Academic Prizes and Awards

1. Commendation by the Minister of Education, Culture, Sports, Science and Technology Awarded for Soil Monolith Work

Five researchers in the Natural Resources Inventory Center, Makoto Nakai, Tadao Hamasaki (currently at Kagoshima University), Toshiaki Ohkura, Takeshi Ota (currently at the National Agriculture and Food Research Organization), and Hiroshi Obara, were awarded a Commendation by the Minister of Education, Culture, Sports, Science and Technology (Public Understanding Promotion Category) for "Promoting Public Understanding of Soil Using Soil Monoliths."

The recipients developed a way to make "soil monoliths" (soil profile specimens) in which resin is used to fix soil profiles from depths of 1 m or greater, which are ordinarily not visible because of being underground. For 30 years after developing the method they provided guidance in using it to experts at research institutes and museums, and facilitated the wider use of soil monoliths, thereby furthering understanding by a broad range of people about crop production and the relationship between environmental conservation and soil morphology and function.

As part of their efforts, the five broadly disseminated information on soil monoliths by opening a soil monolith museum at NIAES which has had over 30,000 visitors, and by creating a soil monolith website. In addition, they have used soil monoliths in programs and events for young people, such as "science camps," and have loaned soil monoliths to special exhibits by museums and universities, offered them for photographs and filming by broadcast media and publishing companies, and have otherwise provided information in many ways. Further, they have made a contribution internationally by lending guidance in the method of preparing soil monoliths to experts such as at agricultural experiment stations and universities throughout Asia and South America so that those experts can, for example, make and display soil monoliths of soils in their own countries.

Recipients: From left, Toshiaki Ohkura, Tadao Hamasaki, Takeshi Ota, Makoto Nakai, and Hiroshi Obara

2. The BSJ Award 2008 for Outstanding Scientific Contribution

At the annual meeting of the Biometric Society of Japan (BSJ), held on 5 June at the University of Tsukuba, Dr. Tetsuhisa Miwa, Head of the Ecosystem Informatics Division, received the BSJ Award 2008 for Outstanding Scientific Contribution. The BSJ is a regional section of the International Biometric Society (IBS). The IBS was established by Sir Ronald Aylmer Fisher and promotes the development and application of statistical methods in biological science. The BSJ Award was given to Dr. Miwa for his substantial contributions to statistical theory and application in agricultural and environmental science. Dr. Miwa has also served the BSJ as an executive committee member, council member, and trustee.

Dr. Miwa has worked at a number of agricultural institutes for a total of more than 30 years. During the intervening years, he has been involved in research, education, and supervisory work. Dr. Miwa has performed wide-ranging research on agricultural statistics and has recently been working in the field of multiple comparison procedures.

The multivariate normal distribution plays a fundamental role in statistical applications, but before Dr. Miwa published a paper in the *Journal of the Royal Statistical Society* in 2003 there had been no practical methods for calculating its probabilities. He proposed a very efficient procedure for evaluating multivariate normal probabilities accurately.

Dr. Miwa solved the long-standing problem of calculating level probabilities in the unbalanced analysis of variance models. The results were published in a paper in *Computational Statistics and Data Analysis*. They enable us to use Bartholomew's test, which is very powerful for comparing ordered treatments, even in unbalanced cases.

Dr. Miwa also provides a practical procedure that combines the advantages of one-sided and two-sided test procedures for comparing ordered treatment effects. The

proposed procedure provides two-sided confidence intervals but maintains the sensitivity of the one-sided test in detecting real differences in ordered treatment effects. This result was published in a paper in the *Journal of the American Statistical Association* in 1999.

All these achievements are not only theoretically innovative but also practically very important.

3. 2008 (First) NIAES Young Researcher Encouragement Awards, "Three Young Researchers Presented with Awards"

During the NIAES research presentation held on November 28 at Shinjuku Meiji Yasuda Seimei Hall, three researchers were given the 2008 (First) NIAES Young Researcher Encouragement Awards. NIAES President Yohei Sato presented each recipient with a certificate and a commemorative gift. Posters displayed in the lobby described the recipients' research achievements.

Following are the recipients and their achievements.

• Staff Researchers

"Research on Determining the Dynamics of Persistent Organic Pollutants"

Senior Researcher Nobuyasu Seike, Organochemicals Division (Photo 1)

Seike found that dioxins in rice paddy soil were derived from certain herbicides used in the past and that rice plants did not absorb them from the soil. He also predicted that residual dioxins in rice paddy soil would decrease in the future. Additionally, Seike developed a method to predict the concentrations of residual dieldrin and heptachlors in Cucurbitaceae by measuring concentrations in soil before cultivation, and selected low-absorption cultivars.

"Analysis of the Impact of Soil Fumigation on Community Structure of Soil Microorganisms Using Molecular Biological Methods"

Senior Researcher Yuko Hoshino (Takada), Environmental Biofunction Division (Photo 2)

Hoshino created a method that analyzes DNA directly extracted from soil, and determined the impact of methyl bromide substitute chemicals for soil fumigation (chloropicrin or 1,3-dichloropropene) on microbial communities, including microorganisms that are hard to culture.

She also wrote a manual for a method to analyze soil microorganisms and nematodes by using DNA extracted from soil. Many data are now being accumulated by people involved in the research.

• Research Fellow

"Climate Scenario Downscaling and Its Application to Assessing the Impacts of Global Warming on Agricultural Crops"

Toshichika Iizumi, NIAES Research Fellow, Agro-Meteorology Division (Photo 3)

Iizumi downscaled global warming predictions obtained from a global climate model and prepared climate change scenarios for Japan. He also assessed the impact on paddy rice yields from socioeconomic scenarios and climate change scenarios. Additionally, he is currently building a model to assess impacts for crop insurance to prepare for extreme weather events, which are feared to occur more frequently owing to global

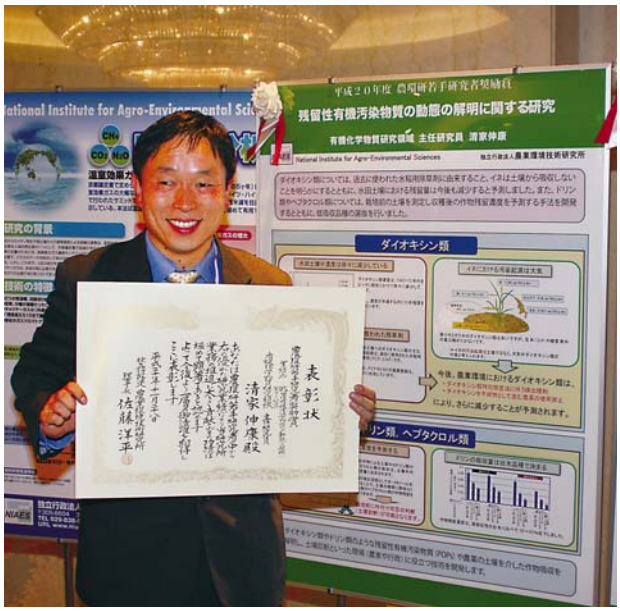

Photo 1 Nobuyasu Seike

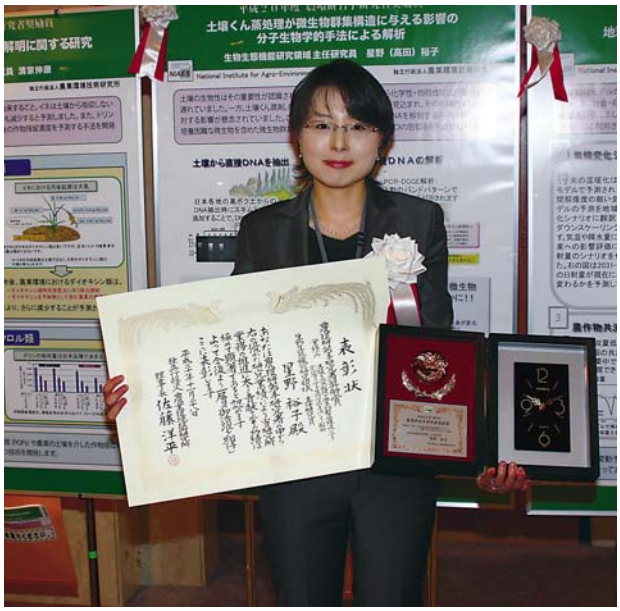

Photo 2 Yuko Hoshino (Takada)

warming.

Every year this award program will commend those NIAES staff researchers under age 40, or NIAES research fellows — so-called post-doctoral researchers — who have especially good research achievements in order to energize young researchers at the institute. This was the first year, and the next presentation is scheduled for next autumn.

Photo 3 Toshichika Iizumi