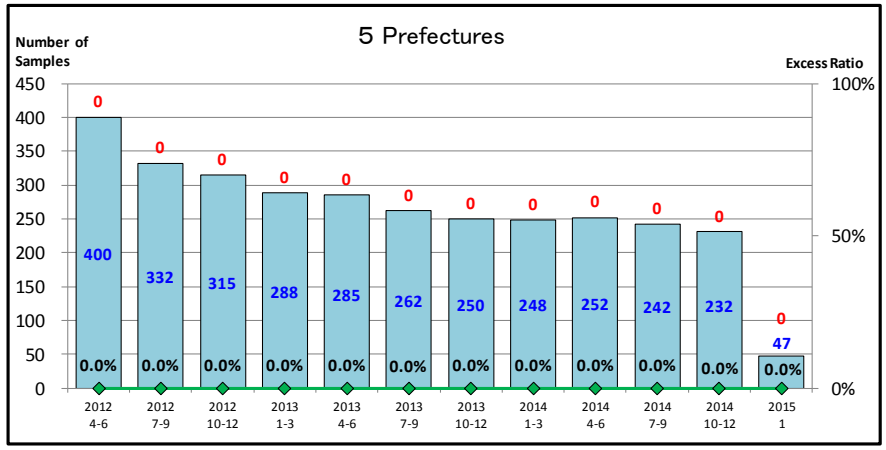
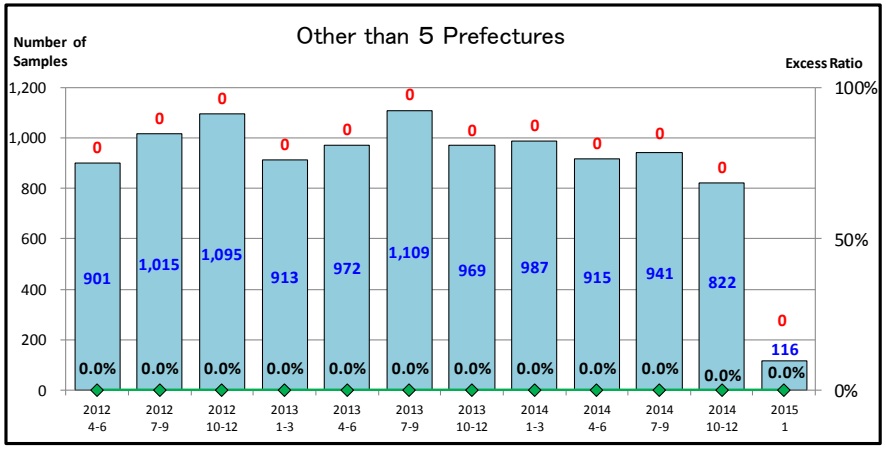
Milk・Infants Use

more than 50Bq/Kg
less than 50Bq/Kg
Excess Ratio

Total: 3,153 samples
No. of samples more than 50Bq/Kg: 0
No. of samples less than 50Bq/Kg: 3,153



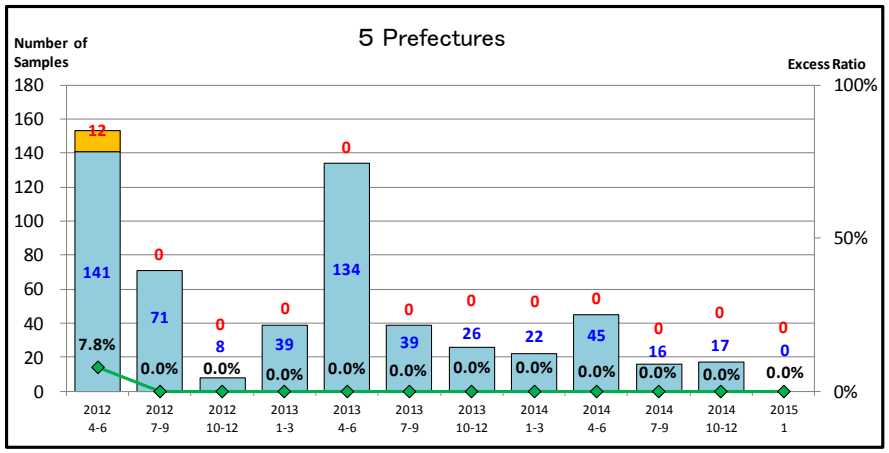
Total: 10,755 samples
No. of samples more than 50Bq/Kg: 0
No. of samples less than 50Bq/Kg: 10,755



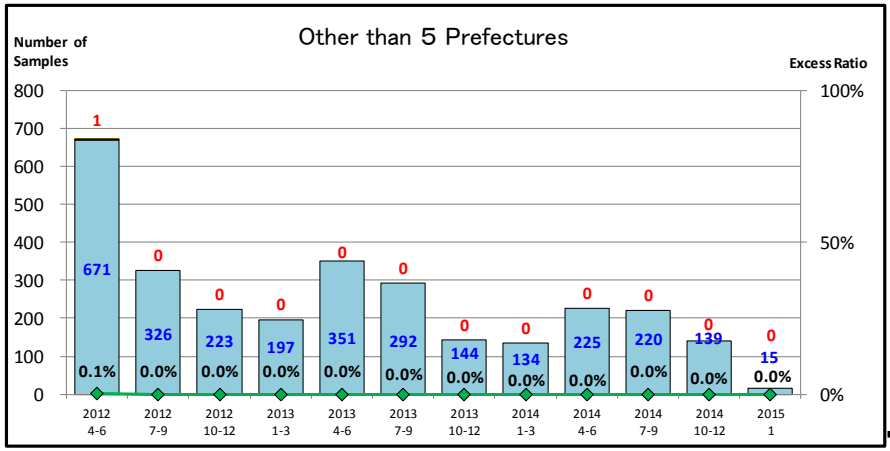
Tea and drink Water

more than 10Bq/Kg
less than 10Bq/Kg
Excess Ratio

Total: 570 samples
No. of samples more than 10Bq/Kg: 12
No. of samples less than 10Bq/Kg: 558



Total: 2,938 samples
No. of samples more than 10Bq/Kg: 1
No. of samples less than 10Bq/Kg: 2,937



Food monitoring result (transition of rate of exceeding standard limits in each quarter) (7)

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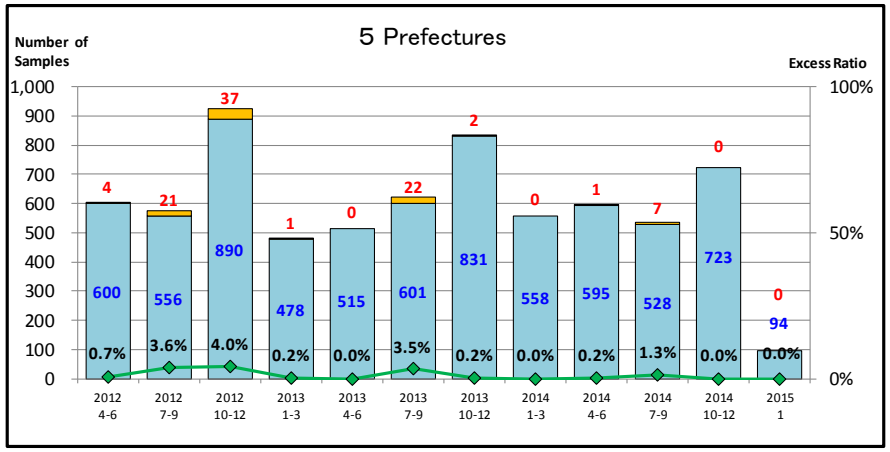
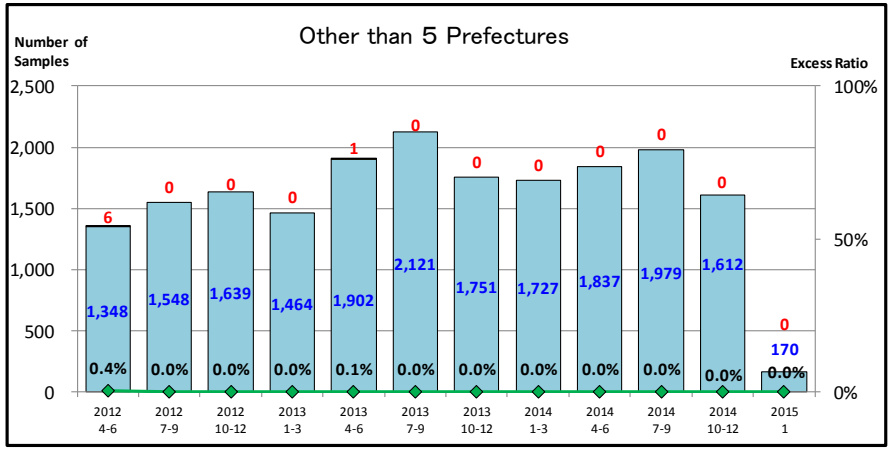
Processed food

more than 100Bq/Kg
less than 100Bq/Kg
Excess Ratio

Total: 7,064 samples
No. of samples more than 100Bq/Kg: 95
No. of samples less than 100Bq/Kg: 6,969



Total: 19,105 samples
No. of samples more than 100Bq/Kg: 7
No. of samples less than 100Bq/Kg: 19,098



Measures toward ensuring food safety in Fukushima (Rice)

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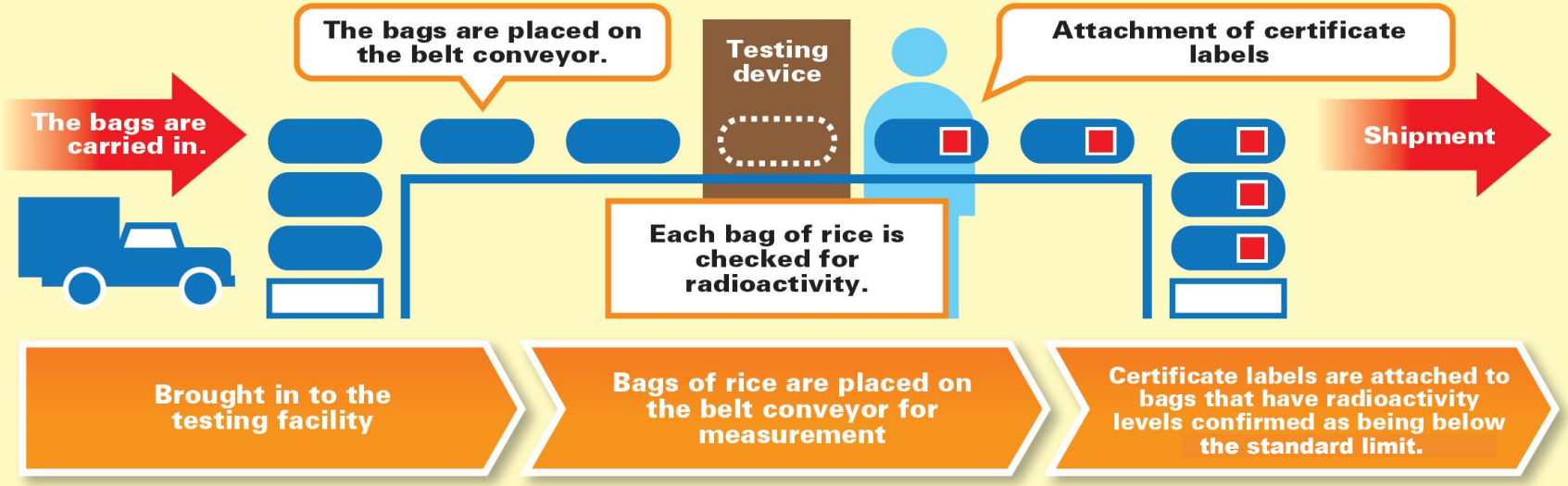
- ✓ Fukushima prefecture measures the radioactive caesium level of all bags of rice. Over 10 million bags have been tested every year since 2012 .
- ✓ Only rice confirmed as being below the standard limit can be shipped and distributed to the market.

Process for testing of all rice



Source: Fukushima Prefectural Government

Result of examination of all bags of rice produced in Fukushima (2012 to 2014)

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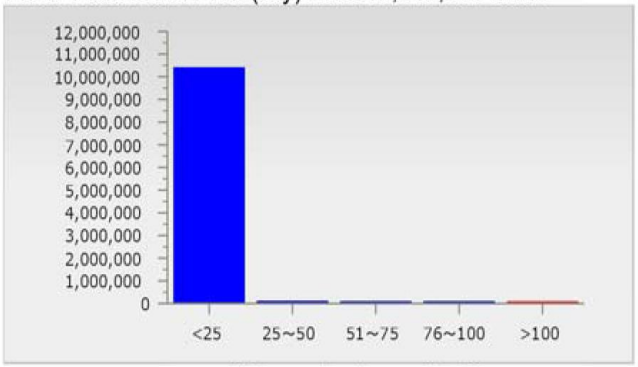
- ✓ 71 samples(0.0007%) were found with exceeding standard limit in 2012, and also 28 samples (0.0003%) in 2013. These samples have been isolated from the market appropriately so that they could not be distributed to the market at all.
- ✓ As of May 9th, all tested samples of rice harvested in 2014 have been confirmed below the standard limit.

Summary 2012 Inspection Period: 08/25/2012～01/13/2015

whole Fukushima Pref. (city) items10,346,081 items



＜Screening Inspection＞

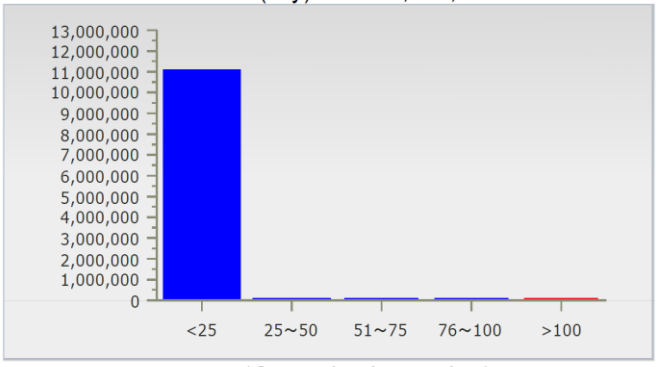
	under 25 Bq/kg	25～50 Bq/kg	51～75 Bq/kg	76～100 Bq/kg	total
items	10,323,442	20,317	1,383	72	10,345,214
percentage	99.78 %	0.2 %	0.01 %	0.0007 %	99.99 %

＜Detailed Inspection＞

	under 25 Bq/kg	25～50 Bq/kg	51～75 Bq/kg	76～100 Bq/kg	over 100 Bq/kg	total
items	144	40	295	317	71	867
percentage	0.0014 %	0.0004 %	0.0029 %	0.0031 %	0.0007 %	0.0084 %

Summary 2013 Inspection Period: 08/22/2013～03/26/2015

whole Fukushima Pref. (city) items11,006,550 items



＜Screening Inspection＞

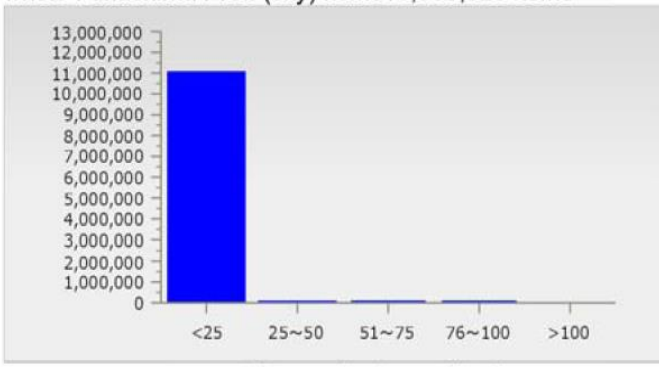
	under 25 Bq/kg	25～50 Bq/kg	51～75 Bq/kg	76～100 Bq/kg	total
items	10,999,154	6,478	224	1	11,005,857
percentage	99.93 %	0.06 %	0.002 %	0.00001 %	99.99 %

＜Detailed Inspection＞

	under 25 Bq/kg	25～50 Bq/kg	51～75 Bq/kg	76～100 Bq/kg	over 100 Bq/kg	total
items	68	6	269	322	28	693
percentage	0.0006 %	0.0001 %	0.0024 %	0.0029 %	0.0003 %	0.0063 %

Summary 2014 Inspection Period: 08/21/2014～05/09/2015

whole Fukushima Pref. (city) items10,985,829 items



＜Screening Inspection＞

	under 25 Bq/kg	25～50 Bq/kg	51～75 Bq/kg	76～100 Bq/kg	total
items	10,983,879	1,909	11	1	10,985,800
percentage	99.98 %	0.02 %	0.0001 %	0.00001 %	100 %

＜Detailed Inspection＞

	under 25 Bq/kg	25～50 Bq/kg	51～75 Bq/kg	76～100 Bq/kg	over 100 Bq/kg	total
items	27	0	1	1	0	29
percentage	0.0003 %	0 %	0.00001 %	0.00001 %	0 %	0.0003 %

* This graph is combining the result of Screening Inspection and Detailed Inspetion When detailed inspection is done the result is updated accordingly.
* radiocative cesium is a total value of cesium 134 and cesium 137
* regarding the ratio, rounded total value of screeining inspection and detailed inspection to 2 decimal places and 4 decimal places.

Source: Fukushima Association for Securing Safety of Agricultural Products

Measures toward ensuring food safety in Fukushima (vegetables and fruits)

MAFF

Fukushima Prefecture checks the safety of locally produced vegetables and fruit through emergency environmental radiation monitoring before shipping them. Samples of these agricultural products are also tested at individual production areas (using equipment such as NaI scintillation spectrometers*) to ensure that safe vegetables and fruit are shipped and distributed.

*The test is conducted by following the Testing Methods for Radioactive Cesium in foods prescribed by the Ministry of Health, Labour and Welfare.

Testing Process

The samples are cut into small pieces and packed into a container for measurement.

Samples cut into small pieces → packed into a container, → Container is set on the analyzer and the sample is measured

Find out more!

Inspection Results Information on reconstruction efforts

http://www.new-fukushima.jp/monitoring/en

http://www.pref.fukushima.lg.jp/site/portal

ふくしまから はじめよう。 Future From Fukushima.

福島県 Fukushima Prefecture

Source: Fukushima Prefectural Government

Measures toward ensuring food safety in Fukushima (beef)

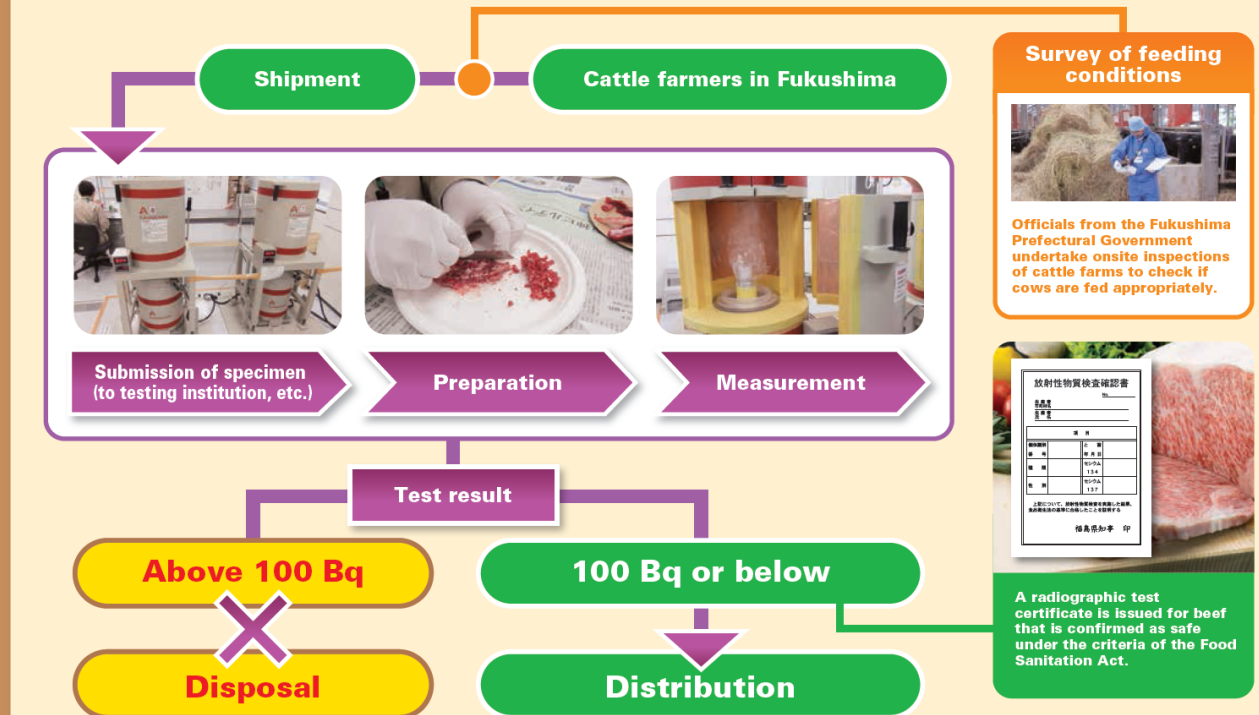
MAFF

Only farmers confirmed of upholding appropriate management can ship cows.

All cows are screened before shipment.

Only meat from cows that has passed the screeningis distributed in the market.

Process for testing of all beef



Find out more!

Inspection Results Information on reconstruction efforts

http://www.new-fukushima.jp/monitoring/en

http://www.pref.fukushima.lg.jp/site/portal

ふくしまからはじめよう。 Future From Fukushima.

福島県 Fukushima Prefecture

Source: Fukushima Prefectural Government

Measures toward ensuring food safety in Fukushima(Fishery Products)

MAFF

- ✓ Fukushima prefecture government conducts monitoring inspection of radioactive Cs in fishery products for approximately 180 samples per week. (all fishery species in this area including those under distribution restriction have been inspected using germanium semiconductor detector for precise determination of radioactive Cs level).
- ✓ “Trial Fishing” was started in June 2012 with limited operation area and selected fishing methods, targeting those fish species whose Cs level is stably below the standard limit. 20 km radius of Fukushima Daiichi Nuclear Power Plant is excluded from the operation area.
- ✓ In addition, as it own effort of Fukushima prefecture, screening test has been conducted before sales. If 50Bq/kg or higher level is detected, distribution is voluntarily suspended.

1. Strict Monitoring Inspection

Research vessel of prefecture

Periodical inspection at the same sampling point

Fisherman : fishing vessel

Target species and fishing method appropriately selected for each fishing season

180 samples per week（seawater species）

Inspection of Radioactive Cs level
（Fukushima Agricultural Technology Center）

2. Trial fishing

（as of the end of 2014）

✓ **The target species: 57 species (excluding double count)**

<Offshore bottom trawlers: 57species> Giant Pacific octopus, Japanese flying squid etc.

<Octopus pot fishery : 57 species> Giant Pacific octopus, Chestnut octopus etc.

<Coastal pelagic trawlers : 4 species> Kounago , Whitebait, Halfbeak, > Salangichthys isikawae

<Coastal gillnet fishery : 57species> Salangichthys isikawae, Hiratsume-gani (Ovalipes punctatus) , Swimming crab and Dog salmon etc.

<Coastal crab pot fishery : 57 species>
Hiratsume-gani (Ovalipes punctatus), Swimming crab, Common octopus and Whelk etc.

<Diving fishery : 1 species> Abalone

<Dredge net fishery : 1 species> Sakhalin Surf Clam

<Coastal driftnet fishery : 57 species>
Sardine , Japanese jack mackerel, Chub mackerel, Spotted mackerel, Yellowtail and Japanese Spanish mackerel etc.

Measures toward ensuring food safety in Fukushima (production phase)

MAFF

In Fukushima Prefecture, a wide range of initiatives are taken in the production phase of agriculture, forestry, and fishery products, in addition to monitoring by the prefectural government and voluntary testing in production areas.

Measures including decontamination

Reversal tillage

Topsoil and subsoil are replaced with each other

Deep tillage

Land is tilled more deeply than usual to a depth of around 30 cm

Topsoil stripping

A later of topsoil of a determined thickness is stripped from untilled fields using heavy equipment and other means.

Tree surfaces washed and bark removed

Surfaces of trees for which the bark is not removable (young peach, yellow peach, plum, apple, pear, and others) are subject to high-pressure washing equipment. This removes about 55% of radioactive materials from the tree surface.

For fruit trees with bark that can be removed (grape, Japanese persimmon, apple, and pear), the contamination levels can be lowered by 80 to 90% by scraping off the surface or removing the bark.

Measures for controlling the absorption of radioactive cesium

Use of potassium fertilizer

It is known that soil absorbs more radioactive cesium when it lacks potassium.

It is recommended that more potassium should be applied for wet-rice farming as basal fertilizer and for additional fertilization. Instructions are given to ensure an appropriate amount of potassium and appropriate methods of applying it as fertilizer, which differ among areas depending on the results of soil diagnostics and other factors.

Many vegetables and fruits contain excessive amounts of potassium. Therefore, instructions are given to ensure that decisions on use of potassium as a fertilizer for vegetables and fruit are made with reference to the results of soil diagnostics and other factors.

Measures for livestock products

Survey of feeding conditions

Officials from the Fukushima Prefectural Government undertake onsite inspections of cattle farms to check if cows are fed appropriately.

Find out more!

Information on reconstruction efforts | http://www.pref.fukushima.lg.jp/site/portal

ふくしまから はじめよう。 Future From Fukushima.

福島県 Fukushima Prefecture

Source: Fukushima Prefectural Government

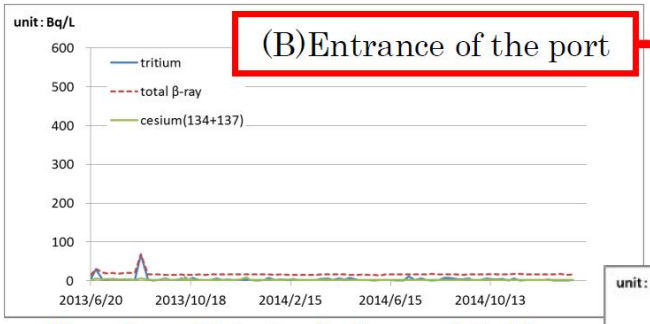
3. Reinforcement of measures against environmental contamination

Influence of the contaminated water in the port of Fukushima Daiichi nuclear power plant

MAFF

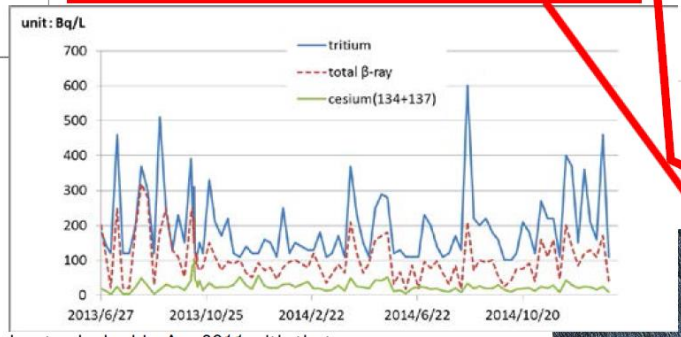
- ✓ May 2013, a high level of tritium was detected in ground water at the seawall area between intakes of unit 1 and unit 2（※） of Fukushima Daiichi Nuclear Power Station (F1NPS). TEPCO investigated this case and confirmed that the contaminated water had leaked into the port of F1NPS in July 2013.
- ✓ Though a certain level of radionuclides was detected in the seawater within the port, the level in outside is below detection limit at most sampling points. No significant influence of the contaminated water has been detected outside of the port.
- ✓ In order to prevent the contaminated fish in the port moving outside, TEPCO constructed the fence and net at the port entrance. TEPCO also have been catching the fish in the port (ref. TEPCO HP).

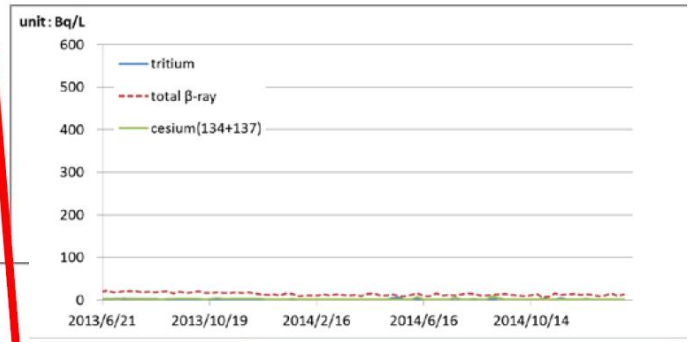
(B)Entrance of the port



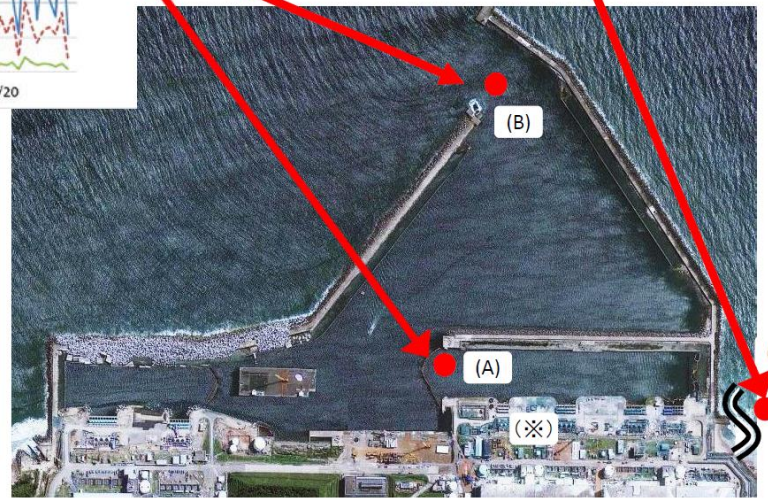
The values of detection limit were plotted in the cases when the detected radioactivity concentration was lower than the limit.

(A)Point north side of Unit1-4 water intake channel (north side of East Seawall Break)





(C)Point near the south discharge channel



Comparison of the amount of radionuclides in the contaminated water leaked in Apr.2011 with that in the contaminated water leaked from May.2011 to Aug.2013, which was estimated by TEPCO.

radionuclides	the amount of radionuclides in the contaminated water leaked in Apr.2011		the amount of radionuclides in the contaminated water leaked since may.2011, which was estimated by TEPCO	
	leak periods	leak amount (unit:Bq)	leak periods	leak amount (unit:Bq)
cesium134+137	6days	ca.1.8×10^{14}	–	
cesium137	6days	ca.9.4×10^{14}	ca.800days	ca.1×10^{12}～ca.2×10^{13}
strontium-90	–		ca.800days	ca.7×10^{11}～ca.1×10^{13}
tritium	–		ca.800days	ca.2×10^{13}～ca.4×10^{13}

Note:220 Bq/L(2013/8/19 sampling),49 Bq/L (2013/8/19) and 0.29 Bq/L (2013/6/26) of strontium-90 were detected at the Stns.(A),(B)and(C), respectively.

(prepared by Fisheries Agency based on information from TEPCO)

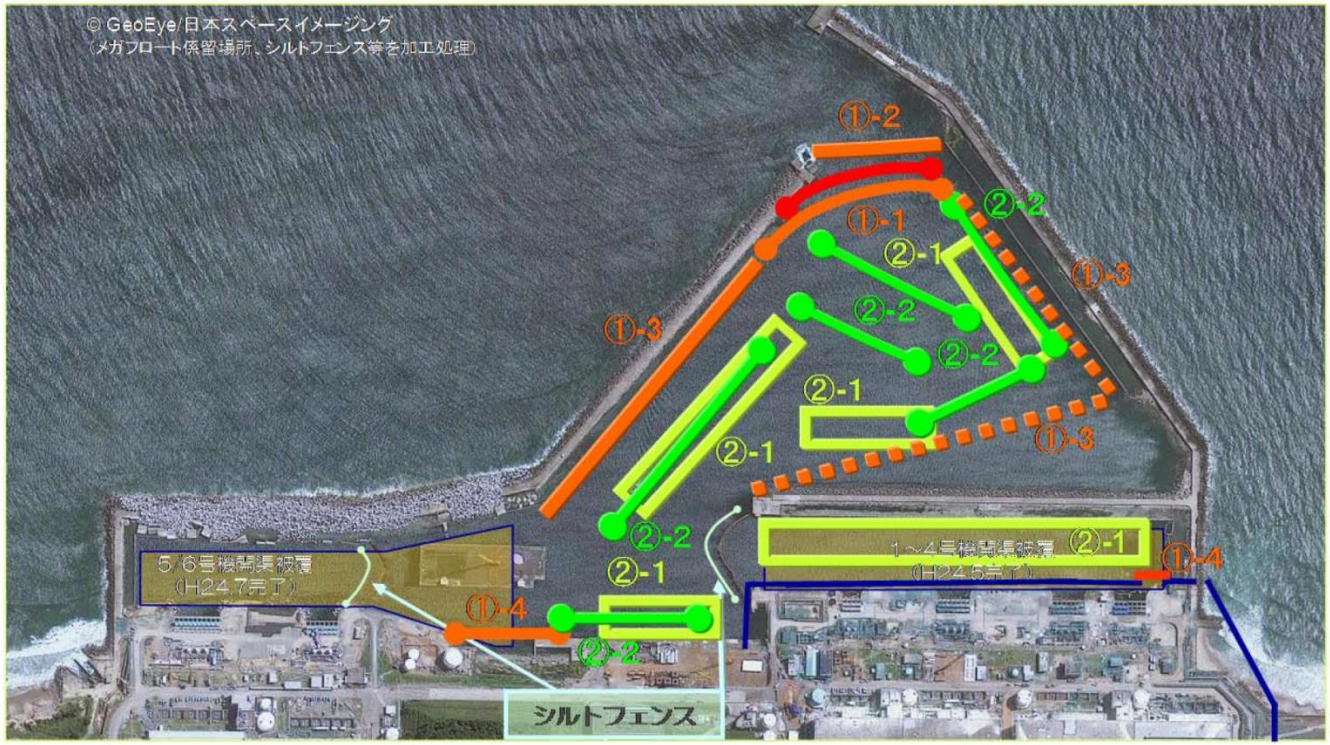
Measures to prevent fish from moving out of port of Fukushima Daiichi nuclear power plant

MAFF

- ✓ Measures to prevent fish from moving and catch fish have been taken in the port of Fukushima Daiichi nuclear power plant.
- ✓ Bottom gillnets and wire fences are installed at the entrance of the port and screens are installed inside the levees.

Measures against fish in harbor of Fukushima Daiichi nuclear power plant

Measures currently taken



①: To prevent fish from moving out — **①-1: Fixed gill net installed at mouth of harbor, ①-2: Wire fence installed at mouth of harbor, ①-3: Screening installed inside levee, ①-4: Silt fence/gill net installed at unloading station, etc.**

②: Capturing fish — **②-1: Cage fishing**, **②-2: Gill net in harbor**

Source: Tokyo Electric Power Co.

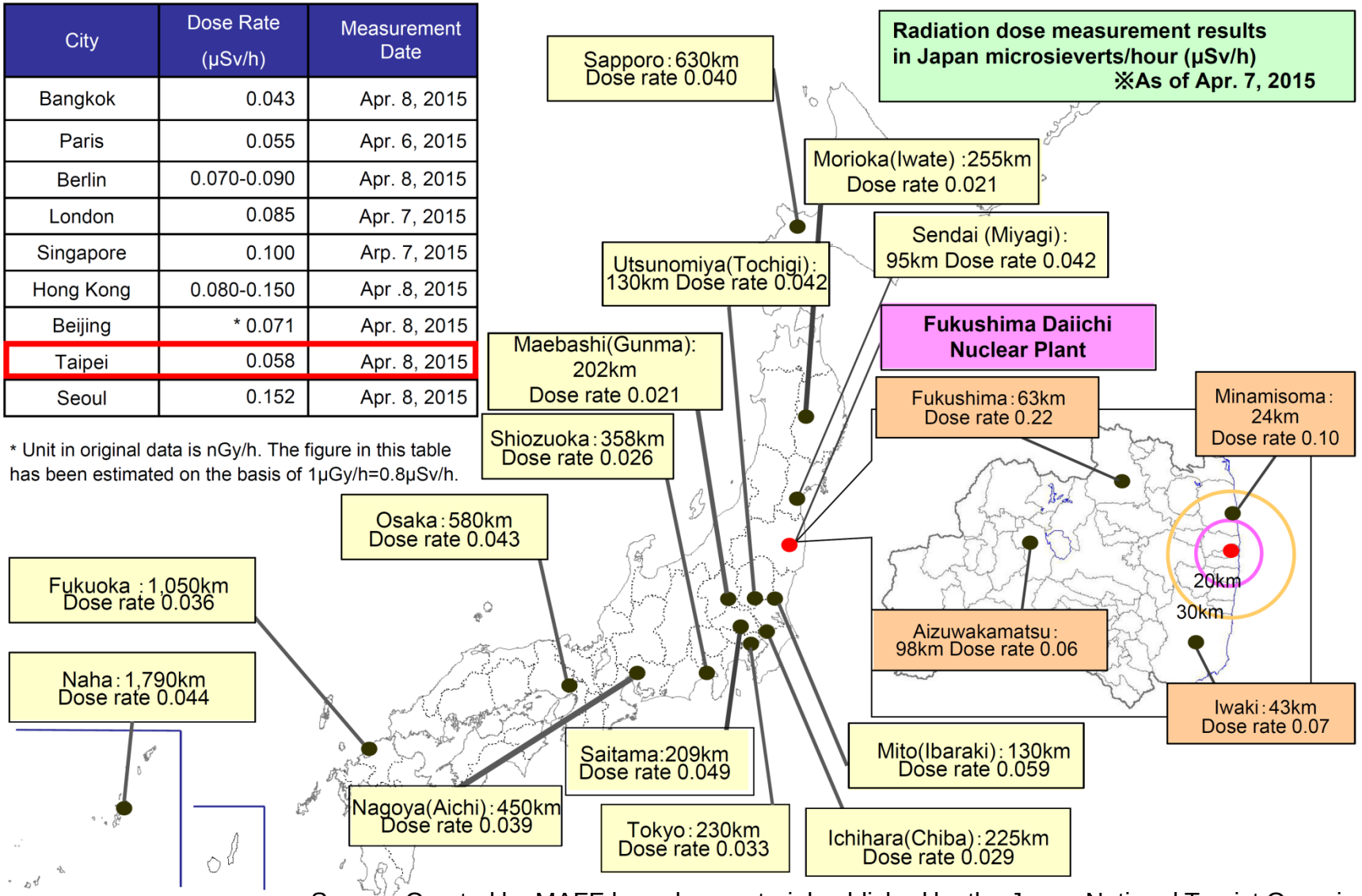
Monitoring radiation in atmosphere

MAFF

✓ Dose rate in the respective regions of Japan is almost at the same level of major cities abroad, except cities close to Fukushima Daiichi nuclear power plant.

City	Dose Rate (μSv/h)	Measurement Date
Bangkok	0.043	Apr. 8, 2015
Paris	0.055	Apr. 6, 2015
Berlin	0.070-0.090	Apr. 8, 2015
London	0.085	Apr. 7, 2015
Singapore	0.100	Arp. 7, 2015
Hong Kong	0.080-0.150	Apr .8, 2015
Beijing	* 0.071	Apr. 8, 2015
Taipei	0.058	Apr. 8, 2015
Seoul	0.152	Apr. 8, 2015

* Unit in original data is nGy/h. The figure in this table has been estimated on the basis of 1μGy/h=0.8μSv/h.



Source: Created by MAFF based on material published by the Japan National Tourist Organization

4. Relaxation of import restriction on Japanese foods

Work on the countries for relaxing their import restrictions

MAFF

✓ Persuading Foreign Governments

Japanese government has provided information on its policy, measures and monitoring data for countries which maintain import restriction

- ✓ It has request actions based on the scientific basis at the opportunities of summit meeting and international conferences
- ✓ It has provided surveillance data through Japanese embassies abroad and embassies of foreign countries in Japan
- ✓ It has sent the ministers, vice ministers and senior officers of the Ministry of Agriculture to key countries for requesting removing their import restrictions

✓ Addressing Import Restriction of Foreign Countries (incl. support to export business)

- ✓ The government has provided information on import restriction of foreign countries
- ✓ The government has provided consultation service about the import restriction
- ✓ The government has made all arrangements for issuing certificates required by importing countries

✓ Actions for Dispelling Harmful Rumors in Foreign Countries and Recovering Exports (transmitting accurate information)

- ✓ Transmitting information on measures for ensuring food safety and charm of Japanese food.
- ✓ Various media such as newspapers and TV
- ✓ Various food events for consumer

Lift and relaxation of the import restrictions by the foreign countries

MAFF

✓ Some foreign countries have lifted/relaxed sequentially their import restrictions, as the result of that Japanese government has made all-out efforts to the countries.

【Lift of all restriction 】

Cancelation date	Countries
Jun. 2011	Canada
〃	Myanmar
Jul. 2011	Serbia
Sep. 2011	Chile
Jan. 2012	Mexico
Apr. 2012	Peru
Jun. 2012	Guinea
Jul. 2012	NZ
Aug. 2012	Colombia
Mar. 2013	Malaysia
Apr. 2013	Ecuador
Sep. 2013	Vietnam
Jan. 2014	Australia
May 2015	Thailand (Except 3 species of wild animals)

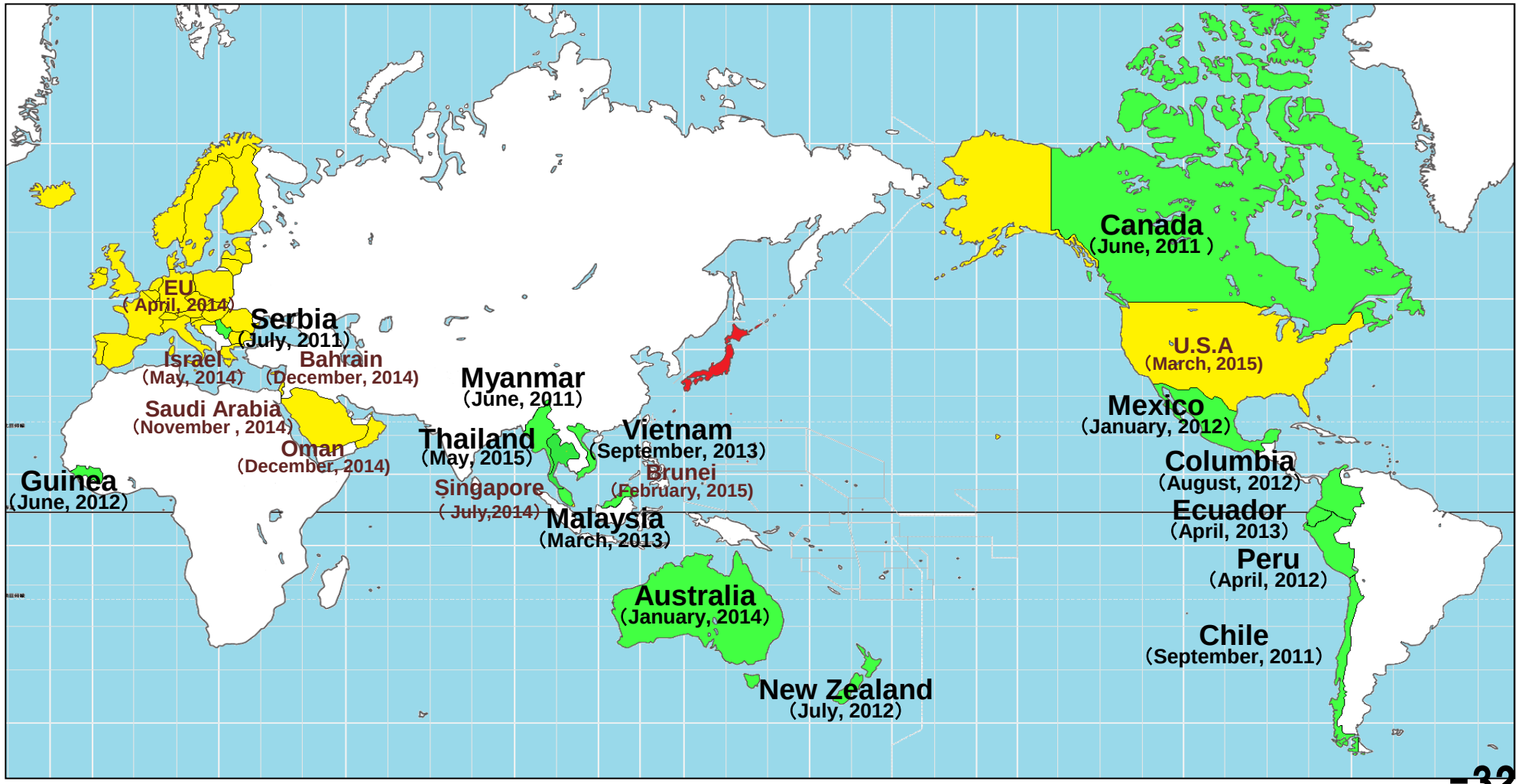
【Relaxation of the restriction】

Date in Effect	Countries	Summary of the relaxation
Apr. 2013	Singapore	Lifted import suspension.(7 prefectures) → Approved import by the testing certificate. (7 prefectures other than Fukushima)
〃	Russia	Lifted import suspension.(6 prefectures) → Approved import by the testing certificate. (6 prefectures)
Jun. 2013	EU	Reduced items required the testing certificate.
Oct. 2013	Brunei	Lifted import suspension.(7 prefectures) → Approved import by the testing certificate. (7 prefectures)
Apr. 2014	EU	Reduced items and prefectures required the testing certificate.
May 2014	Israel	Reduced prefectures required monitoring test by Israel Authority. (47 prefectures → 8 prefectures)
Jul. 2014	Singapore	・ Lifted import suspension on Fukushima.(except some area) → Approved import by the certificate of origin. ・ Reduced items and prefectures required the testing certificate. (8 prefectures→3 prefectures)
Nov. 2014	Saudi Arabia	Approved import by the testing certificate or the radioactivity analysis report. (47 prefectures)
Dec. 2014	Bahrain	Relaxed the requirement on 47prefectures. → Approved import by the certificate of the exporter, instead of the radioactivity analysis report.
〃	US	Reduced items originating from 3 prefectures required the radioactivity analysis report.
〃	Oman	Relaxed the requirement on 47prefectures. → Approved import by the certificate of the exporter, instead of the radioactivity analysis report.
Feb. 2015	Brunei	・ Reduced items subject to import suspension from Fukushima. → Approved import by the testing certificate. ・ Reduced items and prefectures required the testing certificate. (47 prefectures → Fukushima) → Approved import by the certificate of origin (except Fukushima)
Mar.2015	US	・ Reduced import suspension items and the items originating from 3 prefectures required the radioactivity analysis report. → Approved import by sampling test by US Authority

Countries and Regions lifting/relaxing the import restrictions

MAFF

- ✓ 14 countries(green) have lifted the import restrictions related to radionuclide contamination on Japanese foods as of May, 2015.
- ✓ 9 countries (yellow : EU, Israel, Singapore, Saudi Arabia, Bahrain, Oman, Brunei and U.S.A) have eased the restrictions in recent one year.



EU's import restriction on Japanese foods

MAFF

- ✓ EU relaxed regulations in April 2014 and regions and items requiring a test certificate substantially decreased.
- ✓ Requirement for a certificate of origin was abolished for tea leaves from prefectures other than Fukushima (a test certificate is required for those from Fukushima).

【Current】

	Fukushima	Iwate	Miyagi	Ibaraki	Tochigi	Gunma	Saitama	Chiba	Akita	Yamagata	Nagano	Aomori	Yamanashi	Niigata	Shizuoka	Others
Mushrooms																
Wild Plants																
Grains (Rice, Soybeans, Buckwheat)																
Fishery Products																
Vegetables & Fruits																
Meat and Poultry																
Poultry Eggs																
Milk and Infants Use																
Tea (Leaves and Infusion)																
Other Products																

: Requiring the certificate of Pre-export testing issued by the Government of Japan.

: Requiring the certificate of Origin.

: Subjected to sampling test in EU

Singapore's import restriction on Japanese foods

MAFF

- ✓ In June 2014, Singapore relaxed the import restrictions and lifted the import suspension on products from Fukushima other than forest and fishery products.
  (Exceptionally, all food products from 10 municipalities around the Fukushima daiichi nuclear power plant are still suspended import.)
- ✓ The subjects required testing certificate were reduced to the forest and fishery products from three prefectures (Ibaraki, Tochigi, and Gunma).

【Current】

Products \ Prefectures		Fukushima	Ibaraki	Tochigi	Gunma	Others
Forest Products	Mushrooms (Wild)					
	Mushrooms (Cultivated)					
	Wild plants (Wild berries etc)					
	Wild animal (Boar meat etc)					
Fishery Products						
Vegetables and Fruits						
Meat						
Poultry Egg						
Milk/Milk Products						
Tea/Tea products						
Rice						
Other Products						

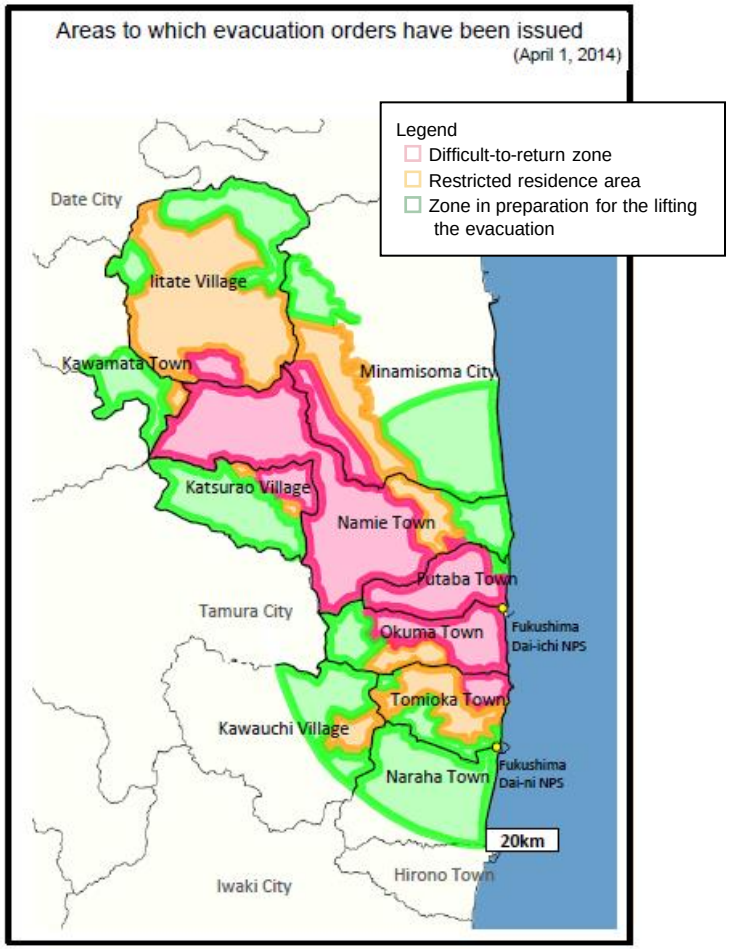
Suspended all food Products from designated municipalities around Fukushima Daiichi Nuclear Power Station.(Minamisoma-City, Kawamata Town, Kawauchi-Village, NarahaTown, Iitate-Village, Namie-Town, Katsurao-Village, Futaba-Town, Okuma-Town and Tomioka-Town)

: Suspended

: Requiring the certificate of Pre-export testing issued by the Government of Japan.

: Requiring the certificate of Origin issued by Japanese government or the chamber of commerce & industry.

: Subjected to sampling test in Singapore.

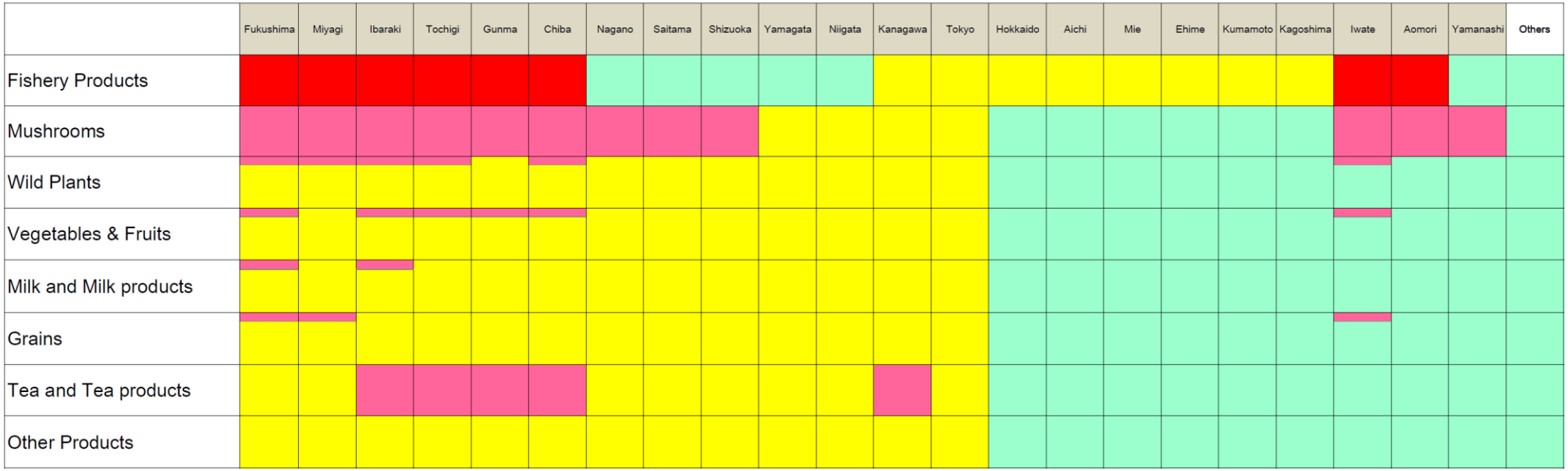


South Korea's import restriction on Japanese foods

MAFF

- ✓ Korea has suspended import of items which have been restricted distribution in Japan.
- ✓ Korea announced impose import suspension on fishery products from 8 prefectures(Fukushima, Miyagi, Iwate, Tochigi, Gunma, Chiba, Ibaraki and Aomori) without any scientific evidence in September, 2013.
- ✓ Japan has requested Korea to withdraw the restriction on fishery products immediately.

【Current】



: Suspended
: Suspended following the restriction of distribution in Japan
: Requiring the certificate of Pre-export testing issued by the Government of Japan.
: Requiring the certificate of Origin.

Taiwan's import restriction on Japanese foods

MAFF

✓ Taiwan suspends import of all food from five prefectures (Fukushima, Ibaraki, Tochigi, Gunma and Chiba) except alcohol products.

[Current]

	Fukushima	Ibaraki	Tochigi	Gunma	Chiba	Others
Mushrooms						
Wild Plants						
Grains						
Fishery Products						
Vegetables & Fruits						
Milk and Milk products						
Tea and Tea products						
Meats						
Poultry Eggs						
Other Products (Excluding Alcohol Products)						

: Suspended

: Subjected to sampling test in Taiwan

Hong Kong's import restriction on Japanese foods

MAFF

✓ Hong Kong suspends import of vegetables, fruits, milk, and milk-based products from five prefectures (Fukushima, Ibaraki, Tochigi, Gunma and Chiba).

【Current】

	Fukushima	Ibaraki	Tochigi	Gunma	Chiba	Others
Vegetables & Fruits						
Milk, Milk beverages and Dried milk						
Meats						
Poultry Egg						
Fishery Products						
Other Products						

: Suspended

: Requiring the certificate of Pre-export testing issued by the Government of Japan.

: Subjected to sampling test in Hong Kong

China's import restriction on Japanese foods

MAFF

- ✓ China suspends import of all food from 10 prefectures.
- ✓ While China requires testing certificate as a condition for importing fresh food from region other than the 10 prefectures, the format of such a certificate has not been agreed.

【Current】

	Fukushima	Miyagi	Ibaraki	Tochigi	Gunma	Saitama	Chiba	Tokyo	Niigata	Nagano	Others
Mushrooms											
Wild Plants											
Grains											
Fishery Products											
Vegetables & Fruits											
Milk and Milk products											
Tea and Tea products											
Meats											
Poultry Eggs											
Other Products											

: Suspended
: Requiring the certificate of Pre-export testing issued by the Government of Japan.
: Requiring the certificate of Origin.

U.S.'s import restriction on Japanese foods

MAFF

- ✓ The foods which have been restricted distribution are not allowed to be reached the market, so that cannot be exported to foreign countries.
- ✓ The import suspension items in US reflect the distribution restriction items in Japan. For example, when Japan canceled the restriction on the certain item, US consequently lifts the import suspension on the item.

【Current】

	Fukushima	Ibaraki	Tochigi	Miyagi	Chiba	Iwate	Nagano	Gunma	Saitama	Yamanashi	Shizuoka	Aomori	Yamagata	Niigata	Others
Mushrooms															
Wild Plants															
Vegetables & Fruits															
Milk and Milk products															
Grains															
Fishery Products															
Tea and Tea products															
Meats															
Game Meat															
Other Products															

: Suspended following the restriction of distribution in Japan
: Requiring the laboratory analysis issued by the third-party laboratory
: Subjected to sampling test in US

Thank you!
Japan appreciates your cooperation for maintaining food safety for our next generation.