Academic Prizes and Awards

1. CIGR Merit Award

Dr. Yohei Sato, President of NIAES, won the 2006 CIGR Merit Award. This award is aimed at those members who have performed remarkable work for CIGR.

CIGR (Commission Internationale du Génie Rural—the International Commission of Agricultural Engineering) was set up by a constituent assembly on the occasion of the first International Congress of Agricultural Engineering, held in Liège, Belgium, in 1930. It is an international, non-governmental, non-profit organization that regroups, as a networking system, regional and national societies of agricultural engineering as well as private and public companies and individuals all over the world.

The main aims of CIGR are to stimulate the development of science and technology in the field of agricultural engineering; to encourage education, training and mobility of young professionals; to encourage international mobility; to facilitate the exchange of research results and technology; and to represent the profession at a worldwide level among multi-lateral activities.

As the Chairperson of the Board of Section I of CIGR, a technical section that deals with Land and Water Engineering, Dr. Sato has contributed his time and energy to organizing Inter-Regional Conferences on the Environment and Water in several countries and regions and has endeavored to stimulate and promote the multi-lateral activities of Section I, as well as conferences and workshops.

The commendation ceremony was held at the University Bonn, Germany, on 5 September 2006 on the occasion of the XVI CIGR World Congress. Dr. Sato was also elected one of the Honorary Vice Presidents at the General Assembly of the Congress.

2. The Young Scientists' Prize: Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science, and Technology, 2006

Research on estimate of N_2O emission factors and investigation on mitigation options for N_2O emissions from agricultural fields

The Minister of Education, Culture, Sports, Science, and Technology presented the Young Scientists' Prize to Dr. Hiroko Akiyama for her outstanding research on estimate of nitrous oxide (N_2O) emission factors and investigation on mitigation options for N_2O emissions from agricultural fields.

N_2O is a major greenhouse gas, and the IPCC (Intergovernmental Panel on Climate Change) has estimated that agricultural fields account for 24% of the world's N_2O emissions. Therefore, intensive research on the more accurate estimation of N_2O emissions from agricultural fields and the development of mitigation options is being conducted worldwide.

By systematic review and analysis of published papers, Dr. Akiyama and her colleagues revealed that the world average fertilizer-induced N_2O emission factor for rice paddies was 0.31% of applied nitrogen. This emission factor was much lower than the previous default value of 1.25% given in the IPCC Guidelines for National Greenhouse Gas Inventories (IPCC 1997, 2000). In 2006 the default value of the N_2O emission factor in the IPCC guidelines was revised in accordance with the research conducted by Dr. Akiyama and her colleagues (IPCC 2007).

Furthermore, Dr. Akiyama and her colleagues developed an automated N_2O monitoring system. Using the system, they found that the use of coated nitrate fertilizer, rather than conventional uncoated one, was effective in mitigating N_2O emissions from Andosols, oxic volcanic soils that cover about 50% of Japanese upland fields. Moreover, they showed that organic fertilizer applications are important sources of N_2O emission; they estimated that the total amount of N_2O emissions resulting from the application of organic fertilizer to the upland fields of Japan is similar to that from chemical fertilizer application.

Dr. Akiyama's research has contributed to the accurate estimation of N_2O emissions from agricultural fields and the mitigation of these emissions.

References

Intergovernmental Panel on Climate Change (IPCC)

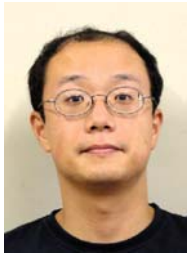
(1997), Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual, vol 3. Bracknell, UK.

Intergovernmental Panel on Climate Change (IPCC) (2000), Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. Institute for Global Environmental Strategies, Hayama, Japan.

Intergovernmental Panel on Climate Change (IPCC) (2006), 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan.

3. The Japanese Society of Grassland Science Encouragement Prize (Mitsui Prize)

The fate of polychlorinated dibenzo-p-dioxins, dibenzofurans and coplanar polychlorinated biphenyls (dioxins) in crop plants



On 25th March 2007, the Japanese Society of Grassland Science (JSGS) awarded its Encouragement Prize (Mitsui Prize) for FY 2007 to Dr. Ryuichi Uegaki. The prize is awarded to young JSGS members aged of 37 or less whom their research progress shows future promise. The outlines of study undertaken by Dr. Uegaki are as follows.

1. Changes of dioxins levels in crop plants during growth stage were investigated. Results indicated that, the dioxins concentrations of crop plants were relatively high during the early growth stage, then, gradually decreased when come to the vegetative stage, but increased again during productive period. In the early growth stage of plants, the isomer profiles of dioxins were similar to those in soil. However, the profiles were predominantly changed to resemble those in the atmospheric gas phase as the crop grew.
2. The transition route of dioxins in corn is clarified. Corn was grown in two growth chambers with two different soils, which contaminated with dioxins at two different concentrations and isomer profiles. Results clearly proved that the dioxins in corn are derived from the atmospheric gas phase, and did not come from the absorption from soil by roots.
3. The correlation between the period of exposure to the atmospheric dioxins and their concentration in forage was examined in order to clarify either dioxins can be accumulated in forage. Results showed that the accumulation of dioxins in forage did not occurred. Therefore, it would be difficult to decrease the level of dioxins contamination in forage through the adjustment of the cultivation period.

These studies indicated that, the major transition route of dioxins to crop plants is through the atmospheric gas phase. In this contact, Dr. Uegaki proposed that the effective countermeasure to the transition could be made through the improvement and good maintenance of the atmospheric environment. The “Law Concerning Special Measures Against Dioxins” was promulgated in Japan since July 1999. The law regulates emission and effluent, and it mandates the monitoring and surveillance of dioxins in the atmosphere. Recently, the concentration of dioxins in the atmosphere has been decreased. Therefore, it can be expected that the concentration of dioxins in crop plants will also decreased.