

Symposia and Workshops

1. Conferences, Workshops and Research Meetings

Title	Place	Date	Participants
Meeting for Presenting Research Topics of NIAES	Tsukuba International Congress Center	April 12, 2004	175
The 2nd Meeting of Environmental Research Organizations in Japan	Tsukuba International Congress Center	September 22, 2004	166
The 4th Seminar on Organic Chemicals Studies: Mechanism on POPs persistent in soil and the technology on risk reduction, principle and utilization of soil adsorption	NIAES	September 29, 2004	141
The 21st Research Meeting on Pesticides: Environmental risk management on drift in pesticide application	NIAES	September 30, 2004	127
A Regular Symposium of Koibuchi College in the 2004-2005 FY; Biotope and Biological Geo-filter for Improving Water Quality	Koibuchi College of Agriculture and Daily Life	October 8, 2004	67
The Third International Nitrogen Conference	Nanjing Hilton Hotel, Nanjing, China	October 11 - 16, 2004	about 500
Sino-Japan Workshop on Nutrient Cycling in Rice-Based Ecosystems and Their Environmental Impact	Nanjing, China	October 16 - 17, 2004	about 50
The Sixth International Conference on EcoBalance "Developing and Systematizing of EcoBalance Tools based on Life-Cycle-Thinking"	Tsukuba International Congress Center	October 25 - 27, 2004	about 400
World Rice Research Conference 2004	Tsukuba International Congress Center	November 5 - 7, 2004	1,235
International Workshop on the Development of Database for Biological Invasion in the Asian and Pacific Region	Agricultural Research Institute, Taichung, Taiwan	November 16 - 19, 2004	about 40
Symposium in the Research Project of Symbiosis between Agriculture and the Nature	JA Tokyo building	November 19, 2004	71
The 24th Symposium on Agro-Environmental Science / the 7th Seminar on Vegetation Science; Agricultural use of biological function for the conservation of agro-ecosystems; Coactions through the natural and bioactive substances	NIAES	December 10, 2004	144
Symposium on Climate Change	International Conference Hall, RDA, Suwon, Korea	February 21, 2005	about 150
The 22nd Seminar on Soil and Water: Recycling of organic resources and its effect on the environment	NIAES	February 24, 2005	298
The 21th Meteorology Workshop: Aeolian dust (Kosa) problem and Agricultural activity	NIAES	March 3, 2005	64
The 2nd International Conference of Japan-Korea Research Cooperation: Impact Assessment of Farm Chemicals Run off from Paddy Fields and Biodiversity Conservation	Tsukuba International Congress Center	March 16, 2005	112

2. The 2nd Meeting of Environmental Research Organizations in Japan



Presentation by Dr. Nouchi, NIAES.

The 2nd Meeting of Environmental Research Organizations in Japan, “Aim at sustainable society,” was held September 22, 2004 at the Tsukuba International Congress Center. The objectives of this meeting were to present research results from 11 research institutes and to exchange the latest information on environmental sciences. Along a main theme to aim at sustainable society, this meeting extracted the topics to the research results concerning “Action to solve the problems of global warming” and “Action to build recycling society.” Participants counted 166 including those from research institutions, universities, the private sector and presses.

M. Gohshi, the director general of National Institute for Environmental Studies, which is the secretariat of this organization, greeted session as follows: Environmental research aims at solution of actual problems, and multi-directional approach is required for it. Especially, three viewpoints of 1) not overlooking a small thing, 2) not leaving a problem, and 3) not being panicked are important to attain the aim. A problem is solvable, if an opinion is exchanged for the researchers of the same field bearing these three viewpoints in mind even if a study comes to a deadlock. He hopes this meeting will help to solve such a problem.

Following the opening address, 11 speakers presented topics related to the two sub-themes mentioned above.

Part I “Action to solve the problems of global warming” Chairman: M. Uehiro (National Institute for Environmental Studies)

- 1) Dynamic state of a substance which brings about warming elucidated by marine research. O. Tsushima (National Institute of Advanced Industrial

Science and Technology)

- 2) Regular continuous observation of the entrance of Tokyo Bay and research on a model to forecast the environment. K. Suzuki (Port and Airport Research Institute)
 - 3) Increase in the coast disaster by the rise of a sea surface - Future prediction and evaluation -. S. Iwasaki (National Research Institute for Earth Science and Disaster Prevention)
 - 4) Prediction of the influence global warming affects food production. I. Nouchi (NIAES)
 - 5) Prediction of the change about the water resources of Asia in the 21st century. A. Kitou (Meteorological Research Institute)
 - 6) Heat island phenomenon in a city and the measures. Y. Ashinaga (Building Research Institute)
- Part II “Action to build recycling society” Chairman: M. Saito (NIAES)
- 7) Analysis of recycling society by material flow analysis. Y. Moriguchi (National Institute for Environmental Studies)
 - 8) Production of the fishery feed with high nutritive value using livestock excrement. M. Okauchi (Fisheries Research Agency)
 - 9) Building scrap wood revives as building material. R. Shibusawa (Forestry and Forest Products Research Institute)
 - 10) Development of “ecocement”. I. Nishizaki (Public Works Research Institute)
 - 11) Action to purchase “green” in public works project. M. Sone (National Institute for Land and Infrastructure Management)

Dr. Nouchi (Head of Agro-Meteorology Group, NIAES) introduced the present conditions and future prediction of global warming, and the research results about the influence the increase in CO₂ concentration and temperature rise affect agricultural production, most of which were results provided by NIAES. M. Saito (Director of Department of Environmental Chemistry, NIAES) acted as the chairman of part II.

K. Tanaka, the director general of Forestry and Forest Products Research Institute, which is to succeed a secretariat of this organization from October, greeted the closing and declared that this meeting will be opened next year.

3. The Fourth Seminar on Organic Chemical Studies: Mechanism of POPs persistence in soils, the technology of risk reduction, and principles and utilization of soil adsorption

The seminar was held on 29 September 2004 at the NIAES conference hall. Seven domestic speakers ex-

perienced in persistent organic pollutants (POPs) persistence in soils were invited from government and academia. There were a total of 141 participants.

POPs such as dioxins and members of the drin family, which include pesticides such as aldrin and dieldrin, pose risks of environmental contamination and residual contamination of crops. Soil persistence of POPs is closely related to the physico-chemical properties of several absorbents in soil, and we can assume that POPs will be strongly adsorbed as a result of repeated interactions with these absorbents. The use of drins was banned more than 30 years ago, but these substances are still detected in cucumber in some locations. It is apparent that, even now, drins exist in soils in forms that can be absorbed by plants. Therefore, there is increasing concern about POPs from the viewpoint of food safety and security. The objectives of this seminar were to determine the mechanism of adsorption and stability of POPs in soils and to discuss strategies for environmental risk mitigation.

The following topics were presented at the seminar:

- 1) Provision for POPs abatement strategies in the administration of agricultural environments in Japan (S. Fuketa, Agricultural Chemicals Control Office, MOE);
- 2) Changes in residual POPs levels in arable land in the past 40 years (N. Seike, NIAES);
- 3) Soil residues and plant uptake of the drin family in arable land (Y. Hashimoto, Tokyo Metropolitan Agricultural Experiment Station);
- 4) Can the amount of soil adsorption of herbicides be predicted? (M. Ebato, National Institute of Livestock and Grassland Science);
- 5) Properties of POPs adsorption to volcanic ash soils (S. Hiradate, NIAES);
- 6) Evaluation of bioavailability of organic chemicals in soil (A. Katayama, Nagoya University); and
- 7) Development of technologies for the prevention of environmental contamination of POPs from paddy fields (T. Makino, NIAES)

Participants exchanged ideas on: 1) the relationship between methods of estimating the half-lives of POPs in soil and several environmental parameters; and 2) the mechanism of drin family absorption by plants. Studies on the soil adsorption of organic chemicals such as POPs are still lagging, owing to the nature of the boundary between the soil and pesticide sciences. Participants also recognized the significance of this issue.

4. The 21st Research Meeting on Pesticides: Environmental risk management of drift in pesticide application

The seminar was held on 30 September 2004 in the NIAES conference hall. Five domestic speakers experienced in spray drift in pesticide application (“pesticide drift”) were invited from government, industry, and aca-

demia to present the first half of the seminar. Several research reports, mainly by researchers at prefectural agricultural experiment stations, were presented in the second half. A total of 127 participants attended.

Pesticide drift is the physical movement of pesticide droplets or particles through the air to non-target sites. Pesticide drift is a live issue from the viewpoints of health and environmental contamination, and provisions for its control are urgently needed. The revision of the Pesticide Control Law in March 2003 is aimed at preventing pesticide drift from ground applications near residential areas and from aerial application. We are also concerned with the prohibition of crop shipment that may occur when a pesticide drifts onto a surrounding crop and residues are detected in the crop at harvest. In addition, pesticide drift is one of the routes of drinking water contamination. Therefore, it is urgent that we develop a drift-reduction technology by improving formulation and application techniques. The objectives of the first half of this seminar were to determine the status of the environmental risks of pesticide drift, to pick up on the technical issues, and to clarify the direction of research.

The following topics were presented in the first session: 1) Approach to prevention of pesticide drift (T. Misumi, Plant Protection Division, MAFF); 2) Pesticide drift from aerial application by manned/unmanned helicopters (T. Saito, Japan Agriculture Aviation Association); 3) Case study on pesticide drift in vegetables and ornamentals (T. Kobayashi, Nagano Agricultural Research Center); 4) Guidance on measures to prevent pesticide drift at application (S. Miyahara, Bio-oriented Technology Research Advancement Institution); and 5) Evaluation of technologies for the reduction of pesticide drift at application (Y. Yamamoto, Chousei/Chiba Agriculture and Forestry Promotion Center).

In the second half of the seminar, the topics discussed were the evaluation of pesticide residues in local specialized (minor) crops and the analysis of pesticide residues by the ELISA method, mainly on the basis of the annual reports of prefectural agricultural experimental stations. The topics were timely and important, and participants actively exchanged information and opinions in both sessions.

5. The 24th Symposium on Agro-Environmental Science / Seventh Seminar on Vegetation Science: agricultural use of biological functions for the conservation of agro-ecosystems; co-action of natural and bioactive substances

This symposium was held at NIAES on 10 December 2004, and more than 120 people participated. The open-

ing address was given by Dr. T. Yoshihara of Hokkaido University, who spoke on the “Discovery, function, and future of biologically active natural products from plants”. Six speakers gave presentations, and their topics were: 1) Screening of allelopathic plants and their application to agriculture (Y. Fujii, NIAES), 2) The growth-promoting allelochemical lepidimoid: its chemical structure, function, and application to agriculture (K. Hasegawa, Tsukuba University); 3) Insect pheromones and their adoption in pest control (H. Sugie, NIAES); 4) Methods of bioassay of insect behaviors: from the olfactometer to the virtual odor source (M. Sakuma, Kyoto University); 5) Activity of antifungal compounds produced by *Bacillus* sp. in suppressing the anthracnose fungus *Colletotrichum dematium* (S. Yoshida, NIAES); and 6) Phytotoxin produced by *Pseudomonas cichorii* and its role in symptom expression of bacterial rot in lettuce (T. Shirakawa, National Institute of Vegetable and Tea Science). The highlight of the seminar was the discussion of the potential uses and commercialization of various substances produced by organisms. (Y. Ogawa)

6. The 22nd Seminar on Soil and Water:

Recycling of organic resources and its effect on the environment

On 23 February 2005, the 22nd Seminar on Soil and Water was held in the large meeting room at NIAES, with 298 participants: 54 from NIAES, 51 from national institutes, 135 from municipal governments, 31 from private companies, 26 from universities and colleges, and 1 undisclosed.

Nine speakers gave presentations on the following topics: 1) Aim of the seminar (M. Saito, NIAES); 2) Trends in nitrogen balance in Japan in the 1980s and '90s (K. Oda, NIAES); 3) Application of life cycle assessment (LCA) to regional policymaking (Y. Genchi, National Institute of Advanced Industrial Science and Technology); 4) Systems of recycling of municipal waste and their coordination with regional agriculture (K. Sato, National Agricultural Research Center); 5) An approach to food-residue recycling in so-called “convenience stores” (7-Eleven Japan Co. Ltd.); 6) Systems of circulation of biomass: a case study on the island of Miyako, Okinawa (Y. Shinogi, National Institute for Rural Engineering); 7) Environmental impact assessment of the animal industry using life cycle assessment (K. Shimada, National Institute of Animal Industry and Grassland Research); 8) Eco-balance assessment of land use in a river-basin ecosystem (S. D. Kimura, Tokyo University of Agriculture and Technology); and 9) Environmental impact assessment of the application of fertilizers and

organic matter in a medium-sized river basin (S. Mishima, NIAES).

The general discussion focused on the following points:

1. Usefulness and difficulty of life cycle assessment (LCA): Dr. Saito pointed out that LCA is useful for elucidating the balances of nutrients such as animal wastes in river basins and for taking steps toward management. However, there are some difficulties in constructing inventories and analyzing emission factors.
2. Problems involved in LCA of agriculture: Dr. Saito raised the question of why we should address so many subjects, i.e. functional units, impact categories such as land use, and a single index for interpretation. Dr. M. Ohmura of Tohoku University pointed out that it was difficult to persuade agriculture stakeholders to use LCA. In response to this point, it was argued that LCA can make it possible to address environmental problems if it can be tied in with the social sciences and can provide an agenda for regional activities with resident participation.

7. The 21st Meteorology Workshop: Aeolian dust (kosa) problem and agricultural activity

This workshop was held on 3 March 2005, with 10 speakers and about 100 participants, in the NIAES meeting hall. Dust generated by wind (aeolian dust) has a great impact on agriculture and daily life in the arid and semiarid areas where it originates. Furthermore, aeolian dust, directly or indirectly influences the atmospheric radiation balance and hence global climatic variations. The Takla Makan Desert and Gobi Desert in Northwest China have been pointed out to be the primary sources of aeolian dust in East Asia. Dust generated there by sandstorms can be transported to Japan (where it is usually called “kosa”) and even to the Pacific Ocean and North America. As a result of increased human activity in recent years, the oases, and especially the dry croplands, around and within the Sandy Desert and the Gobi Desert have gradually been evolving into important dust sources.

In this workshop, we aimed to introduce the latest results of aeolian dust researches. We focused on the mechanism of dust generation and transport from deserts and farmlands, the climatic impact and environmental alteration caused by aeolian dust, and the influence on agriculture. Topics presented were: 1) The problem of international diffusion of aeolian dust, 2) Outbreaks of aeolian dust and climate change in recent years; 3) Amount of dust supplied and its influence on the climate; 4) Observations of aeolian dust by LIDAR in relation to

long-distance transport; 5) Analysis of a model of trans-border pollution by aeolian dusts and aerosols; 6) Temporal and spatial variations aeolian dust levels in Japan; 7) Chemical properties of aeolian dust aerosols; 8) Process of emission of aeolian dust in relation to agricultural activity; 9) Aeolian dust and radioactive fallout; and 10) Aeolian dust and Japan's agriculture.

In the discussions held after these presentations, there

were some lively exchanges on the given topics. It was shown that, if we are to control the problem in future, human activity will be a very important factor in aeolian dust research, in terms of both the emission process and the deposition process. As part of the development of aeolian dust research, we also discussed the combination of a new observation technique and a computer simulation technique. (S. Kawashima)