

## Got rice? Several topics related to rice root research

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Received on March 13, 2014; Accepted on April 29, 2014

I came up with the title “Got rice?” after recalling the “Got milk?” advertising campaign. I then checked the phrase “Got rice?” online and found that this phrase was used by Asian American youth in the 1990s, shortly after the launch of the “Got milk?” campaign, as a symbol for the cohesiveness of the Asian American cultural identity (Berner, 2003). This finding was interesting. However, I use “Got rice?” in a global sense, given that rice is consumed by people worldwide. In an era of globalization, Japanese rice agriculture is said to be at a turning point because of the Trans-Pacific Strategic Economic Partnership Agreement. Rice farmers in Japan fear a potentially tremendous increase in rice imports not only from Asia but also even from the United States.

Let us delve into the main topics. Although I eat rice daily, I do not think only about rice for my research. However, I was made to think about rice more than usual last year by the following. First, I attended the 11th International Society for Plant Anaerobiosis (ISPA) conference, which was held at the International Rice Research Institute (IRRI) headquarters in the Philippines in 2013. Root researchers and the ISPA share a deep relationship. Indeed, we at *Plant Root* was involved in the 9th ISPA conference held in Sendai in 2007. The 2013 conference organizer, Dr. Abdelbagi Ismail and his team of IRRI researchers, hosted the 11th conference with amazing hospitality. During the conference dinner, Dr. David Mackill shared a great story on developing flood-tolerant rice Sub1. The organizer arranged a tour for the participants to examine IRRI’s experimental field where many important rice varieties continue to be developed, such as the historical semi-dwarf rice strain IR8 (and its related varieties from the Green Revolution) and the Green Super Rice. For details on rice research efforts related to flooding stress, please refer to the review by Dr. Ismail (Ismail et al., 2012). Dr. Yoichiro Kato, a Rainfed Lowland Agronomist at IRRI, graciously took me and Dr. Tomohito Hayashi of Nagoya University on a private tour around the immense backyard of IRRI. The photo attached is one taken during this tour.

Second, in discussing the stress tolerance of rice, drought stress is also very important. Dr. America Henry of the IRRI has contributed a review of IRRI’s 50 years of research on drought stress to *Plant Root* (Henry, 2013). With respect to this type of stress, a remarkable finding was reported in 2013. Japanese root researchers, including members of our society, successfully demonstrated that altering the architecture of the root system improves the drought tolerance of rice through gene cloning and characterization of *DEEPER ROOTING 1* (Uga et al., 2013).

The third topic that has inspired my deeper consideration of rice is related to the Great East Japan Earthquake. Three years have passed since the earthquake occurred, and we have prayed for the 15,884 people who died and the 2,633 people who remain missing (National Police Agency of Japan, 2014). It should be noted that about 267,000 evacuees remain displaced (Reconstruction Agency of Japan, 2014). Regarding the earthquake, I have discussed the disaster at the Fukushima Daiichi Nuclear Power Plant (Karahara, 2012) as well as the movement to abandon nuclear power (Karahara, 2013) in my previous preface articles. Reflecting the status of the nuclear power issue in Japan, former prime minister Mr. Morihiro Hosokawa ran for governor of the capital Tokyo on the platform of abandoning nuclear power with support from another former prime minister Mr. Junichiro Koizumi. This sentiment of abandoning nuclear power is apparently felt in Japan, although Hosokawa’s electoral bid ended in a loss. Politics notwithstanding, research on radioactive contamination, including that of rice, continues. After the disaster, Japanese plant scientists began investigating the radioactive contamination of wild and crop plants, oceanic algae, as well as wild animals. Such investigations are successively being published, such as the 2013 book *Agricultural Implications of the Fukushima Nuclear Accident* (ISBN: 978-4-431-54327-5) and the special feature “Current status and future control of cesium contamination in plants and algae in Fukushima” in *Journal of Plant Research* (Vol. 127 No.1, 2014). Our managing editors were involved in these investiga-

tions. Dr. Jun Abe has been engaged in a research on radioactive cesium accumulation in rice cultivars grown in paddy fields in Fukushima (Nemoto and Abe, 2013). According to this work, radiocesium detected in brown rice was likely from the fallout on paddy fields and forests, from which irrigation water is sourced. Meanwhile, Dr. Jun Furukawa has been studying different rice cultivars grown in paddy fields in Fukushima to demonstrate differences in cesium accumulation (Ohmori et al., 2014). Further, Dr. Naoto Nihei, who is affiliated with the Department of Agriculture, Forestry and Fisheries of the Fukushima prefectural government and our society, has thoroughly measured radioactivity in agricultural products in Fukushima (Nihei, 2013). His findings indicated a decrease in the radioactivity of agricultural products in Fukushima; 97% of the samples contained less than the provisional regulation level of 500 Bq/kg set in 2011. According to the latest result, 99.9% of brown rice harvested from August 2013 to March 2014 in Fukushima contained less than 25 Bq/kg (Fukushima association for securing safety of agricultural products, 2014). I shall not go into the details of these studies, but you can find a substantial number of important findings in these papers.

As for *Plant Root*, in the eight years since we started this journal, we have published eight original papers and two reviews: one on auxin biology in plant roots (Takahashi, 2013) and another by Dr. Henry mentioned above. Allow me to apologize for our delay in the handling of some manuscripts and updating our website. Last year was a busy year for me and some members of the managing team, owing to our responsibilities in other organizations. We have asked two root scientists, Drs. Jun Furukawa and Katsuhiro Shiono, to join our managing team. Together with them, the Editorial Board of this journal has entered a new term (fifth term): 2014–2015. I wish to express my most sincere gratitude to all the authors for their contributions, to the researchers who have submitted manuscripts to this journal, and to our managing editors, subject editors, and reviewers.

*Ichirou Karahara*

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I. Karahara, T. Hayashi, and Y. Kato (from left to right) at Dr. Kato's office in the IRRI headquarters at Los Baños, Philippines

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