

# Kobe Gazette

# 5

## August 10th (Thu), 2006

### Evolution for Crop Protection, Public Health and Environmental Safety

(Sponsoring Organizations)

The International Union of Pure and Applied Chemistry (IUPAC) & Pesticide Science Society of Japan

## Global Collaboration Is Needed for a Sustainable Agriculture in China Professor Yang Presents Her Plenary Lecture

Dramatic progress has been made in China's agriculture system over the last 25 years. Today, China ranks first and second in pesticide production and usage, respectively. Pesticide regulation and trade in accordance with international standards, consumer health/safety and environmental protection are some of the many challenges facing China. Some of these issues include the establishment of pesticide quality specification and the international harmonization of MRLs (Maximum Residue Levels). Prof. Yang, Deputy Director General of the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA), delivered her Plenary Lecture entitled "The Current Status of Pesticide Management in China" at the Congress. In her lecture, she described the regulatory infrastructure at both the national and provincial levels. ICAMA has the authority and responsibility for pesticide registration and post registration management under the Ministry of Agriculture in China. Her lecture highlighted five major requirements which must be considered when formulating current and future pesticide management policy:

- Reform agriculture economical structure
- Enhance food quality/safety and human health
- Promote growth of pesticide industry
- Develop sustainable agriculture
- Increase global competitiveness

The pesticide industry in China is moving from a reformulation/production mode to a new research and development platform. Over the past five years, approximately 2-3 proprietary products were registered for usage in China each year. China is slowly closing the gap in agricultural technology.

Prof. Yang concluded by expressing the ICAMA's interest in developing collaboration with international organizations, NGOs, government authorities and industry in all areas relevant to pesticide management.



### - Official Information -

#### 1. Program Change

The correct title of Luncheon Seminar 18 in the Program Guide Book is:  
"Current & Future R&D Activities in Agrochemical Area in China & Japan (Herbicide)" (p. 46)

The new speaker of Session 12-6 is **Dr. Martin Williamson** (U.K.) and his lecture title is:  
"A mechanism based approach to monitoring for insecticide resistance in the peach-potato aphid, *Myzus persicae*". (p. 47)

#### 2. Poster Award Winners

The Pesticide Science Society of Japan (PSSJ) would like to display the selected winning posters at the next PSSJ Annual Meeting (Spring 2007). A representative of PSSJ will contact the authors of the winning papers after the 11th IUPAC Closing Ceremony.

#### 3. Poster Removal Today

Posters must be removed between 12:00 and 14:00. Posters left on the boards will be discarded by the Secretariat. No return service by mail is available.

#### 4. Tomorrow's Excursion Information (p. 91)

The assembly area for the excursions is the **B1 Entrance** of the Portopia Hotel. Please confirm the departure time of your excursion course on your Excursion Ticket.

The number of seats still available is as follows (as of 17:00 August 9th):

A-1	..... Sold out	B-1	..... 5
A-2	..... Sold out	B-2	.....22
A-3	.....18	B-3	.....25

### All Day, Every Topic

#### Plenary Lecture-4

Dr. Kenneth D. Racke (see Page 2)

Main Hall 8:45-9:45

#### New Chemistry (S-3)

Main Hall 13:45-16:45

#### Insecticide

Selected Poster Workshop-11

Main Hall 10:00-12:15

#### Fungicide

Selected Poster Workshop-15

Room 502 10:00-12:15

#### Herbicide

Selected Poster Workshop-13

Room 401 10:00-12:15

Luncheon 18 (PSSC/PSSJ)

Room 502 12:30-13:30

#### Resistance Management & IPM (S-12)

Room 502 13:45-16:45

#### Metabolism & Toxicology (S-11)

Room 301 13:45-16:45

Luncheon 15 (Charles River Laboratories)

Room 401 12:30-13:30

#### Regulatory, Risk, Food

Selected Poster Workshop-14

Room 501 10:00-12:15

#### Environment (S-13)

Room 501 13:45-16:45

Selected Poster Workshop-12

Room 301 10:00-12:15

#### Agriculture in SE Asia

Luncheon 16 (Otsuka/T.J.C./Mitsui)

Room 403 12:30-13:30

#### Agrochemical Information

Luncheon 17 (IUPAC/FAO)

Room 501 12:30-13:30

#### Poster Awards & Closing Ceremony

Main Hall 17:00-18:00



植物、土壌の代謝・  
残留試験のお問い  
合わせはPTRLへ







<http://www.ptrlwest.com>

## Who's Who in the Congress

### Dr. Kenneth Racke Plenary Lecturer -4

Dr. Kenneth Racke is the Asia-Pacific Regulatory and Government Affairs Leader for Dow AgroSciences, and is based in Indianapolis, USA. He currently supervises product registration activities



and staff in China, Japan, Korea, Australia, India, and the Asean countries. Dr. Racke joined Dow in 1988, and his early research efforts were focused on the environmental chemistry and ecological impacts of pesticides.

Since 1996, Dr. Racke has provided leadership for a number of teams involved with new product evaluation, design and implementation of registration development projects, and completion of national and international reevaluation programs.

He has been an active member of the American Chemical Society for the past 20 years and currently serves as a member of the Executive Committee of the Agrochemicals Division. He has also been active for the past 15 years in promoting international crop protection chemistry activities through the International Union of Pure and Applied Chemistry (IUPAC), where he presently serves as President of the IUPAC Division of Chemistry and Environment and also Chairman of the IUPAC Advisory Committee on Crop Protection Chemistry.

Through IUPAC, Dr. Racke leads the organization of international chemistry congresses (e.g. 11th IUPAC International Congress of Pesticide Chemistry in Kobe, Japan, 6-11 August 2006), regional crop protection chemistry workshops, and projects promoting internationally harmonized approaches to evaluation and regulation of agrochemicals. Prof. Racke received a B.A. in Biology from Trinity Christian College in 1981, a M.S. in Entomology from the University of Wisconsin in 1984, and a Ph.D. in Entomology from Iowa State University in 1987.

## Yesterday's Highlights

### Session 14

(Environmental Risk Assessment, Regulatory Aspects and Risk Communication)

Presentations were given on regulatory requirements and risk assessment schemes from the US, Europe and Japan, followed by a lively discussion on the impact of risk management. In the US there is specific attention given to endangered species, and the legislation specifically mentions risk-benefit analysis as part of the process. A special item in the EU legislation is the dual interest of the EU as a community vs individual member-state interests. Japan focuses risk assessment on paddy rice uses and aquatic organisms.

Overall it was shown that data requirements and the basics of risk assessment were similar in the EU and US. Japan is moving in the same direction.

If risk assessment becomes more complicated (e.g. Probabilistic risk assessment) then the issue of risk communication becomes more important. One of the most outstanding questions regarding risk assessment was how to set acceptability criteria and/or benchmarks for decision making.

Certain risk mitigation measures were complicated to understand and difficult to enforce. A potential solution to the issue is the direct involvement of farmers in the implementation of such measures - **Kees Romijn (Netherlands), Martin Streloke (Germany), Al Barefoot (USA)**

Special Workshop 1 & Luncheon Seminar 10  
(Japan Positive MRL System: Regulatory and Trade Considerations)

This combined special workshop and luncheon seminar was inaugurated by Dr. Shoji Miyagawa of the Japan Ministry of Health, Labor, and Welfare (MHLW), who explained the background and implementation experience for this new system of food safety regulation. During the past three years, MHLW consulted local regulation limits, international Codex standards, and national standards of key OECD trading partners to develop a comprehensive "positive list" of maximum residue limits (MRLs) for pesticide residues in foods. On May 29 of this year, these new standards came into force for some 745 pesticides on both domestic and imported foods. Japan has an intensive compliance monitoring program in place and, although the overall rate of MRL violations for imported food has traditionally been low (around 100 per year), the first several months of implementation of the positive list has resulted in a 5-fold increase in violations. Dr. Miyagawa stressed that these MRL violations represent a trade standard issue and not a human health risk, and consumer concerns about pesticide residues in food (67.7% of Japan public

indicate additional education is needed. He also pointed out that adherence to good agricultural practice (GAP) in some food-exporting countries would increase compliance with the new system, but that solutions needed to be explored for cases where the GAP of foreign countries might result in increased residue content versus the positive list. Lecturers from China, USA, and Australia discussed implementation issues and future needs related to agricultural practices and compliance with the new positive MRL system of Japan on the part of farmers and exporters. Dr. Bill Chen of China Agricultural University stressed the importance of education and stewardship on the part of farmers in China and other Asian nations in achieving a high level of compliance for foods exported to Japan. Harmonization of risk assessment and MRL-setting and accelerated adoption of good laboratory practices for pesticide analysis will also contribute to successful chemical management. Dr. Wally Ewart of the California Citrus Quality Council emphasized the difficulties faced by growers and exporters in complying with disharmonized MRL standards of various trading partners, and pointed out that availability of such standards was in some cases delaying the introduction of newer, reduced risk pesticides. Dr. Ewart stressed the importance of the Codex system of world food MRLs as the best hope for global harmonization and reflected the desire of many growers that the OECD countries would find ways to increasingly match their MRLs with those of Codex. Mr. Kevin Bodnaruk of AKC Consulting in Australia discussed steps that grower organizations were taking to implement best export practices for meeting export needs for Japan and other markets, including the adoption of destination-specific export harvest intervals. A panel discussion of the invited lecturers followed the lectures, and views and suggestions related to two primary future needs were shared. First, compliance with the new positive list system within key food-exporting countries needs to be enhanced through effective communication and grower/exporter education. Second, creative approaches to manage existing and preempt future disparities between the Japan positive MRL list and the GAP of trading partners need to be identified. Agrochemical companies were encouraged to utilize trade risk assessments and develop global MRL strategies to assist introduction of new active ingredients and new crop uses. Governments were encouraged to consider work-sharing and cooperative evaluation processes in seeking to develop an increasingly harmonized approach to management of pesticide residues in food on a worldwide basis - **Kenneth D. Racke (USA)**.

Selected Poster Workshop 9  
(New Technologies for Lead Generation & Drug Design)

Six speakers from Japan, China and Europe presented different technologies for lead generation and drug design in this well-attended workshop. The whole spectrum from the identification of potential new targets for fungicides, the use of metabolomics for the identification or differentiation of modes of action, the virtual target-based screening for enhancing the quality of chemical libraries over

structure activity studies of ecdysone agonists to the rational design of new herbicides was covered - **Ulrich Schirmer**.

Wildlife International, Ltd.

Ecotoxicology &  
Environmental Fate

Visit us at ICCK Booth I-14



## Yesterday's Highlights

### Session 8

(Mode of Action & Resistance Mechanism  
- Weed Control)

This five-speaker session commenced with presentations from two prominent scientists working in herbicide discovery, detailing the sophisticated new technologies employed in herbicide discovery (Dr. Donn, Bayer, Germany - Novel diagnostics for herbicide mode of action; Dr. Grossmann, BASF, Germany - Physiomics for herbicide mode of action diagnosis). The challenge posed by the evolution of herbicide resistance in weed species was considered in three presentations. Dr. Powles (Australia) reviewed major target site resistance mechanisms/mutations and then Dr. Kreuz (BASF, Germany) discussed non target site metabolism based resistance mechanisms. Finally, Dr. Feng (Monsanto, USA) reviewed the mechanism endowing glyphosate resistance in *Conyza* populations - **S. B. Powles** (Australia)

### Luncheon Seminar 13

(Sumitomo)

New Approach for Vector Control

Major subject was on prospects for use of insecticide treated materials in personal protection and chemical control of vector borne diseases.

The Sumitomo Chemical Luncheon Seminar was held on August 9 with participation from 120 scientists. Dr. Guillet pointed out the importance of utilizing technology where an insecticide is incorporated within polymer fibers or coated around fibers. Participants raised a lot of questions, one of which was whether WHO supported the use of a DDT indoor residual spray. Dr. Guillet replied that since the indoor residual spray was limited to inside use that the risk of environmental contamination from DDT was unlikely. Further, he commented that WHO supported the use of DDT as long as it worked well against malaria vectors with evidence of human safety - **Takaaki Itoh**

### Selected Poster Workshop 10

(Alternative in Metabolism & Toxicology Study)

The session contained selected presentations from the metabolism and toxicology posters. Stimulating presentations which included a wide range of subjects, i.e. *in vitro* metabolism techniques, species different metabolism, sex-dependant rat metabolism, absorption and systemic availability and estrogenic receptor binding of DDT metabolites, were made by the authors. The audience joined in some very stimulating discussion for all the presentations - **Mike Skidmore**.

### Special Workshop 2

(Special Workshop for Mosquito Control)

Special Workshop 2 was chaired by Prof. M. Takagi. The first speaker, Dr. P. Paeporn (Ministry of Public Health, Thailand), spoke on "Behavioral responses



Dr. P. Paeporn (Thailand)

of deltamethrin and permethrin resistant strains of *Aedes aegypti* when exposed to permethrin in an excito-repellency test system". Following the infestation situation of Dengue Haemorrhagic Fever (DHF) in Thailand, the development of resistance to deltamethrin and permethrin in *A. aegypti* was presented. The resistance development was analyzed both behaviorally (attractancy and repellency) and physiologically (penetration into cuticle, target site and metabolic detoxification). The second speaker, Dr. S. Kasai (National Institute of Infectious Diseases, Japan) discussed the insecticide susceptibilities of the West Nile virus-vector mosquitoes collected from Japan. The results of resistance development of *Culex* colonies to etofenprox were rather high, and cross-resistance to other pyrethroids was also high. This was followed by Dr. T. Tomita (National Institute of Infectious Diseases, Japan) with his presentation entitled "Mechanisms involved in pyrethroid resistance of *Culex pipiens* mosquitoes in Japan". He discussed the pyrethroid resistance of *C. p. molestus* and *C. p. pallens* colonies collected around Tokyo, and analyzed on degrees of target sensitivity (sodium channel) and increased detoxifying metabolisms (P450). Dr. H. Kawada (Nagasaki University, Japan) talked on "Field evaluation of spatial repellency of metofluthrin-impregnated plastic strips against vector mosquitoes". Methofluthrin is a pyrethroid of high vapor pressure and a highly effective insecticide against *Culex quiquifasciatus* and *C. pipiens pallens*. Field trials of spatial repellency of metofluthrin-impregnated strips were carried out in tropical areas. The device disrupted orientation but was positively affected by average room temperature and negatively affected by opening areas of the room. Dr. J. Nash, (Bayer Environmental Science, Singapore) discussed "Technologies for mosquito control from Bayer Environmental Science". FFAST (Film Forming Aqueous Spray Technology) is a major technique for control of the mosquitoes. FFAST is now applicable to the following four investigations:

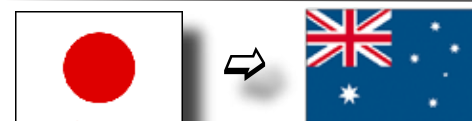
1. Spray technologies
2. Larvicide technologies
3. Indoor residual spray technologies
4. Insecticide-treated material technologies ↗

### Session 6

(Control Agents for Vectors & Communicable Diseases)

This session convened for the first time as a topic at an IUPAC/ICPC meeting with six internationally recognized speakers. The session was co-organized by Drs. Noritada Matsuo (Sumitomo, Japan) and John Clark (University of Massachusetts, USA) and focused on innovative means and technology to control mosquitoes and human lice at a critical time of emerging and re-emerging vector borne diseases. Y. Shono presented information on metofluthrin, a novel pyrethroid and innovative mosquito control agent with high vapor pressure and potency, which is effective in mosquito coils, fan vaporizers, etc. Y. Eshita reviewed the vector competency of common species of Japanese mosquito to transmit dengue and West Nile virus and found that only *Aedes* transmitted dengue virus due to midgut barriers in the other genus of mosquitoes. *Culex* mosquitoes and *Aedes albopictus* allowed the replication and transmission of West Nile virus.

E. Walker presented data supporting the notion that commercial long-lasting insecticide-treated nets protects human hosts by attracting mosquitoes and killing them rather than repelling mosquitoes. Additionally, the operational dose on the nets appears to control pyrethroid resistant mosquitoes. J. Vontas presented a functional genomics approach in identifying non target site (metabolic) resistance mechanisms in *Anopheles malaria* vectors. Micorarray analysis using the "Detox Chip" identified a number of metabolic resistance mechanisms. W. Leal used "reverse chemical ecology" approach to screen for novel mosquito ovipositional attractants by studying the binding to odorant-binding proteins and activation of odorant receptors. John Clark (UMASS-Amherst, USA) has developed an *in vitro* rearing system for human head lice and established that permethrin resistance occurs worldwide, is due to *kdr* nerve insensitivity, and can be efficiently and affordably monitored using SISAR diagnostic technology - **John Clark** (USA)



✓ Finally, Dr. T. Ito (Sumitomo Chemical Co., Japan) presented the effectiveness of their product Olyset<sup>®</sup> net under the lecture title "Olyset<sup>®</sup> net as a long lasting insecticidal mosquito net for malaria vector control". He presented use of the net as a major tool in the RBM (Roll Back Malaria) campaign. Wide-spread use of net can be expected to contribute to the halving of the malaria burden by 2010.

## Market leaders in contract research...

## ...for science and customer service

[www.huntingdon.com](http://www.huntingdon.com)

Stands H2 and I17

## Yesterday's Highlights

Session 17

(Emerging Technologies in Crop Protection & Production)

Session 17 was divided into two completely separate parts. The first part covered recent virtual screening techniques and their growing impact in the classical research process. Four speakers from different companies demonstrated basic principles and exciting examples derived from their computational studies. This included docking results with the aim to increase the enrichment factors, machine learning methods providing better classification of active and inactive compounds, the prediction of (bio)degradation potential of molecules and fragment-based approaches yielding novel low molecular weight hits for further optimization steps.

The second part of the session focused on natural product chemistry concerning the germination control of plant seeds. Two examples of naturally-occurring germination stimulant of different origins were introduced. Their characteristic biological activity was discussed together with the future application possibilities- **Klaus-Juergen Schleifer and Hisashi Miyagawa.**

### Lucky Dip at the Commercial Exhibition - Were you a winner???



### Weather Forecast (Kobe City)

10th (Thu)

Max. temp. 35 °C, Min. temp. 27 °C



Fine

Time:	0-6	6-12	12-18	18-24
Chance of Rain:	0%	0%	10%	10%

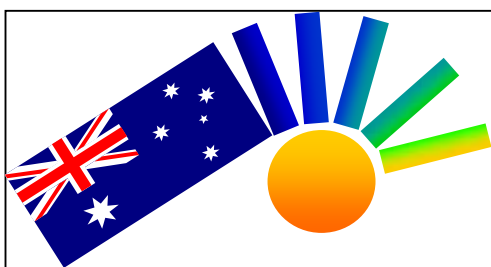
11th (Fri)

12th (Sat)

Weather



Max. temp.	34°C	32°C
Min. temp.	27°C	26°C
Chance of Rain:	30%	30%



## 12<sup>th</sup> IUPAC ICPC

See you again in Melbourne  
Australia  
In 2010

## <Chemist's Corner>

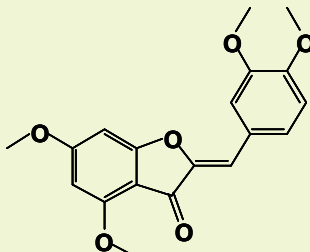
### Interesting Insecticides

The following insecticides are just two of many being introduced during the Congress:

#### 1) Kinki University

Poster: I-1-i-12C

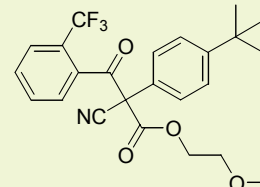
Aurone compound



#### 2) Otsuka Chemical

Poster: I-1-i-21C (=SPW13-1)

Cyflumetofen (OK-5101)



## Breaking the sake barrel and dancing Awa Odori! What an exciting Congress Dinner we had last night!!



## Open Seminar for Public

Approximately 370 people, including members of the public, gathered to listen to Dr. Masaru Kitano speak on pesticide technologies to achieve better recognition amongst targeted consumers.



### To all 11th IUPAC Congress Participants

Thank you for your daily support of this trial newsletter. Our aim was to provide as much information as possible on the different happenings within the Congress. But, with such a full program every day, it was difficult to fit everything into one newsletter. We hope that this newsletter has added to your experiences at the Congress in some way. Issuing this daily English newsletter was a much harder job than we initially anticipated. Due to time restrictions, mistakes did slip through the net, the quality of the color and photographs did not always meet our personal expectations, and we ask for your understanding and forgiveness.

We would like to especially thank all the writers and photographers who kindly submitted the summaries

and snapshots from their sessions. This newsletter would not exist also without the support of our sponsors, to whom we are forever indebted.

Finally, this challenging project could not have been accomplished without strong enthusiastic work from the following staff members: Jacqueline Howlett (English proofreading and typing), Keiko Gion (Copying and folding), Saori Kominami (Photo arranging and typing).

Thank you again to everyone for your valuable contributions to this Gazette trial.

Kobe Gazette Editorial Board Members:

Dr. Isao Ueyama

Prof. Shozo Takahashi

Dr. Chiyozo Takayama