September 2022

INFORMATION ON MEASURES FOR REDUCTION OF RADIONUCLIDE CONTAMINATION OF AGRICULTURAL PRODUCE AFTER THE ACCIDENT AT FUKUSHIMA DAIICHI NUCLEAR POWER PLANT IN JAPAN

Immediately after the accident at Fukushima Daiichi Nuclear Power Plant of Tokyo Electric Power Company on 11 March 2011, the Government of Japan, namely, the Ministry of Health, Labour and Welfare (MHLW), and Ministry of Agriculture, Forestry and Fisheries (MAFF), developed measures and implemented them to ensure sufficient supply of safe food and feed to the Japanese population. Such measures include sampling plans and methods, provisional regulation values, and those for prevention and reduction of radionuclide contamination at agricultural production sites. The fishermen's cooperatives in Fukushima decided after the accident to stop all the activities of coastal fishing and trawlnet fishing off the coast of Fukushima Prefecture to prevent seafood contaminated by the radionuclides from entering the food chain. Commercial fishing resumes only when samples of each fish species continue to demonstrate significantly lower levels of radioactive Cs than the maximum level.

MHLW established the provisional regulation values for on 17 March 2011 for radioactive Cs and I, and later the maximum levels for radioactive Cs (on a basis of the contamination rate of 50% and covering other radionuclides) on 1 April 2012 to replace the provisional values. Based on these values, distribution of the food is restricted when violation is found in this food in various locations of a city/town/village. The guideline for sampling and analysis was last revised on 30 March 2022.

MAFF took measures for reduction of the radionuclide contamination of foods and feeds by regulating materials used for production of foods and feeds, and decontamination of crops and farm soils.

(1) Measures for feed (Provisional tolerance values for radioactive Cs)

Feed for:	Set on 14 Apr. 2011	Revised on 1 Aug. 2011	Revised on 1 Apr. 2012
Cattle	300 Bq/kg*[1]	300 Bq/kg*[2]	100 Bq/kg*[2]
Pigs	-	300 Bq/kg*[1]	80 Bq/kg*[2]
Chickens	-	300 Bq/kg*[1]	160 Bq/kg*[2]
Cultured fish	-	100 Bq/kg*[3]	40 Bq/kg*[3]

* Provisional tolerance values for feed set on a basis of feed consumption and provisional transfer coefficients by:

*1 Referring the IAEA documents.

*2 Using the results of the transfer studies on dairy cattle, pigs and hens conducted by MAFF in Japan after the accident.

*3 Using the result of the cultured fish transfer study conducted by MAFF in Japan after the accident and previous studies.

(2) Measures for materials used for the cultivation of edible fungi (Reference values for radioactive Cs)

Material	Set on 6 Oct. 2011	Revised on 1 Apr. 2012
Wood logs (for Shiitake)	150 Bq/kg	50 Bq/kg
Cultivation media	150 Bq/kg	200 Bq/kg

(3) Measures for materials used as fertilizers, soil conditioners, and nursery soils (for radioactive Cs)

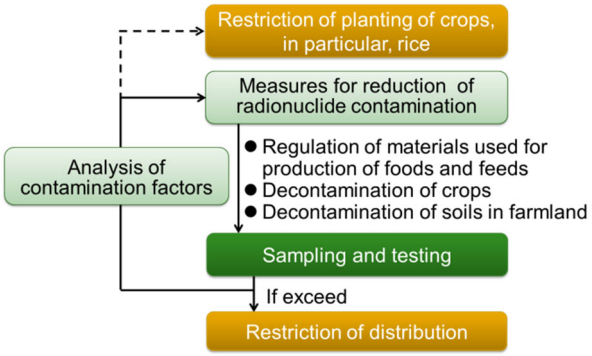
Material	Value	Note
Sludge for manure	200 Bq/kg	Standard value set on 24 Jun. 2011
Fertilizers (including those from leaves), soil conditioners, nursery soils, etc.	400 Bq/kg	Provisional tolerance value set on 1 Aug. 2011

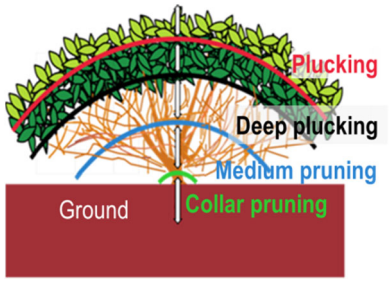
(4) Restriction of planting of crops, in particular rice

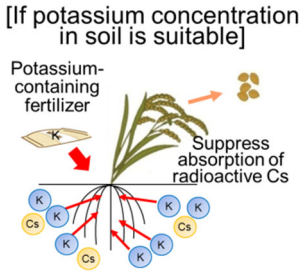
MAFF in April 2011 instructed restriction of planting or sowing of rice and other plants in the areas where the harvested produce would contain higher radioactivity than the provisional regulation values. The existing data on radioactivity in soils and rice grown on them were used to calculate the potential radioactivity in would-be harvested produce (see below left).

(5) Decontamination of crops

In collaboration with the relevant local governments, MAFF instructed and assisted farmers to introduce radioactive Cs management measures based on monitoring results, such as: removal of rough bark of fruit trees to reduce the transfer of radioactive Cs from rough bark to fruits; and deep plucking or collar pruning of tea trees to prevent the transfer of radioactive Cs from leaves and branch to new leaves (see below center).







MAFF also recommended to apply potassium-containing fertilizers (up to suitable application levels) to cultivation areas to control incorporation of radioactive Cs by crops from soil (see above right).

(6) Decontamination of soils in farmland

Farmland soils were decontaminated by: removing the surface soil to remove the nuclides in soil surface; or deep plowing to replace top soil with subsoil to be kept the most of fallen radionuclides deeper than the range of plant roots.

Current situation

With these comprehensive measures taken along the food chain, radioactive Cs levels in foods and feeds from cultivation decreased well below the maximum levels, faster than expected from physical decay of radioactive Cs. This indicated the effectiveness of these measures.

However, a number of samples taken from wildlife, such as wild edible fungi, wild plants and game meat, in certain areas show higher levels than the above regulatory values in food. The Nuclear Emergency Response Headquarter (NERH) takes necessary measures, such as restriction of distribution, for these foods.

Regarding fishery products, based on the test results by planned monitoring of radionuclides, fishery activities have been resumed step-by-step depending on types of fishing methods, fish species and sea areas. Currently, shipment restrictions have been lifted for the great majority of marine fish species and thereby they are traded at the market without any radiological restrictions in Japan.

The Government of Japan reported these activities at the following website:

https://www.maff.go.jp/e/policies/food_safety/index.html#emergency_response