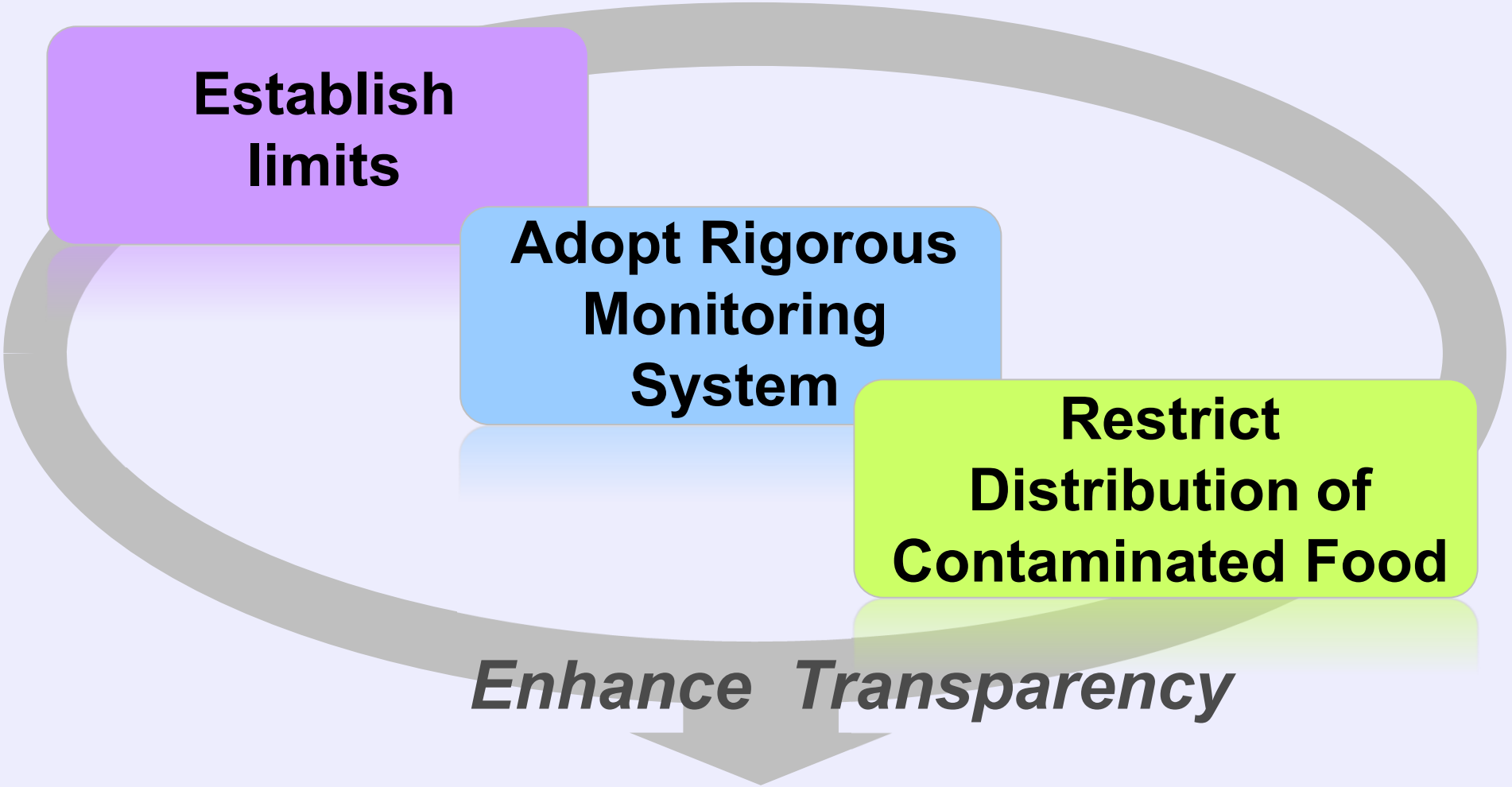
Radionuclides in foods
-current situation and protective measures-

Public Health Bureau
Ministry of Health, Labour and Welfare

MHLW's Four Actions for Safety



Control of radionuclides in foods

■Establish limits for radionuclides in foods

- The indicator values given by the Nuclear Safety Commission were set as the provisional regulation values. (March 17, 2011 - March 31, 2012)
- The present limits for radionuclides in foods took effect. (April 1, 2012 -)

■Monitor radionuclides in foods

- The monitoring is conducted by the local governments around the 17 prefectures. (March 18, 2011 -)
- The Nuclear Emergency Response Headquarters established guidelines on the local governments' formulation of monitoring plans for radionuclides in foods. (April 4, 2011)

■Recall and dispose of foods containing radionuclides above the limits

All the articles in a lot in which the levels are exceeded are recalled or disposed of.

■Restrict the distribution of foods

[Nuclear Emergency Response Headquarters]

Distribution is restricted on a prefecture basis (or a smaller area basis in a prefecture), judging from the spreading of places where radionuclides above the limits are detected as a result of inspections. (March 21, 2011-)

■Lift restrictions

[Nuclear Emergency Response Headquarters]

Every testing result from samples collected within the past one month from at least three different locations in a municipality must be below the corresponding limits.

Concept of the Japanese limits

1 mSv /year

Category	Limit
Drinking water	10
Milk	50
General Foods	100
Infant Foods	50

(Bq/kg)

◆ **The limits are based on 1 mSv in a year consistent with an intervention exemption level adopted by codex**

◆ **The limits are based on more conservative assumption than codex**

- Even if as much as 50% of the foods are contaminated at the limit value, effective dose of most vulnerable age group is expected to be below 1 mSv/year (the intervention level), including the exposure to strontium,etc.

■ Concepts of Inspection Plan for Radionuclides in Foods（1）

Formulation by The Nuclear Emergency Response Headquarters (Latest Revision: March 26, 2024)

Government sets and amends the guideline of monitoring plan, including items subject to inspection and frequency of inspections annually. The inspections are implemented by local governments and focused on items especially in which higher level of radioactive cesium might be detected.

The followings are instructed and annually revised based on the past inspection results

- Local governments subject to inspections
- Items subjected to inspections as follows;
  - Food items from which radioactive cesium above the limits has been detected (e.g.: wild mushrooms, wild plants and wild animal meat)
  - Items that are greatly influenced by the management of feeding (e.g.: milk, beef)
  - Items for which cultivation management are needed because of the influence of radionuclides to production materials (e.g.: log-grown mushrooms)
  - Fishery products
  - Food items that the restriction of distribution was removed
- The frequency of inspections

⇒Inspection Plan of each local government is designed according to the level of detections and actual situation such as of production and shipment.

■ Concepts of Inspection Plan for Radionuclides in Foods（2）

(Table1) ①The food item group for which cultivation/feeding control is difficult

【The local governments subject to inspections】

The local governments which need to continue inspections by taking into account difficulty of the management, etc.

【The local governments and items subject to inspections】

		Aomori	Iwate	Akita	Miyagi	Yamagata	Fukushima	Ibaraki	Tochigi	Gunma	Chiba	Saitama	Tokyo	Kanagawa	Niigata	Yamanashi	Nagano	Shizuoka
> 100 (Bq/kg)	Wild mushrooms and Wild edible plants etc.	◎	◎	●	◎	◎	◎	●	●	◎	□	□	□	□	◎	◎	◎	◎
	Wild bird and animal meat	□	◎	□	◎	●	◎	●	□	◎	□	□	□	□	□	□	□	□
	Inland water fishes	—	—	—	□	—	◎	—	—	●	—	—	—	—	—	—	—	—
> 50 (Bq/kg)	Wild mushrooms and Wild edible plants etc.	□	□	□	●	□	●	□	□	□	□	□	□	□	□	□	□	□
	Inland water fishes	—	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—
Marine fishery products		—	—	—	—	—	□	—	×	×	—	×	—	—	—	×	×	—

Categorized based on the results of inspections conducted between April 1, 2023 and February 29, 2024.

◎ : Radioactive cesium above the maximum limits (for fishery products, 1/2 of the limits) has been detected.

● : Radioactive cesium above 1/2 of the maximum limits has been detected (excluding those from which radioactive cesium above the maximum limits has been detected).

□ : Inspection required by considering items' difficulty of the management (e.g. Wild mushrooms, Wild edible plants), migratory behavior (for Wild bird and animal meat), and the status of restriction on distribution (for marine fishery products.

— : Not classified as subject to inspections in local governments, based on the results of inspection conducted previous year.

× : Not applicable.

■ Concepts of Inspection Plan for Radionuclides in Foods（2）

(Table1) ②Log-grown mushrooms in food items group for which cultivation/feeding control is possible

【The local governments subject to inspections】

The local governments which need to continue inspections by taking into account the status of the influence of radionuclides to production materials.

【The local governments and items subject to inspections】

	Aomori	Iwate	Akita	Miyagi	Yamagata	Fukushima	Ibaraki	Tochigi	Gunma	Chiba	Saitama	Tokyo	Kanagawa	Niigata	Yamanashi	Nagano	Shizuoka
Log-grown mushrooms	▲	▲	▲	▲	▲	▲	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲

Categorized based on the results of inspections conducted between April 1, 2023 and February 29, 2024.

● : Radioactive cesium above 1/2 of the maximum limits has been detected (excluding those from which radioactive cesium above the maximum limits has been detected).

▲ : Cultivation management and monitoring inspection required taking into account the status of the influence of radionuclides to production materials.

■ Concepts of Inspection Plan for Radionuclides in Foods（2）

(Table2) The food item group for which cultivation/feeding control is possible (Log-grown mushrooms are excluded)

【The local governments subject to inspections】

The local governments which need to continue inspections such as cases where food items from which radioactive cesium above 1 /2 of the maximum limits has been detected, based on the inspection results in the previous 3 years.

【Food items subject to inspections】

	Fukushima
Fruits	●
Rice	■

※ Inspections of milk are conducted in Fukushima prefecture. Inspections of beef are conducted in Iwate, Miyagi, Fukushima and Tochigi prefecture.

Categorized based on the results of inspections conducted between April 1, 2023 and February 29, 2024.

● : Radioactive cesium above 1/2 of the maximum limits has been detected (excluding those from which radioactive cesium above the maximum limits has been detected).

■ : Instructed as subject to inspections on the Attachments.

Rigorous Monitoring System of Radionuclides in Foods

① Nuclides analysis by using germanium semiconductor detectors.

② ・Screening analysis by using NaI scintillation spectrometers and other instruments

・Screening analysis by using non-destructives

Shredding → **Weighing** → **Measurement** → **Analysis**

※With the non-destructives, measurement is possible without shredding.

Restriction of Distribution and/or Consumption of Foods

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 radionuclides in food are mainly conducted before shipment. Most of the food items exceeding the limits are derived from areas where restrictions of distribution have been instructed.

The list of Instructions on the Restriction of Distribution of Food

Prefecture	*Restriction of Distribution (As of the end of October 2024)*
Fukushima	(Limited areas) Raw milk、Non-head type leafy Vegetables (e.g. Spinach, Komatsuna)、Head type leafy vegetables (e.g. Cabbage)、Flowerhead brassicas (e.g. Broccoli, Cauliflower)、Turnip、Log-grown shiitake (outdoor・indoor cultivation)[1)]、Log-grown pholiota nameko (outdoor cultivation)、Wild mushrooms[2)]、Bamboo shoot、Wasabi (field cultivation)、Wild Aralia cordata、Ostrich fern、Koshiabura、Japanese royal fern、Wild Uwabamisou、Wild Aralia sprout、Giant butterbur、Wild Japanese butterbur scape、Pteridium aquilinum、Japanese apricot (Ume)、Yuzu、Chestnut、Kiwi fruit、Rice (produced in 2011･2012･2013･2014･2015･2016･2017･2018･2019･2020･2021･2022･2023・2024)[1)]、Land-rocked cherry salmon (Yamame)(excluding farmed fish)、Japanese dace、Ayu sweetfish (excluding farmed fish)、Char (Iwana)(excluding farmed fish)、Crucian carp (excluding farmed fish)、Beef、Bear meat (Whole area) Boar meat、Spot-billed duck meat、Green pheasant meat、Hare meat、Copper pheasant meat
Aomori	(Limited areas) Wild mushrooms[3)]
Iwate	(Limited areas) Log-grown shiitake (outdoor cultivation)[1)]、Log-grown brick cap (outdoor cultivation)、Log-grown pholiota nameko (outdoor cultivation) [1)]、Wild mushrooms、Bamboo shoot、Koshiabura、Japanese royal fern、Wild Pteridium aquilinum (Whole area) Deer meat[1)]、Bear meat、Copper pheasant meat
Miyagi	(Limited areas) Log-grown shiitake (outdoor cultivation)[1)]、Wild mushrooms[4)]、Bamboo shoot[4)]、Koshiabura、Japanese royal fern、Wild Aralia sprout、Wild Pteridium aquilinum、Char(Iwana)(excluding farmed fish)、Land-rocked cherry salmon(Yamame) (excluding farmed fish)、Japanese dace (Whole area) Boar meat、Bear meat、Deer meat[1)]
Yamagata	(Limited areas) Wild mushrooms (Whole area) Bear meat[1)]
Ibaraki	(Limited areas) Log-grown shiitake (outdoor・indoor cultivation)[1)]、Wild Koshiabura、Wild mushrooms (Whole area) Boar meat[1)]
Tochigi	(Limited areas) Log-grown shiitake (outdoor・indoor cultivation)[1)]、Log-grown brick cap (outdoor cultivation)、Log-grown pholiota nameko (outdoor cultivation)、Wild mushrooms、Bamboo shoot、Wild Ostrich fern、Wild Koshiabura、Wild Japanese pepper、Wild Japanese royal fern、Wild Aralia sprout、Wild Pteridium aquilinum (Whole area) Boar meat[1)]、Deer meat
Gunma	(Limited areas) Wild mushrooms、Wild Koshiabura、Wild Aralia sprout (Whole area) Boar meat、Bear meat、Deer meat[1)]、Copper pheasant meat
Saitama	(Limited areas) Wild mushrooms
Chiba	(Limited areas) Log-grown shiitake (outdoor・indoor cultivation)[1)]、Boar meat[1)]
Niigata	(Limited areas) Wild Koshiabura、Bear meat[1)]
Yamanashi	(Limited areas) Wild mushrooms
Nagano	(Limited areas) Wild mushrooms[5)]、Koshiabura、Deer meat[1)]
Shizuoka	(Limited areas) Wild mushrooms

Note) Excluding:
1) Items which are managed based on test and shipment policy set by each local government.
2) Honey mushroom, Bunaharitake, Pholiota nameko, Late fall oyster mushroom, Brick cap and Grifola frondosa(maitake) and Matsutake which are managed based on test and shipment policy set by each local government.
3) Honey mushroom, Bunaharitake, Pholiota nameko, Late fall oyster mushroom, Brick cap, Hypholoma capnoides and fried chicken mushroom.
4) Matsutake and bamboo shoot which are managed based on test and shipment policy set by each local government.
5) Matsutake

Monitoring of radionuclides in foods

The monitoring of radionuclides in foods is conducted by the local governments around the 17 prefectures on the basis of the inspection plan.

March 18, 2011 – March 31, 2012	137,037 of which 1,204 were detected as above the provisional regulation values.	(excess rate:0.88%)
April 1, 2012 – March 31, 2013	278,275 of which 2,372 were detected as above the present limits.	(excess rate:0.85%)
April 1, 2013 – March 31, 2014	335,860 of which 1,025 were detected as above the present limits.	(excess rate:0.31%)
April 1, 2014 – March 31, 2015	314,216 of which 565 were detected as above the present limits.	(excess rate:0.18%)
April 1, 2015 – March 31, 2016	340,311 of which 291 were detected as above the present limits.	(excess rate:0.09%)
April 1, 2016 – March 31, 2017	322,563 of which 461 were detected as above the present limits.	(excess rate:0.14%)
April 1, 2017 – March 31, 2018	306,623 of which 200 were detected as above the present limits.	(excess rate:0.07%)
April 1, 2018 – March 31, 2019	299,424 of which 313 were detected as above the present limits.	(excess rate:0.10%)
April 1, 2019 – March 31, 2020	284,931 of which 166 were detected as above the present limits.	(excess rate:0.06%)
April 1, 2020 – March 31, 2021	54,412 of which 127 were detected as above the present limits.	(excess rate:0.23%)
April 1, 2021 – March 31, 2022	41,361 of which 157 were detected as above the present limits.	(excess rate:0.38%)
April 1, 2022 – March 31, 2023	36,309 of which 135 were detected as above the present limits.	(excess rate:0.37%)
April 1, 2023 – March 31, 2024	43,618 of which 162 were detected as above the present limits.	(excess rate:0.37%)

※The number of food samples tested includes test results of foods distributed in the market and test results implemented by the local governments other than the 17 prefectures designated by the guideline.
※The sampling is purposive to detect the contamination or to remove restrictions and the majority of occurrence (exceeding JML) is limited to wild harvest monitored at area where distribution is already restricted.
※Total number of samples has drastically decreased in JFY 2020, due to the conclusion of all-cattle-monitoring in four prefectures, i.e. Iwate, Miyagi, Fukushima and Tochigi.

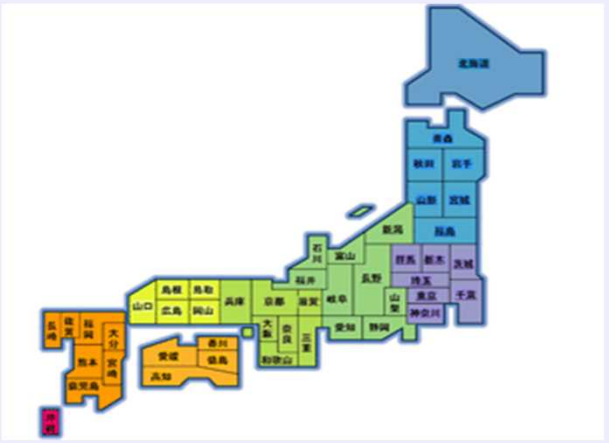
■ Enhancing Transparency

○Information dissemination on MHLW website

The website are revised and updated materials that summarize the new limits and FAQ are posted for media and consumers. All testing results of radionuclides in foods of local governments are reported immediately to MHLW, and they are also available on this website:

JP https://www.mhlw.go.jp/shinsai_jouhou/shokuhin.html

EN https://www.mhlw.go.jp/stf/english/2011eq_food_0001.html



○Dialogues with consumers and producers, etc. (Risk communication)

Informal meetings about radionuclides in foods were held in cooperation with the Consumer Affairs Agency, Food Safety Commission of the Cabinet Office, MAFF and local governments across the country. Consumers, producers, academics, and other interested parties are participated in and share information and their concern.