

## 飯舘村の有機物連続投与水田における土壌から水稻へのCs移動

Cs transfer to rice plants from soil after continuous application of organic materials at Iitate Village

\*西脇 淳子<sup>1</sup>、浅木 直美<sup>1</sup>、小松崎 将一<sup>1</sup>、溝口 勝<sup>2</sup>、登尾 浩助<sup>3</sup>

\*Junko NISHIWAKI<sup>1</sup>, Naomi Asagi<sup>1</sup>, Masakazu Komatsuzaki<sup>1</sup>, Masaru Mizoguchi<sup>2</sup>, Kosuke Noborio<sup>3</sup>

1.茨城大学農学部、2.東京大学農学部、3.明治大学農学部

1.College of Agriculture, Ibaraki University, 2.Faculty of Agriculture, The University of Tokyo,

3.School of Agriculture, Meiji University

Iitate Village is located at about 40 km northwest from the Fukushima Daiichi Nuclear Power Plant. An agricultural fertile layer in agricultural fields was contaminated by radiocesium (<sup>134</sup>-Cs and <sup>137</sup>-Cs) due to the accident of the Fukushima Daiichi Nuclear Power Plant in 2011. All the villagers in Iitate Village have been forced to evacuate since May 2011. The local and central governments announced that villagers who wanted to come back to the village were allowed to return home by some time in 2017 after the decontamination work. The villagers, especially farmers, returning home may face and overcome damage caused by harmful rumors or misinformation. Wiping off such damage may be very difficult so that it is necessary to continue sending correct information. We examined radiocesium transfer to rice plants from soil at paddies with continuous application of organic materials after stripping the contaminated top soil off.

We used an approximate 6x10 m paddy field at Iitate Village in Fukushima Prefecture. At first we decontaminated the field using the method of stripping 5 cm top soil off in 2013. After decontamination, we made three different treatments such as (1) mixed with rice straw harvested previous year at the same paddy, (2) only decontaminated as a control, and (3) mixed with cattle manure compost. We sampled top soils from each treatment and <sup>134</sup>-Cs and <sup>137</sup>-Cs concentration of the sampled soils were analyzed using a Ge semiconductor detector. The concentration of <sup>134</sup>-Cs and <sup>137</sup>-Cs in rice plants was also analyzed by a Ge semiconductor detector after harvest.

A transfer rate defined as total radioactive Cs concentration with <sup>134</sup>-Cs and <sup>137</sup>-Cs in rice plants relative to that in soil was very small in every treatment. The amount of <sup>134</sup>-Cs was smaller than that of <sup>137</sup>-Cs because the half-life time of <sup>134</sup>-Cs was shorter than that of <sup>137</sup>-Cs. The transfer rate of brown rice was lower than that of unhulled rice, meaning that rice husk contained more Cs than brown rice. Transfer rates in 2014 were lower than in 2013. It might be resulted from smaller transfer rates in 2014 because of more Cs fixed by soil and more radioactive decay having advanced.

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