

Safety of food from Japan and restoration of its overseas distribution



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Export and International Affairs Bureau
Ministry of Agriculture, Forestry and Fisheries
(MAFF) JAPAN

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農林水産省

Control system of radionuclides in food



- ✓ Food is monitored by local (prefectural) governments based on the maximum levels of radio-caesium ($^{134}\text{Cs} + ^{137}\text{Cs}$) in food set by the Ministry of Health, Labour and Welfare. The items exceeding the levels are recalled and disposed of based on the Food Sanitation Act.
- ✓ Depending upon the prevalence of the incidence, the distribution is suspended for such items on an area basis, based on the Act on Special Measures Concerning Nuclear Emergency Preparedness (ASMCNEP).
- ✓ By this system, food exceeding the levels are neither distributed nor exported.

■ Establish maximum levels of radio-caesium (JMLs) in food*

Drinking water	10 Bq/kg
Milk	50 Bq/kg
Infant food(s)	50 Bq/kg
General food(s)	100 Bq/kg

*The effect of radionuclides other than radio-caesium (including Sr and Pu) is taken into account in maximum levels setting

【The Food Sanitation Act】

■ Monitor radionuclides in food**

- The national government establishes the guidelines on monitoring plans
- Prefectural governments conduct the monitoring

** The monitoring plans are annually revised, focusing on the items with higher concentration (targeted sampling).

【 ASMCNEP 】

【If an item exceeding the JMLs is observed】

- Recall and dispose of the item containing radionuclides above the maximum levels

【The Food Sanitation Act】



【If cases exceeding the JMLs are observed in a particular product over an area】

- Suspend shipment of the items from the area

【 ASMCNEP 】

Maximum levels of radio-caesium in food



		Codex	Japan	EU	US
				Euratom 2016/52	FDA DIL
Annual radiation dose limit [†]		1 mSv	1 mSv	1 mSv	5 mSv
Assumed ratio of contaminated food		10 % ^{††}	50 %	10 %	30 %
Maximum levels of radio-caesium in food	Drinking water		10 Bq/kg	1,000 Bq/kg (or liquid food)	
	Milk		50 Bq/kg	1,000 Bq/kg (Dairy product)	
	Infant food	1,000 Bq/kg ^{†††}	50 Bq/kg	400 Bq/kg	
	Other than the above food	1,000 Bq/kg ^{†††}	100 Bq/kg (General food)	1,250 Bq/kg Imported food 100 Bq/kg - from Japan EU (2016/6) 600 Bq/kg - from Chernobyl accident affected countries EU (2020/1158)	1,200 Bq/kg (All food)
		Food consumed in small quantities ^{††††} 10,000 Bq/kg		Minor food 12,500 Bq/kg	

[†] The dose limit should be expressed as an effective dose of 1mSv in a year. (ICRP, Publication103, 2007, p98)

^{††} The ratio of the amount of the foodstuffs per year from areas contaminated with radionuclides to the total amount produced and imported annually in the region or country under consideration(CXS 193-1995).

^{†††} The food under the Codex guideline level should be considered as safe for human consumption(CXS 193-1995).

^{††††} For food consumed in small quantities that represent a small percentage of total diet and hence a small addition to the total dose, the Codex guideline Levels may be increased by a factor of 10. (Called 'minor food' in EU) (CXS 193-1995).

Note: The Japanese maximum levels of radio-caesium in food are set also in consideration of other radionuclides released by the accident namely ⁹⁰Sr, ¹⁰⁶Ru, ²³⁸Pu, ²³⁹Pu, ²⁴⁰Pu and ²⁴¹Pu.

Results of the monitoring on radio-caesium ($^{134}\text{Cs}+^{137}\text{Cs}$) in major items, JFY2020

The major items show that all are below the Codex guideline levels (GLs) considered as safe for human consumption as well as the Japanese maximum levels (JMLs).

	4.2020-3.2021				4.2020-3.2021		
	Number of samples	Samples exceeding			Number of samples	Samples exceeding	
Codex GLs		JMLs	Codex GLs	JMLs			
Grain	2,157	0	0	Livestock products (except beef and milk)	521	0	0
Vegetables	4,419	0	0	Milk and infant food	1,256	0	0
Fruit	1,104	0	0	Tea, drinking water and beverages	213	0	0
Seafood (except wild freshwater fish and shellfish)	8,978	0	0	Cultivated mushrooms	3,303	0	0
Beef†	22,401	0	0	Processed food (widely distributed)	2,225	0	0
				Sub total	46,577	0	0

† The monitoring guideline for beef has been revised, and monitoring samples were drastically reduced. (Around 248 thousands → 22 thousands)

Legend : Table created by MAFF based on the monthly data of "Levels of radioactive contaminants in foods tested in respective prefectures" by press released date (MHLW https://www.mhlw.go.jp/english/topics/2011eq/index_food_radioactive.html) The monitoring is conducted based on the guidelines of monitoring plan.

Results of the monitoring on radio-caesium in minor items with higher concentrations, JFY2020

Specific wild harvests which tend to have higher concentration of radionuclides are local items consumed in small quantities, and not a commodity for export. All samples, including those from where the shipments are suspended, are below the Codex GLs considered as safe for human consumption. Recall cases based on the JMLs in marketed items are small and all are individually followed up and the shipments are suspended.

	4.2020 - 3.2021			Remarks
	Number of samples	Recall cases		
		Codex GLs*	JMLs	
Wild freshwater fish and shellfish	1,431	0	0	
Game meat	3,473	0	0	
Wild plants and wild mushrooms	2,680	0	23	Koshiabura (2) (130-250Bq/kg), dried mushroom (1) (160Bq/kg), mushrooms (20) (110-1,700Bq/kg) [Shipments are suspended]
Processed food (local products)	251	0	0	
Sub total	7,835			

Japanese average annual consumption: (MHLW. 2010)

minor fish (e.g. Iwana and Yamame = 9.1g)

wild mushrooms (11.7g)

leaf buds of Koshiabura (no data)



Reference on the amount of consumption: Koshiabura, typically eaten as TEMPURA (If eating 10g x 2 pieces =20g)



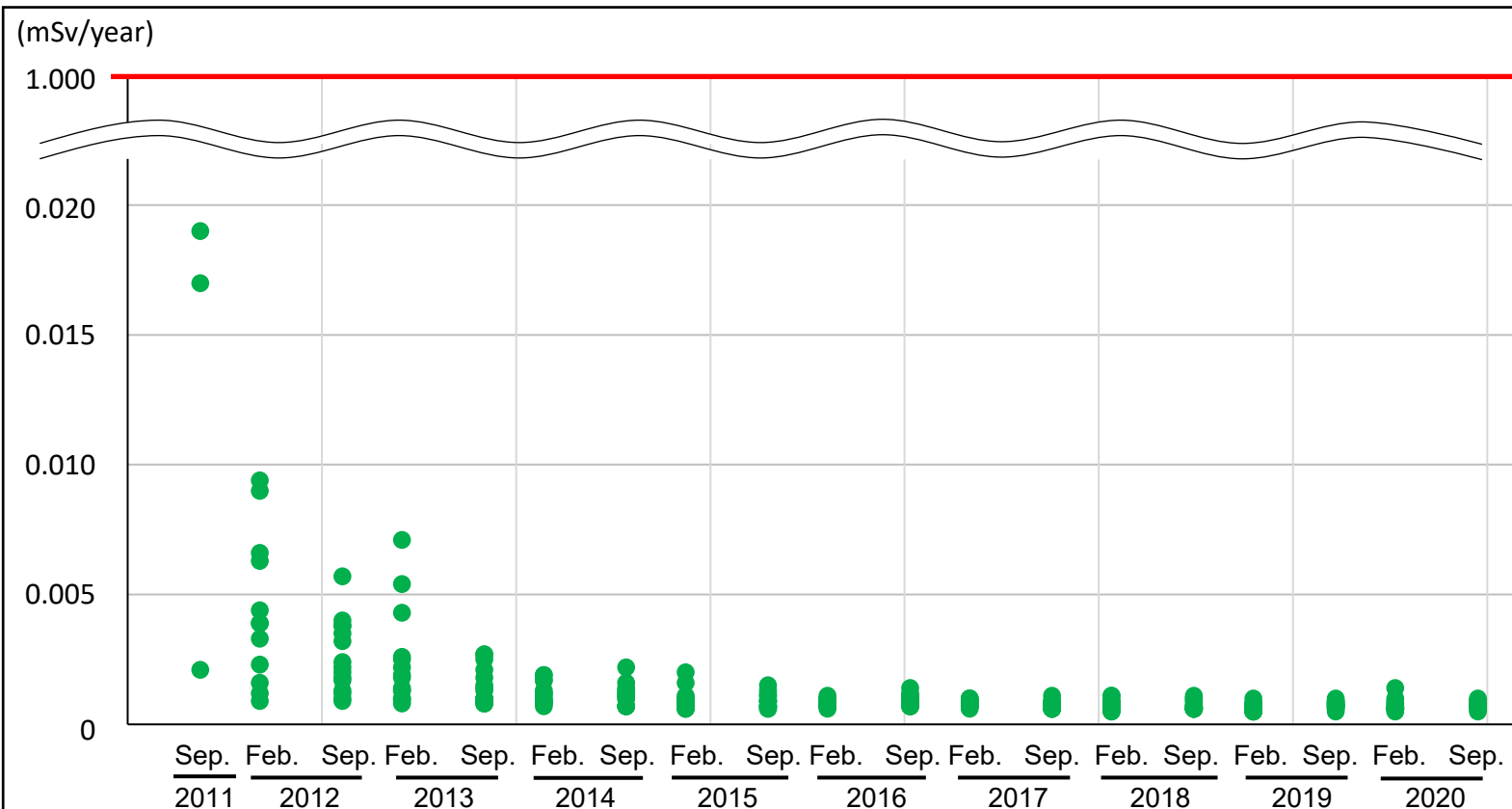
Consumption of wild mushrooms and leaf buds of *Koshiabura* is very small. The distribution is limited, and the majority of people have not purchased / consumed these products.



*A factor of 10 is applied for food consumed in small quantities.

Total Diet Study: Estimation of radiological annual intake from food in Japan

According to the biannual market basket surveys, the effective dose from radio-caesium in food has been estimated as far below the intervention exemption level of 1 mSv/year (0.0005~0.0014 mSv/year in 2020). Considering the share of Japanese food commodities in total intake, the effect is significantly lower for consumers in the foreign countries.



Dose limit of 1mSv/year (Intervention exemption level, recommended as **safe for the public**)

I received 0.03mSv of cosmic radiation from 10 hour aeroplane flight!*



* <http://www.unscear.org/unscear/en/faq.html>

Exposure from the radio-caesium ($^{134}\text{Cs} + ^{137}\text{Cs}$) at 15 monitoring sites (Sep 2012~)

Note: In the long term, the majority of radiation doses through food intake, derived from the TEPCO's Fukushima Daiichi Nuclear Power Station accident, are attributed to radio-caesium.

Source: https://www.mhlw.go.jp/stf/houdou/0000205937_00006.html (In Japanese)

農林水産省 輸出・国際局 / Export and International Affairs Bureau. Ministry of Agriculture, Forestry and Fisheries.

Monitoring results of radionuclides in Japanese food performed by importing countries/regions

Monitoring tests of Japanese food at the destination countries, detected non-compliance to their reference levels only soon after the accident, and even that to the Japanese maximum levels has not been detected for more than 8 years.

Country/ region	Reference level	Monitoring period	Number of non-compliances		Number of test samples	Reference	
			Cs-134 Cs-137	I-131		(Accessed August.2021)	Description <i>*notes in Italic are written by MAFF</i>
EU	Japanese maximum levels ^{1), 2)}	2011-2021 (Ongoing)	1 (June, 2011)	0	unknown	RASFF: Rapid Alert System for Food and Feed	<i>* Non-compliance has not been found at import controls for more than ten years. A sample which exceeded the Codex guideline level and the provisional JML¹⁾ was only found in green tea in June 2011 (Cs134: 485 Bq/kg +Cs137: 553 Bq/kg)</i>
Hong Kong	Codex guideline levels	Mar. 2011 - June 2021 (Ongoing)	0*	3 (Mar., 2011)	752,986 ⁴⁾ (2011-2020)	CFS: Daily situation update of food surveillance on food imported from Japan	"The 3 unsatisfactory samples that exceeded the Codex guide line level of I-131 were announced on 23 March 2011." <i>* A sample which exceeded the current JML²⁾ of Cs-134,137, was last found in dried mushroom (167 Bq/kg) in August 2013.</i>
Taiwan	Taiwanese maximum levels ³⁾	Mar. 2011 - July 2021 (Ongoing)	0	0	172,801	Taiwan FDA: 日本輸入食品毎日輻射検測結果	"230個樣本被檢驗出含微量輻射。未超出我國及日本標準。(230 sample was found to contain low levels of radioactivity not exceeding the maximum levels of both Taiwan and Japan.)" ⁵⁾
USA	Derived Intervention Levels of FDA	Mar. 2011 - Feb. 2021 (Ongoing)	0	-	1,576	FDA: FDA Response to the Fukushima Dai-ichi Nuclear Power Facility Incident	"Of the 1,576 samples, three were found to contain detectable levels of Cesium, but the levels were well below the established Derived Intervention Level (DIL) and posed no public health concern."
Canada	Action levels of Health Canada	Apr.- Jun. 2011 & Sep.- Oct. 2012	0	0	251	CFIA: Japan nuclear crisis: information for Canadians regarding imported and domestic food	"All imported food products tested were below Health Canada action levels"
Australia	Codex guideline levels	Mar. 2011 - Jan. 2014	0	0	>1,400	DAFF: Monitoring food imported from Japan for radionuclides	"Results from over 1400 tests under the IFIS monitoring program show that all samples of the targeted foods from Japan have passed the radionuclide screening test."

Note: The referenced Codex guideline levels are 1,000Bq/kg for radioactive cesium (Cs-134,137) and 100Bq/kg for radioactive iodine (I-131).

1) Japanese provisional maximum levels for radioactive cesium (Cs134+137) were 200 Bq/kg for drinking water and dairy products and 500 Bq/kg for other food products by 31 March 2012.

2) Since 1 April 2012, Japan has adopted the current maximum levels of 10 Bq/kg for drinking water and tea and 50 Bq/kg for infant food and dairy products and 100 Bq/kg for other food products.

3) Taiwanese maximum level for radioactive cesium was 370Bq/kg by 31 March 2012. Taipei has adopted the same maximum levels of the current JMLs since then.

4) The monitoring results have been subsumed into the routine surveillance results from 1 January 2021, therefore the number of samples thereafter is not available.

5) Even complying with the Taiwanese maximum levels, sampled products with any detectable level of radioactive cesium were either surrendered for disposal, shipped back or suspended for sales.

IAEA's evaluation on Japan's measures



The Joint FAO/IAEA Center states that Japan's "measures to monitor and respond to issues regarding radionuclide contamination of food are appropriate, that the food supply chain is controlled effectively by the relevant authorities and that the public food supply is safe."

*"Public communication on the monitoring results and associated regulatory actions is helping to maintain confidence. Food restrictions continue to be revised and updated as necessary in line with food sampling results. Based on the information that has been made available, the Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture understands that **measures to monitor and respond to issues regarding radionuclide contamination of food are appropriate, that the food supply chain is controlled effectively by the relevant authorities and that the public food supply is safe.**"*

Source: Fukushima Daiichi Status Updates <https://www.iaea.org/newscenter/focus/fukushima/status-update>

IAEA assessment of 9 August 2021, based on the report ' Events and highlights on the progress related to recovery operations at Fukushima Daiichi Nuclear Power Station.' provided by Japan in June 2021.

List of countries which lifted the import measures

Total 54 countries and regions have introduced import measures on Japanese food, notably the import bans and requirements of test certificates, following the nuclear power station accident in 2011, and more than 70%, 40 of them have totally lifted the measures.

Month, Year	Countries
June 2011	Canada
"	Myanmar
July 2011	Serbia
Sep. 2011	Chile
Jan. 2012	Mexico
Apr. 2012	Peru
June 2012	Guinea
July 2012	New Zealand
Aug. 2012	Colombia
Mar. 2013	Malaysia
Apr. 2013	Ecuador
Sep. 2013	Vietnam
Jan. 2014	Iraq
"	Australia

Month, Year	Countries
May 2015	Thailand*
Nov. 2015	Bolivia
Feb. 2016	India
May 2016	Kuwait
Aug. 2016	Nepal
Dec. 2016	Mauritius
"	Iran
Apr. 2017	Qatar
"	Ukraine
Oct. 2017	Pakistan
Nov. 2017	Saudi Arabia
Dec. 2017	Argentina
Feb. 2018	Turkey
July 2018	New Caledonia
Aug. 2018	Brazil

Month, Year	Countries
Dec. 2018	Oman
Mar. 2019	Bahrain
June 2019	Congo DR
Oct. 2019	Brunei
Jan. 2020	Philippines
Sep. 2020	Morocco
Nov. 2020	Egypt
Dec. 2020	Lebanon
"	United Arab Emirates*
Jan. 2021	Israel
May. 2021	Singapore

(As of 28 May 2021)

* Excluding certain game meat which cannot be exported due to quarantine or other reasons.

Japan's approach and their outcomes



1. Japan has a robust control system which prevents the distribution of food exceeding the Japanese maximum levels (JMLs), conservatively set in the safe side, throughout food supply chains.
2. Results of surveys in Japan and monitoring of imported food at destination countries indicate health risk of food produced in Japan is negligible to both the people in Japan and foreign countries.
3. The FAO/IAEA assessed that the measures and response against radionuclides contamination in food are appropriate and the food supply chain is controlled effectively.
4. Total 54 countries and regions have introduced import measures on Japanese food following the accident, and 40 of them have lifted their import measures.

- **Japan requests 14 countries/regions to accept the robust Japanese control systems reviewed by international organizations including IAEA, and remove the import measures to facilitate recovery of life in the affected areas.**



Thank you for your attention!