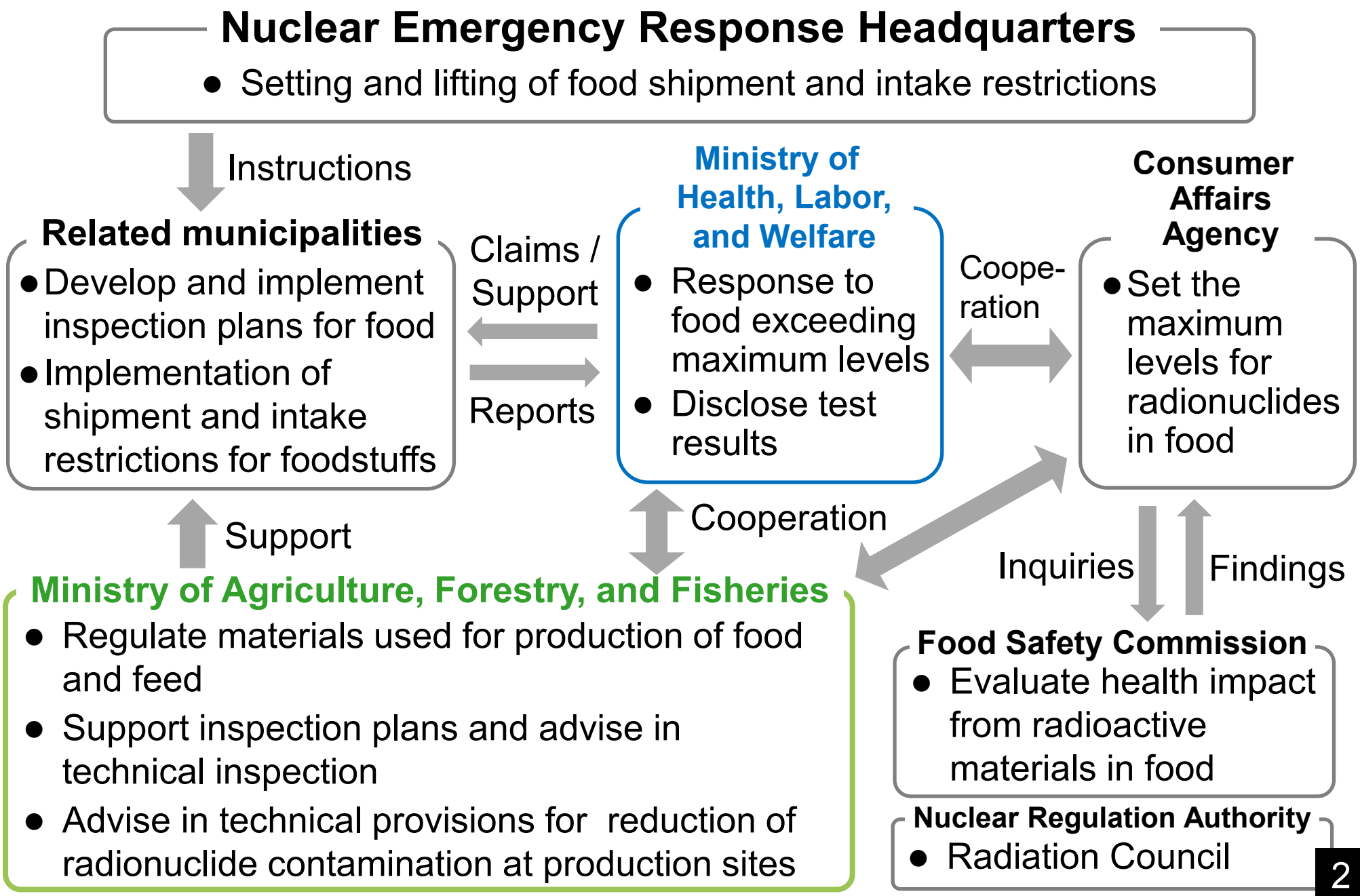
Measures for Reduction of Radionuclide Contamination of Agricultural Produce

Ministry of Agriculture, Forestry and Fisheries

Table of contents

1 Control of radionuclides in food



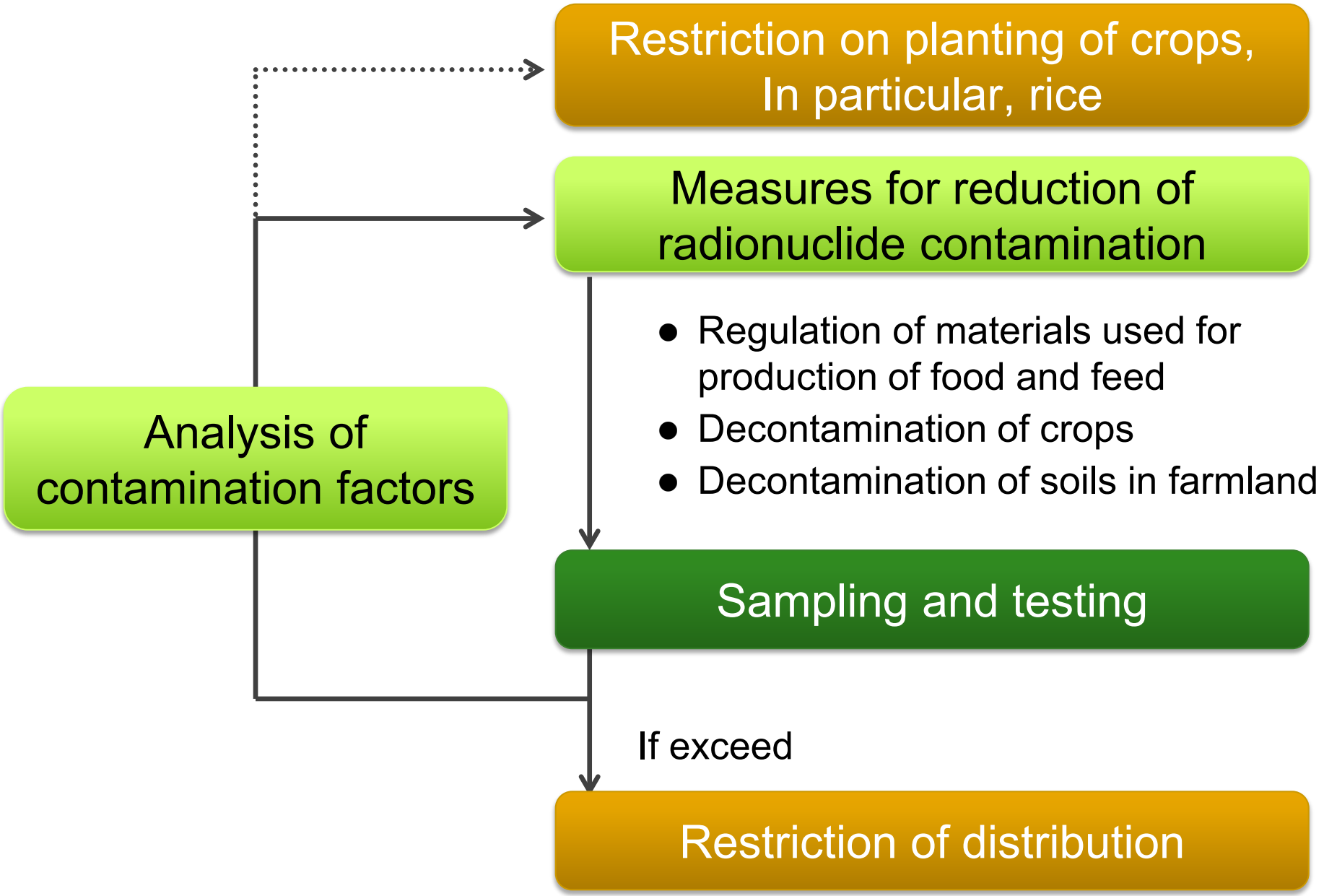
1 Control of radionuclides in food

(Reference) Maximum levels for radioactive Cs in food

Food groups	Maximum level (Bq/kg)
Drinking water	10
Milk	50
General foods	100
Infant foods	50

※The maximum levels are aligned with the Codex Alimentarius Commission's 1 mSv/year intervention exemption level.

1 Control of radionuclides in food

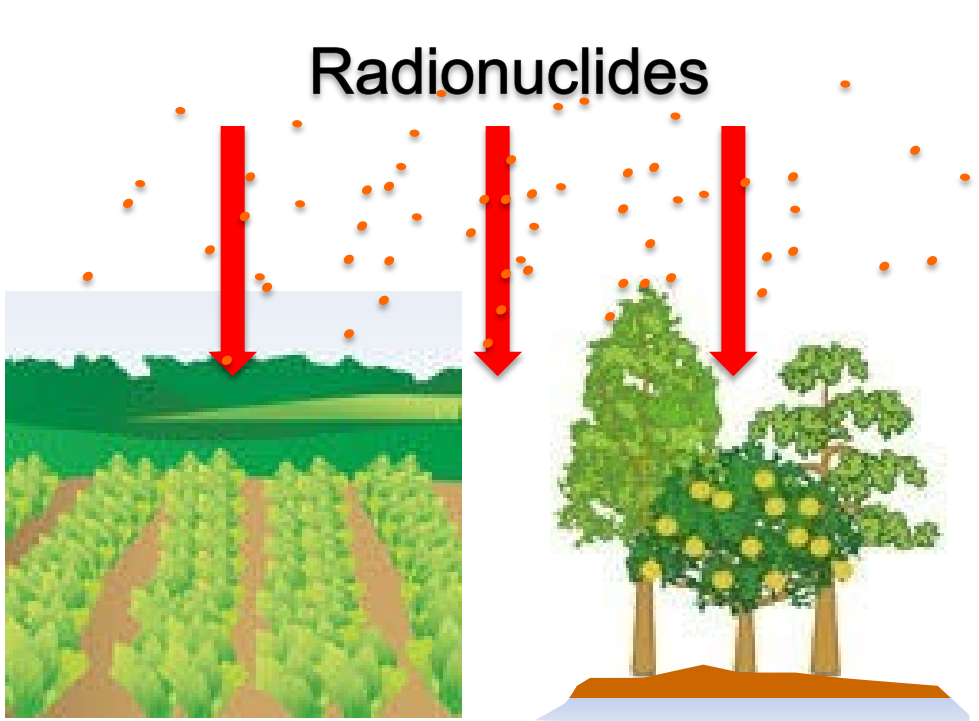


2 Measures to reduce radionuclides migration

Pathways of radionuclide contamination of crops

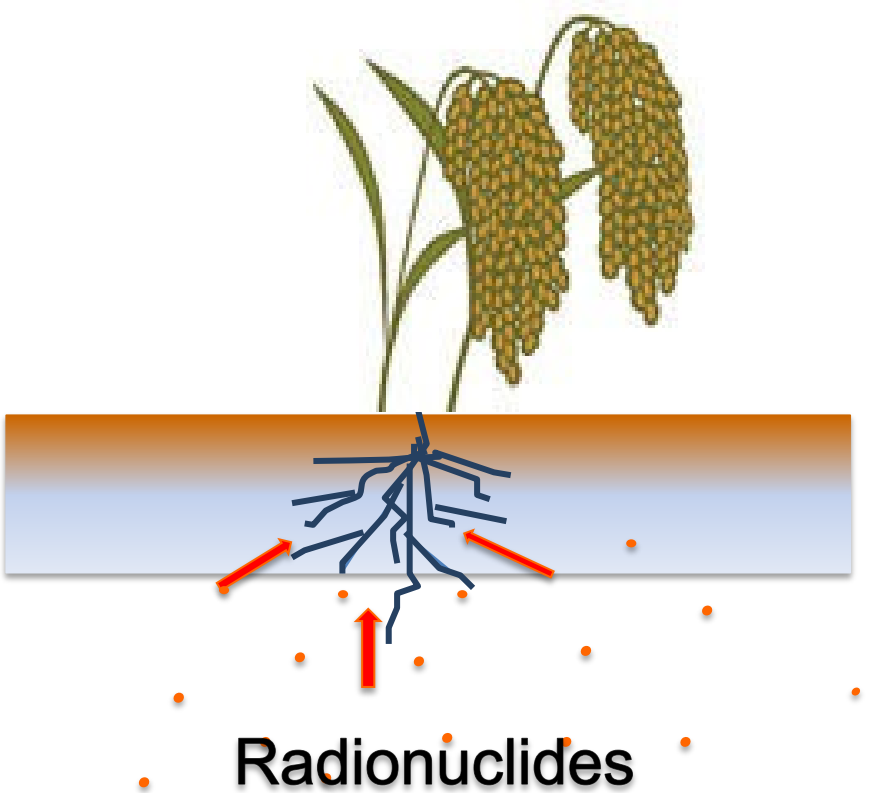
Direct contamination by radionuclide fallout

Uptake of radionuclide from soil



Leafy vegetables

Fruit trees/Tea trees



Radionuclides attached to trees are transferred to fruits or shoot

2 Measures to reduce radionuclides migration

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 to reduce radionuclides migration

Feed management in accordance with provisional tolerance values

1 Thorough enforcement of appropriate feed management such as feeding corresponding to provisional tolerance values.

2 Decontamination by deep plowing and others can lead to pasture production under provisional tolerance values.

2 Measures to reduce radionuclides migration

Measures for materials used for the cultivation of mushrooms (Provisional safety standards for radioactive Cs)

Material	Set on 6 Oct. 2011	Revised on 1 Apr. 2012
Mushroom logs	150 Bq/kg	50 Bq/kg
Mushroom substrates	150 Bq/kg	200 Bq/kg

2 Measures to reduce radionuclides migration

Measures for mushrooms and wild plants

- Introduction of safe production materials for reducing radioactive contamination
- Provision of information regarding the gathering of edible wild plants and mushrooms

Specific measures

1. Securing safe mushroom logs
   - ・Support for purchasing mushroom logs and bed logs
   - ・Matching supply and demand for mushroom logs
2. Decontamination of mushroom logs and bed logs, and introduction of makeshift greenhouses, etc.
3. Dissemination and instruction of appropriate cultivation management
4. Dissemination of cultivation techniques for reducing radioactive contamination
5. Provision of information through websites and pamphlets, and conducting on-site instruction

2 Measures to reduce radionuclides migration

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

Measures to reduce radionuclides of fruit trees

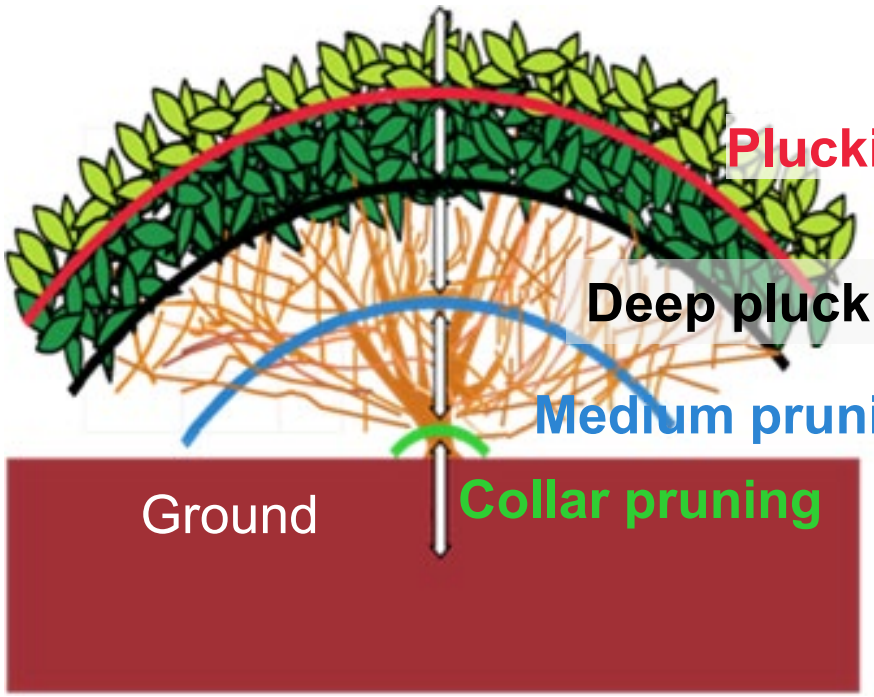
The levels of radioactive Cs deposited onto above-ground parts of fruit trees have been reduced by cleaning the surface of bark with high-pressure water or scraping bark.

High-pressure washing of peach trees

Scraping bark for pear

Measures to reduce radionuclides of tea trees

To prevent the transfer of radioactive Cs from leaves and branches to new leaves, leaves and branches were plucked or pruned further than in usual practice.



Before pruning

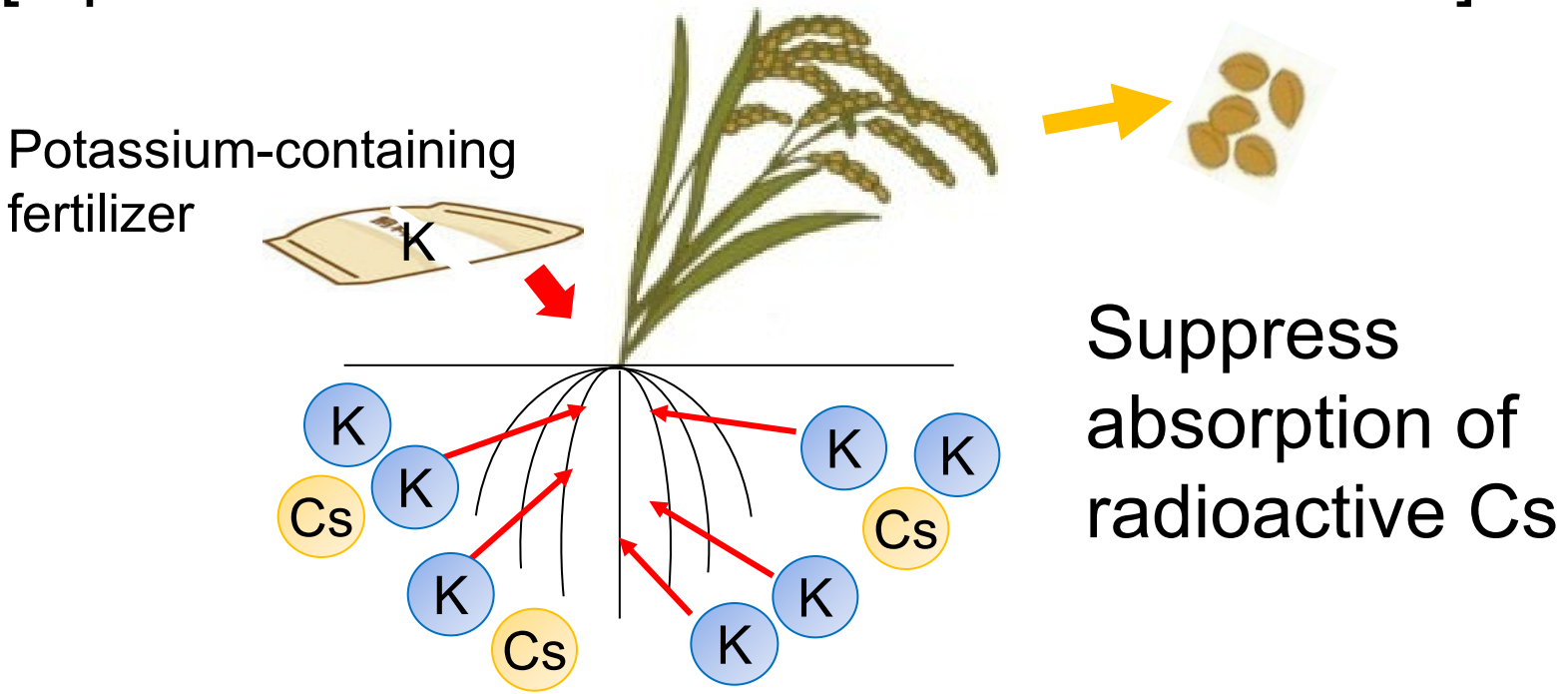
After pruning

2 Measures to reduce radionuclides migration

Absorption control through potassic fertilization to rice

- Soil in paddy fields where rice with high-level radioactive Cs was produced tend to contain low-level potassium
- Having similar chemical characteristics to Cs, potassium in soil can suppress absorption of Cs by root uptake

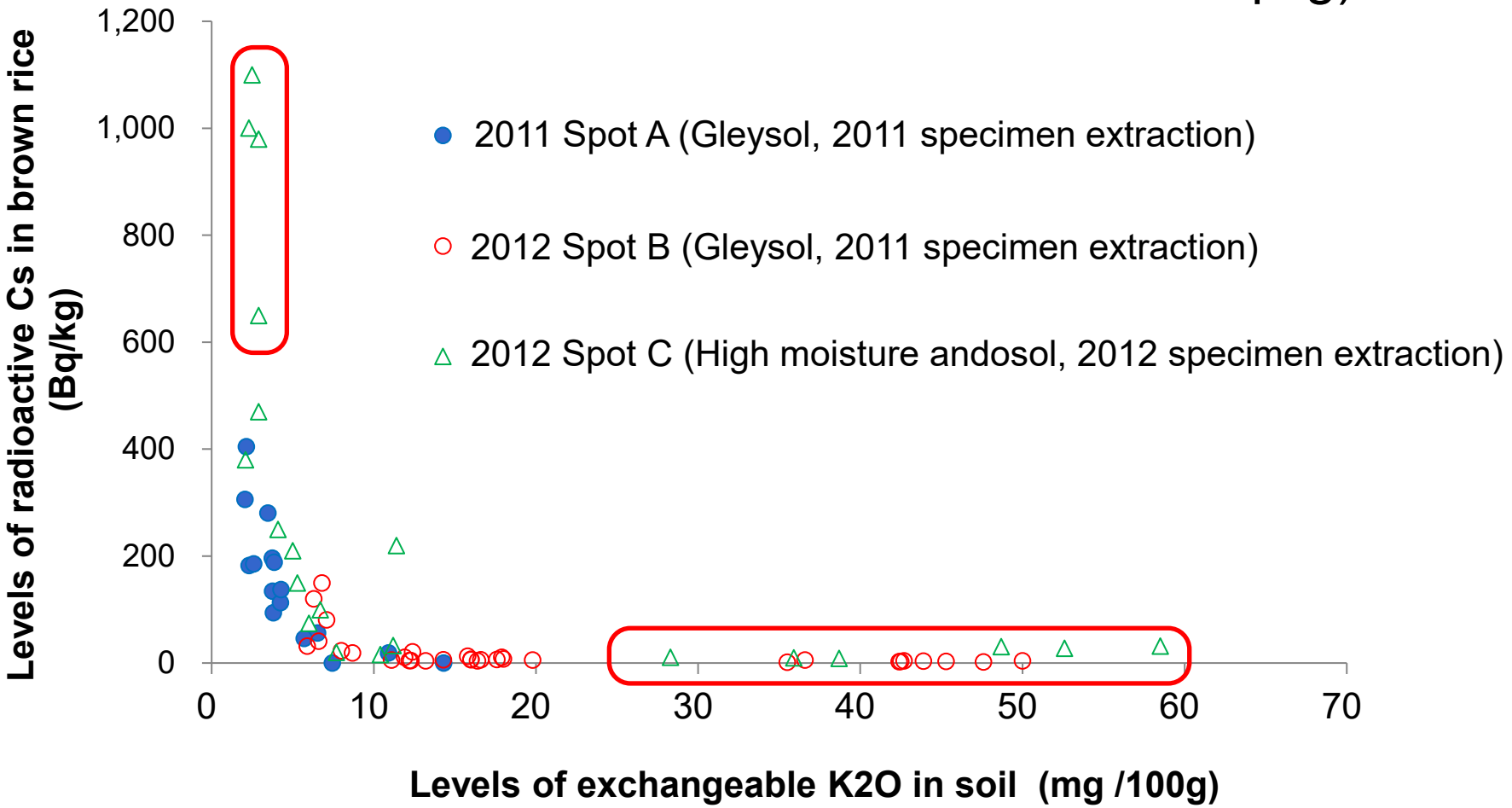
[If potassium concentration in soil is suitable]



2 Measures to reduce radionuclides migration

（Reference）Application of potassium

（Test results in farmlands with over 500 Bq/kg)



High-level potassium concentration in soil leads to low-level radioactive Cs in brown rice

2 Measures to reduce radionuclides migration

Decontamination of farmland (Removing of topsoil)

Strip the surface soil to remove the radionuclides in soil surface

Results of removal of topsoil (2011,Iitatemura)

Removal of topsoil
Before: 10,370 Bq/kg
After: 2,599 Bq/kg **(75% reduction)**

Ambient dose level (Surface)
Before: 7.1 μSv/hr
After: 3.4 μSv/hr **(52% reduction)**
After harvest: 1.9 μSv/hr

Decontamination of farmland (Deep plowing)

Deep plowing to replace top soil with subsoil to be kept the most of fallen radionuclides deeper than the range of plant root

Deep plowing (30 cm)