出國報告書

（出國類別：其他）

2022 年亞大區蟲害管理聯盟年會線上國際視訊會議報告

(FAOPMA-PEST SUMMIT 2022)

服務機關：行政院環境保護署毒物及化學物質局

姓名職稱：陳淑玲副局長、盧柏州組長、林繼富科長、李慈毅技正、薛威震技正、何志麒技士、黃慧芬高級環境技術師、葉耕誠高級環境技術師、李維民高級環境技術師、林美智毒化物管理師、蔡秋美毒化物助理管理師、林涵君助理環境技術師、許智凱助理環境技術師

派赴國家/地區： 中華民國/臺灣

出國期間：111 年 11 月 6 日至 11 月 8 日

報告日期：112 年 1 月 31 日

摘要

為增進環境衛生害蟲監測與防治技術及相關管理，透過參與亞大區蟲害管理聯盟年會，經由專家演講在其國家對於環境害蟲在不同場所的監測、藥劑使用及防治技術、病媒防治業面對科技發展可能影響未來防治技術、殺蟲劑對害蟲的抗藥性、氣候變化對於病媒害蟲及病媒防治業的影響、病媒防治管理公司成功的案例等內容，可瞭解藉由害蟲的監測、風險評估、控制規劃及害蟲防治，以降低傳染病發生之可能性，維護人體健康及環境衛生，除此之外，也促進產、官、學各界相互間的交流。

亞洲及大洋洲害蟲管理協會聯盟為一個非營利組織，由來自亞洲和大洋洲國家的成員於 1989 年成立。每年由不同國家主辦年會，聚焦害蟲管理及防治技術交流，並也結合產業界產品及技術展覽，以商業展覽模式，透過防治技術專題講座，廣邀學術界、產業界及官方專家學者，透過此交流平臺，促進專業蟲害管理產業發展及技術研發。

藉由參加本次線上視訊會議，可以瞭解其他國家在環境害蟲防治的技術管理，本次會議共有23位專家講者，演講內容包括：蟑螂、臭蟲、螞蟻、白蟻、火蟻、嚙齒動物的控制與管理、綜合管理，以及氣候變遷對城市病蟲害管理的影響等主題，參與對象包括產、官、學界，透過本次會議的參與，可提供我國在環境用藥及病媒防治管理及未來舉辦相關國際會議之參考。

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壹、目的

瞭解最新國際環境衛生害蟲監測與防治技術及相關管理，作為國內精進管理及政策之參考。

為增進環境衛生害蟲監測與防治技術及相關管理，透過參與亞大區蟲害管理聯盟年會，經由專家演講在其國家對於環境害蟲在不同場所的監測、藥劑使用及防治技術、病媒防治業面對科技發展可能影響未來防治技術、殺蟲劑對害蟲的抗藥性、氣候變化對於病媒害蟲及病媒防治業的影響、病媒防治管理公司成功的案例等內容，可瞭解藉由害蟲的監測、風險評估、控制規劃及害蟲防治，以降低傳染病發生之可能性，維護人體健康及環境衛生，除此之外，也促進產、官、學各界相互間的交流。

藉由派員參加本次線上視訊會議，可以瞭解其最新國際環境衛生害蟲監測與防治技術及相關管理，會議內容包括：蟑螂、臭蟲、螞蟻、白蟻、火蟻、嚙齒動物的控制與管理、綜合管理，以及氣候變遷對城市病蟲害管理的影響等主題，參與對象包括產、官、學界，透過本次會議的參與，可提供我國在環境用藥及病媒防治管理及未來舉辦相關國際會議之參考。

貳、過程

一、研討會概述

本次亞大區蟲害管理聯盟年會(FAOPMA-PEST SUMMIT 2022)於日本時間 2022 年 11 月 6 日至 11 月 8 日舉行，因受嚴重特殊傳染性肺炎(COVID-19)疫情影響，主辦單位除以實體會議辦理外，並增加視訊方式辦理，會議主題為「不斷變化的無國界世界中的害蟲管理(PEST MANAGEMENT IN THE EVER CHANGING BORDERLESS WORLD)」(如圖 1)。

本次年會內容非常豐富，年會會議共有 23 位專家講者，演講內容包括：蟑螂、臭蟲、螞蟻、白蟻、火蟻、嚙齒動物的控制與管理、綜合管理，以及氣候變遷對城市病蟲害管理的影響等 37 項專題演講(Plenary Keynotes)及多場議程（如圖 2）。

亞洲和大洋洲害蟲管理協會聯盟(FAOPMA)是一個非營利組織，由亞洲和大洋洲國家的成員於 1989 年成立，旨在促進和發展區域的專業病媒害蟲管理行業。該組織每年由不同國家主辦年會，聚焦害蟲管理及防治技術交流，並也結合產業界產品及技術展覽，以商業展覽模式，藉由防治技術專題講座，廣邀學術界、產業界及官方專家學者，透過此交流平臺，促進專業蟲害管理產業發展及技術研發。

FAOPMA 註冊在香港，目前由澳大利亞的行政辦公室及其團隊提供相關支援。該協會聯盟的任命理事長(Administrator)負責所有管理事務、會務規定和報告，以及有關該協會聯盟憲法的指導原則以及會議和執行委員會(Executive Committee)項目或倡議的協調。執行委員會的任期為兩年，執行委員會的所有職務採義務性任職，只能由代表合格成員國的正式成員擔任，名譽特別顧問可被邀請貢獻和協助執行委員會在各種決策過程中。

除了行政辦公室和執行委員會為促進 FAOPMA 和整個地區的專業害蟲管理而永續發展的工作之外，FAOPMA 的特色之一是由成員國主辦的年度大會，其中包含當地和區域特定的害蟲問題管理行業。在這些活動中由有許多國際演講者和會議主持人共同與出席會者參與各項議程討論，作為提升防治環境衛生害蟲行業的聲譽之全球性活動。

圖 1　2022 年亞大區蟲害管理聯盟年會

圖 2　2022 年亞大區蟲害管理聯盟年會議程表

二、行程概述

本次主辦單位因應因受嚴重特殊傳染性肺炎(COVID-19)疫情影響，以實體及視訊方式舉辦，本次參與人員參加 2022 年亞大區蟲害管理聯盟年會視訊會議，參與行程安排如表 1。

表 1 每日行程概要

日 期	工 作 內 容 概 要
111.11.6~111.11.8	參加線上國際會議（年會）

三、會議議程（日本時間）

（一）111 年 11 月 6 日

Time	Event
14:00–17:00	FAOPMA AGM & Executive Committee Meetings
16:00	Registration Starts / Exhibition Hall Open

（二）111 年 11 月 7 日

Time	Event
07:30	Registration Starts
08:30–09:00	Opening Ceremonies and Speeches
10:15–10:45	◆ History & Challenge of Japan Pest Control Association & Japan Pest Management Industry
10:45–11:15	◆ Staying Scientifically Sharp in Rodent Pest ManagementDuring the 2020 Decade
11:15–11:45	◆ The Growth and Success Story of the CESCO Group
11:45–12:15	◆ Sustainable Pest Management for One HealthWorld
13:30–14:00	◆ Assessment-Based Pest Management for German Cockroach Control in Multi-Unit Housing ◆ The Science and Business of Termite Management
14:00–14:30	◆ Insecticide Resistance in German Cockroaches - Present Status, Mechanisms, and Management Strategies -

	◆ Drywood Termite Prevention and Integrated Management Strategies
14:30–15:00	◆ Insecticide Resistance in Bed Bugs ◆ Termite Management in Japan
15:30–16:00	◆ Leading teams through COVID-19: Disrupt, Innovate, Agile ◆ Biology and Management of Nuisance Midges (Diptera: Chironomidae) in Food Factories
16:00–16:30	◆ Building a Successful Pest Management Company $200 to $20M ◆ Comparisons of Pest Control Management among USA, Europe, and Japan Based on Our Experiences
16:30–17:00	◆ How to Self-disrupt and Digitally Transform a Pest Control Company ◆ Cockroach Management in Japan

（三）111 年 11 月 8 日

08:30–10:00	◆ Session Chair – Introduction ◆ Climate Change: An Overview ◆ Impact of Climate Changes on Mosquito Vectors in Japan ◆ Impact of Climate Changes on Urban Insect Pests ◆ Why the Pest Management Industry Needs to be Proactive on Climate Change and What They Can Do ◆ Rentokil Initial's Climate Change Initiatives ◆ Open discussion - 10mins -
10:30–11:00	◆ Pest Management in Post-COVID environment ◆ Controlling the Argentine Ant - A Worldwide Invader -
11:00–11:30	◆ Insecticide Resistance Management in Singapore ◆ Status of Invasion of the Red Imported Fire Ant Solenopsisinvicta in Japan and Development of Control Techniques
12:00–12:30	◆ A Field Efficacy Trial of Caged *Aedes albopictus* by ULV Aerial Application of Phenothrin Using a Drone ◆ Red Imported Fire Ant Management in Taiwan
12:30–13:00	◆ M&A in a Post Pandemic World ◆ Urban Bird and Bat Management in Malaysia
14:00–15:30	◆ SPONSOR SPEECHES

15:50–16:20	◆ Pest Management Requirements from Client's Perspective ◆ Darwinism of the Business of Managing Pests - ‘Unpacking’ the COVID Effect -
16:20–16:50	◆ Strategies for Managing Stored Product Pests in Food Manufacturing Facilities ◆ Digitalising Business Processes in Pest Management Companies
16:50–17:20	◆ Pest Management Concept from the Perspective of ICH Q9 Quality Risk Management ◆ Building a Pest Management Business Sustainable for Generations
17:20–17:50	◆ Closing Ceremony

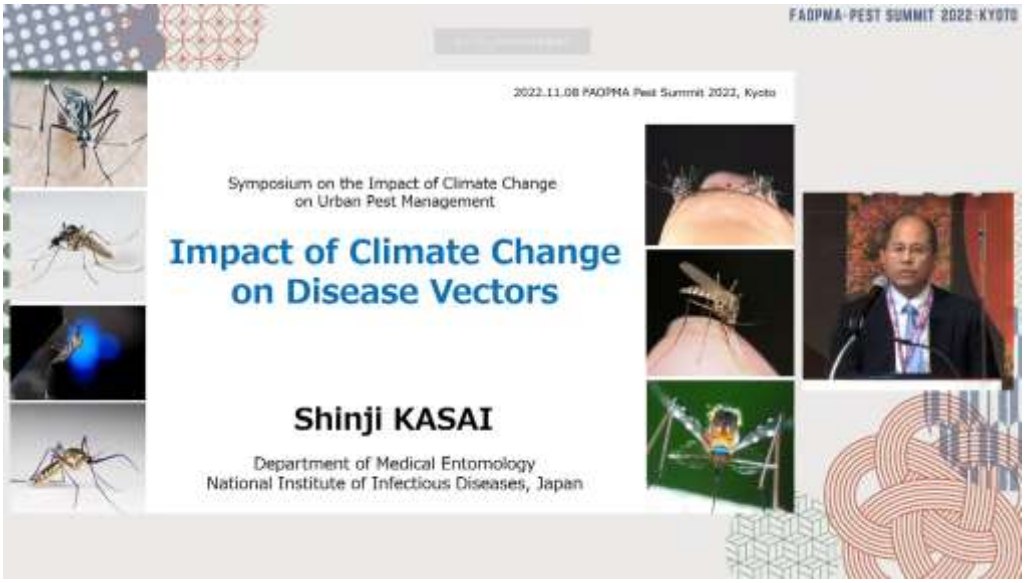
四、視訊會議參與情形

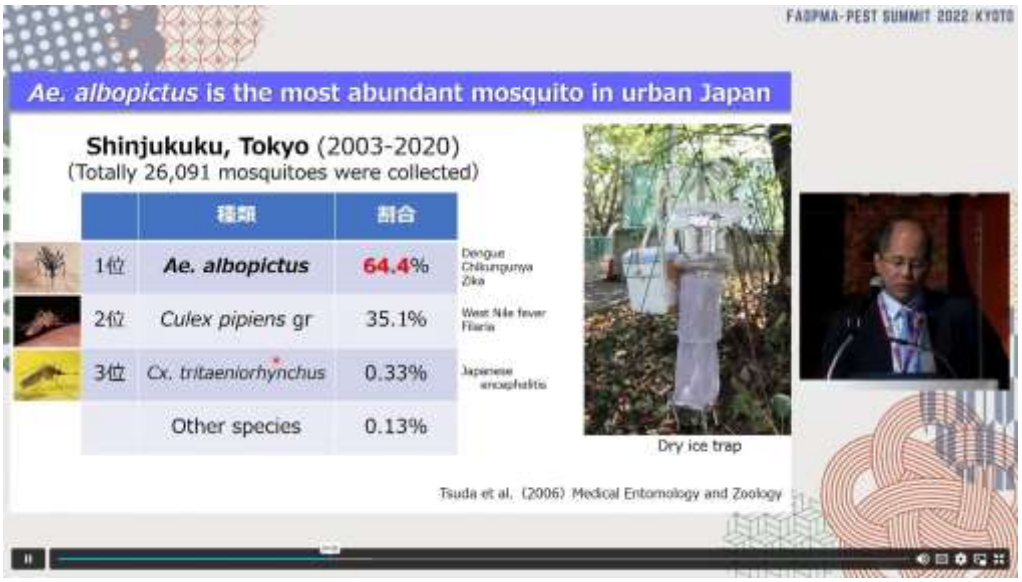

FAOPMA-PEST SUMMIT 2022 KYOTO JAPAN
FAOPMA-
PEST SUMMIT
2022 KYOTO

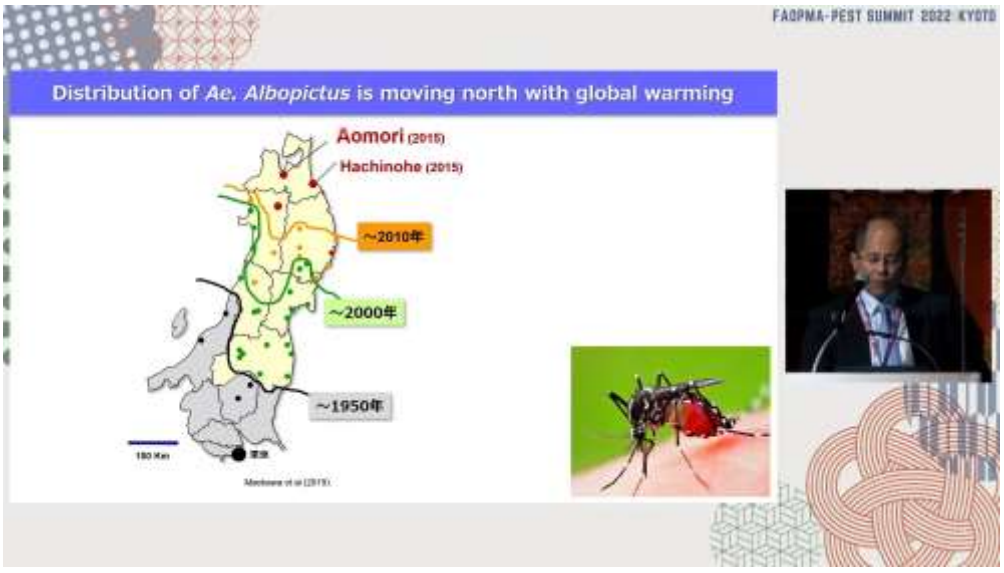

JAPAN PEST CONTROL ASSOCIATION
JPCA
FAOPMA

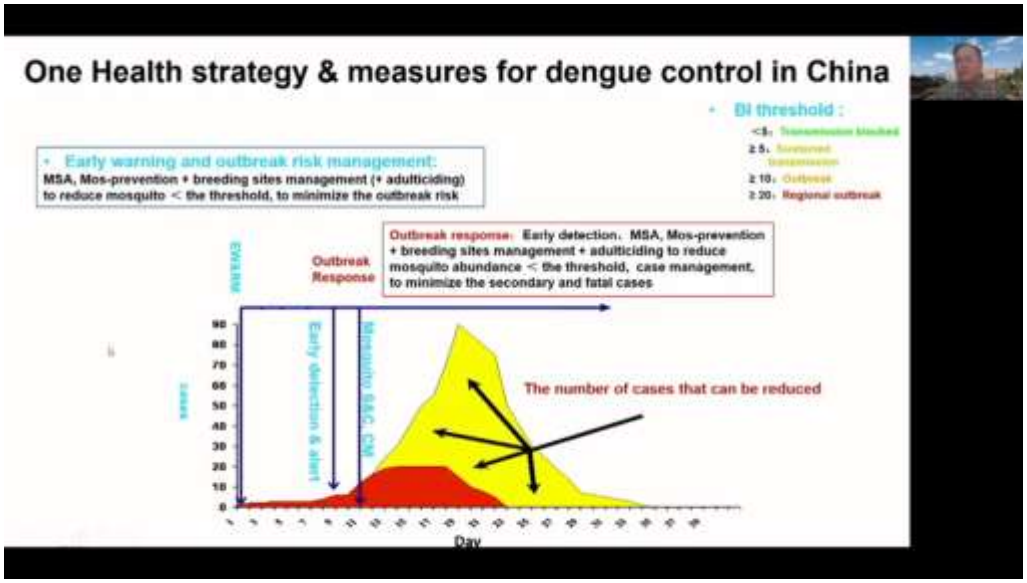

FAOPMA-
PEST SUMMIT
2022
KYOTO
JAPAN

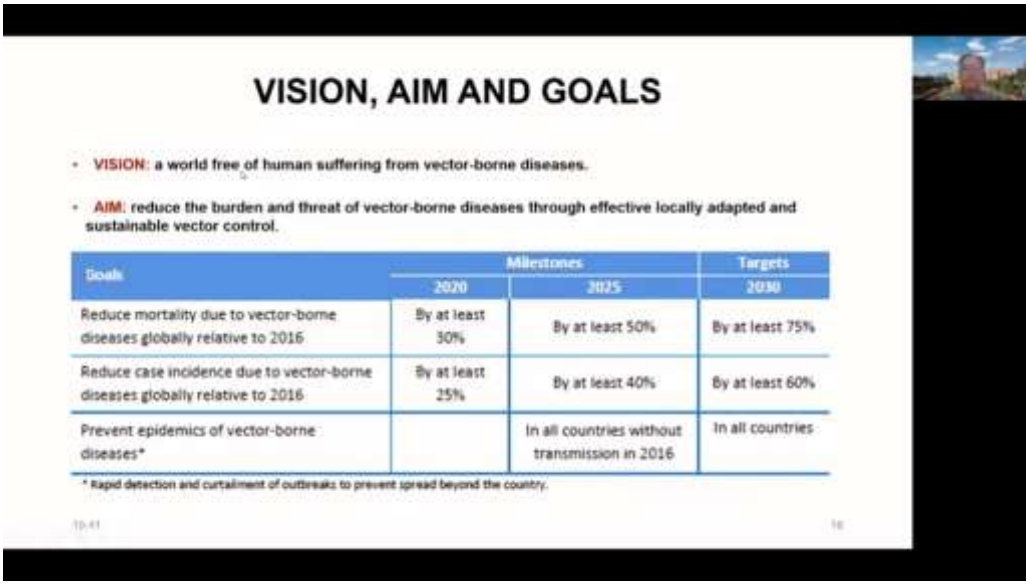

JAPAN PEST CONTROL ASSOCIATION
JPCA
FAOPMA


FAOPMA-PEST SUMMIT 2022 KYOTO
2022.11.08 FAOPMA Pest Summit 2022, Kyoto
Symposium on the Impact of Climate Change
on Urban Pest Management
Impact of Climate Change
on Disease Vectors
Shinji KASAI
Department of Medical Entomology
National Institute of Infectious Diseases, Japan


FAOPMA-PEST SUMMIT 2022 KYOTO
Ae. albopictus is the most abundant mosquito in urban Japan
Shinjukuku, Tokyo (2003-2020)
(Totally 26,091 mosquitoes were collected)
種類
割合
1位
Ae. albopictus
64.4%
Dengue
Chikungunya
Zika
2位
Culex pipiens gr
35.1%
West Nile fever
Filaria
3位
Cx. tritaeniorhynchus
0.33%
Japanese encephalitis
Other species
0.13%
Dry ice trap
Tsuda et al. (2006) Medical Entomology and Zoology


FAOPMA-PEST SUMMIT 2022 KYOTO
Distribution of Ae. Albopictus is moving north with global warming
Aomori (2015)
Hachinohe (2015)
~2010年
~2000年
~1950年


One Health strategy & measures for dengue control in China
BI threshold :
Early warning and outbreak risk management:
MSA, Mos-prevention + breeding sites management (+ adulticiding) to reduce mosquito < the threshold, to minimize the outbreak risk
Outbreak response: Early detection, MSA, Mos-prevention + breeding sites management + adulticiding to reduce mosquito abundance < the threshold, case management, to minimize the secondary and fatal cases
Outbreak Response
Early detection & alert
Mosquito BAC, CM
The number of cases that can be reduced
cases
Day


VISION, AIM AND GOALS
VISION: a world free of human suffering from vector-borne diseases.
AIM: reduce the burden and threat of vector-borne diseases through effective locally adapted and sustainable vector control.
Goals
Milestones
Targets
2020
2025
2030
Reduce mortality due to vector-borne diseases globally relative to 2016
By at least 30%
By at least 50%
By at least 75%
Reduce case incidence due to vector-borne diseases globally relative to 2016
By at least 25%
By at least 40%
By at least 60%
Prevent epidemics of vector-borne diseases*
In all countries without transmission in 2016
In all countries
* Rapid detection and curtailment of outbreaks to prevent spread beyond the country.


FAOPMA-PEST SUMMIT 2022 KYOTO
Emergency fly management operation

Thailand Pest Management Association

AI based real time monitoring system

18,131 deaths, 2,829 missing

What are the drivers of insects in the urban environment?

Climate drivers

- Increased atmospheric CO_2 level
- Temperature
- Changing rainfall patterns

Non-climate drivers

- Urbanization
- Global travel and trade
- Ecosystem degradation
- Insect control efforts
- Insecticide resistance

*It is important to note that **besides climate change**, there are other factors that drive insect increase in the urban environment.*

FAOPMA-PEST SUMMIT 2022 KYOTO

What we shall see with urban pests with climate change

- Pests become **active earlier** in the year and more **pest generations per season**.
- Pest **population sizes** increase, especially later in a season.
- Outdoor occasional invaders and other pests will **enter homes** more often due to larger pest populations and extreme temperatures (driving pests indoor seeking for moisture, food and cooler temperature).
- **Range expansion** (to further north [northern hemisphere], or further south [southern hemisphere]).
- The **number and frequency** of invasive species will increase.
- **Medically important insects** will become more important as their ranges and populations increase.

FAOPMA-PEST SUMMIT 2022 KYOTO

Climate change and mosquitoes

- There are numerous reports on climate change impact on the changing distribution of disease vectors.
- *Ae. aegypti* that was previously limited by temperature to ~1000 m elevation has been recorded at 1700 m in Mexico and 2200 m in the Andes in Columbia (Epstein 2004).
- *Ae. nigripes* (Artic mosquito) emerged 2 weeks earlier in warmer spring temperature, reducing predation by aquatic predators, and increasing survival rate. It is predicted that 2°C warming will increase their survival probability by 53% (Culler et al. 2015).


KETCH-ALL
A&W
ROOT BEER


How to Remain Sharp
Use High Quality Baits and Traps
Sensors + Rodent P
New tech.
New te

五、會議重點摘錄

（一）氣候變化對城市害蟲管理影響：

藉由 Stephen Doggett 博士、Partho Dhang 博士、Shinji Kasai 博士、Chow-Yang Lee 博士、Stephen Doggett 博士等，探討氣候變化對疾病媒介影響、城市害蟲影響與如何面對氣候變化影響蟲害防治問題，可了解其中氣候變化溫度影響昆蟲發育生存繁殖擴散分布，且溫度升高 2 度可能使昆蟲繁殖增加(蚊子隨溫度 2 度增加 52%生存率，螞蟻最大生長率為 28%)，城市受蟲害影響與氣候變化研究關係，也發現極端氣候使蟲害為尋求食物入侵人類生活環境，伴隨氣候因素入侵頻率與物種越來越多(如白蟻、蚊子、螞蟻)，有趣發現不受溫度影響城市蟲害(如衣魚、貓蚤)，因為這些蟲害已居住存在於人類生活環境，另外研究發現氣候異常對建築物也是有影響，異常降雨導致黴菌聲生長影響建築物，大水影響環境蟲害入侵人類生活環境(如白蟻)，目前世界約有 12 至 13 種高度入侵頻品種，且仍在持續增加中，且隨溫度上升對於防治蟲害藥劑效果因溫度增加而下降(如防治白蟻為例)，因野外防治過程因降雨導致藥劑因雨水而稀釋降低防治效能，可能因此使防治蟲害專業人員增加藥劑使用量，伴隨環境汙染問題，透過蟲害習性或季節採誘捕方式，將藥劑由害蟲帶回巢穴分食達防治效果，同時減少藥劑使用。未來要減碳或達碳中和目標同時需要廠商配合協助，如減少一次性消耗品、增加綠能或資源循環等。

（二）日本害蟲防治管理(農藥作物方面)：

日本農地面積佔全國總體面積 12%。從國際間 2018 年所做的全球農地面積排 行比較，日本位居全球第 59 名(全球居冠為印度-1 億 7 千萬公頃，其次美國 1 億 6 千萬公頃)，另根據聯合國糧食及農業組織（FAO，Food and Agriculture Organization）調查顯示，日本每公頃農藥使用量為 11.84kg，位居全球第 13 位，相較於前述農地面積比例上來看， 日本農藥使用量比起農業大國的美國 2.54 kg，法國 4.45 kg 等高出許多，故日本有高度仰賴農藥的使用習慣。

IPM 病蟲害綜合管理係為農藥作物生長重要策略之一，其目標主要強調健康作物的生長，盡可能減少對農業生態系統的破壞。另採取以不同手法管理模式進行病蟲害預防與診治。其主要分為耕作防治、物理防治、生物防治、化學防治等四種防治方法，如下：

1. 耕作防治：從栽培管理到病蟲害的防治方法。栽培管理到病蟲害的防治方法。例如：栽種抗病蟲害優良品種、施行輪作、農場的衛生管理、土壤管理等。

2.生物防治：利用生物農藥（天敵製劑、微生物製劑）驅除害蟲，防止病蟲害方法。

3.化學防治：利用農藥（非天敵製劑 、微生物），病蟲害與雜草防治方法。

4.物理防治：利用驅蟲網、誘黏板等物理性屏障，防治害蟲與除草。

（三）病媒防治管理政策-登革熱：

新加坡位於東南亞，國土面積狹小，人口稠密，一但有病媒害蟲出現，便容易導致疫病擴散。新加坡政府為避免病媒疫病傳播，近年重視環境衛生及病媒防治技術應用，並積極研發病媒防治新興技術。新加坡氣候型態及人口密度與我國較為相近，均有登革熱傳染病防治及環境居家害蟲防治之問題，該國正積極推動沃巴克氏菌防治登革熱病媒蚊新技術。

新加坡是由當地國家環境局執行病媒的監測跟控制，其對登革熱的防治策略可分為病媒的監測與控制、法令規範及衛生教育宣導等三大項。

在新加坡，環境管理與從源頭減少病媒蚊是病媒防治基礎。使用殺蟲劑是病媒控制的重點工作之一，特別是針對登革熱的爆發和群聚疫情管理尤其重要。在噴藥部分是委由當地病媒防治業執行，除戶外環境較為髒亂或成蚊指數較高，會執行戶外噴藥外，其原則主要以噴灑戶內周遭環境為主。

(四) 在 2020 十年期間保持嚙齒動物害蟲管理的科學敏銳度：

全球的嚙齒動物數量還在增加，當今的嚙齒動物控制更具挑戰性，FAOPMA 專業人員必須足智多謀、富有創新精神、精通技術，並在開始工作之前以強烈的動力進行嚙齒動物研究，以進行更高級別的評估。相關問題包括：1.人口增加與傳播，2.可能疫情反彈，3.大流行後的重新分配，4.許多齧齒類動物天生就是循環的，以及 5. 嚙齒動物種群的許多部分是我們無法接觸到的（它們取代了我們消滅的部分）。我們必須在我們的科學和我們的專業實踐中保持敏銳。針對城市老鼠和鼠群繁殖率：目標為減少 96%。

依據獸醫學雜誌(The journal of Vecterinary Medical Science)一篇「對新事物漠不關心的野生褐家鼠的存在」(Existence of wild brown rats (Rattus norvegicus) that are indifferent to novel objects)，「我們的研究證明，當其他一切都對它們有利時，它們群體中的一些野生挪威老鼠完全無視它們覓食範圍內它們不熟悉的任何東西」。如何有效抑制鼠患，鮑比·科里根博士認為目前仍以使用高質量的誘餌和陷阱為主，包括兩大原則：1.如果可能，消除他們的食物來源，盡可能地去除齧齒動物的替代食物，2.誘餌和陷阱放置在嚙齒動物會找到設備的正確位置；這都需要更新傳感器及新技術

的搭配。

（五）一個健康世界的永續害蟲管理

根據世界衛生組織 (WHO，World Health Organization) 的報告，世界上 80% 的人口面臨一種或多種媒介傳播疾病 (VBD，Vector Brone Disease) 的風險，全球 17% 的傳染病負擔和超過 700,000 例死亡是由 VBD 造成的。近年來，氣候和環境變化、全球化、城市化、殺蟲劑抗藥性、人類行為改變等對害蟲治理提出了新的挑戰，對人類的健康和福祉造成不利影響。

為了有效適應全球變化，害蟲管理策略也在不斷變化。這概念已經從綜合蟲害管理 (IPM，Integrated Pest Management) 轉變為永續蟲害管理 (SPM，Sustainable Pest Management)，以提供最佳解決方案。IPM 是一種基於科學的戰略方法，用於管理昆蟲、嚙齒動物或其他媒介。它使用各種害蟲管理技術，重點是害蟲預防、減少害蟲、消除導致病蟲害的條件。綜合病媒管理 (IVM，Integrated Vector Management) 是 IPM 的關鍵組成部分。儘管 IPM 是一種全面的害蟲防治方法管理，其明顯的缺陷是缺乏規劃和系統化害蟲管理，更多地參與方法的技術細節，以及時間和耗能。因此，迫切需要一種創新的害蟲治理理念，指導害蟲管理實踐。

SPM 強調通過害蟲監測、風險評估和警報、控制計劃、良好的害蟲控制實踐、監測和評估。 它結合了一系列害蟲管理實踐，包括明智地使用殺蟲劑以確保我們的為子孫後代有效利用和保護自然資源。它還解決了可用的和新的害蟲防治產品和做法的經濟可行性，以及蟲害管理的計劃性和系統性。

以中國登革熱管理的埃及斑蚊控制為例。SPM 指導下的登革熱控製過程如下：首先，進行埃及斑蚊及時有效的監測；第二，進行可行性風險評估和埃及斑蚊和登革熱的控制計劃；第三，選擇環保技術採取綜合措施，實施以監測為基礎的埃及斑蚊控制和管理。在此過程中，開展多部門協作和公眾參與的協調活動，將埃及斑蚊密度抑制在登革熱傳播的閾值（Breteau 指數或 Mos-ovitrap 指數<5）。 這個方法促進了從被動應對疫情到主動降低疫情風險的轉變中國的埃及斑蚊傳播疾病。

參、心得及建議

一、心得

（一）會議開幕式邀請日本前首相菅義偉、京都府知事、日本相關國會議員致詞，並有主管機關厚生勞動省給予賀詞。會議邀請相關專家演講包括：蟑螂、臭蟲、螞蟻、白蟻、火蟻、嚙齒動物的控制與管理、綜合管理，以及氣候變遷對城市病蟲害管理的影響等主題，並有相關環境衛生殺蟲劑業者及病媒防治業者參與展覽。

（二）會議主題演講為「不斷變化的無國界世界中的害蟲管理」，在一般人的想法裡，每個行業都不一樣，所以行業間肯定有邊界，但災難是沒有邊界，因為它隨時可能發生，而當災難發生後，所衍生的環境衛生，正是人們要積極處理的，所以物聯網、高科技監控系統，在未來將有高效率處理災難後的環境衛生害蟲的問題。

（三）嚙齒動物害蟲管理在滅鼠方面要保持科學的敏銳度並不容易，鼠類廣佈於全球範圍，以目前的防治方法設置鼠餌站、誘餌與鼠類行為的轉變，都有可能在傳統防治上造成一些阻礙，所以未來病媒防治專業人士需要更多的創新、精通技術及科學的評估進行鼠類的防治。

（四）在一個健康世界的持續害蟲管理(Sustainable Pest Management)，主要強調通過害蟲的監測、風險評估及警報、控制規劃及持續的病媒防治管理，以預防病媒傳播疾病。

（五）評估德國蟑螂在美國低收入公共住宅的控制管理，在過去的幾十年裡，雖然這些住宅有害蟲綜合管理計畫，但對這些住宅都沒有足夠時間評估害蟲的規模及監測，所以這些計畫都沒有成功。如果在害蟲綜合管理計畫有詳細瞭解防治場所害蟲的情形及對害蟲嚴密的監測，並使用適合防治技術，就可有效防治害蟲。

（六）在美國害蟲管理專業人員過度依賴且頻繁使用噴霧殺蟲劑及誘餌劑，導致德國蟑螂產生了抗藥性，尤其是擬除蟲菊酯類（如百滅寧）、苯基吡唑（如芬普尼）及新菸鹼類（如益達胺）。要減緩抗藥性產生，可輪替使用不同的藥劑，或者依德國蟑螂不同世代，使用不同作用方式的殺蟲劑。

（七）臭蟲(Cimex lectularius 和 Cimex hemipterus)抗藥性的介紹，一旦殺蟲劑進入臭蟲體內就可以分解的一系列酶，以及阻止殺蟲劑作用於目標位點的突變，所以臭蟲的防治不可能依靠任何一種殺蟲劑，而是必須採取綜合防治及監控計畫，而非單純的化學防治方法。

（八）科學提供給害蟲管理者大量的白蟻訊息，由於科學的進步與發展，以及病媒防治的經驗，提供了相關研究，於是新的殺蟲劑、使用工具應運而生，並且在不斷的改進，以更有效的達到防治的效果。

（九）在日本白蟻防治依據不同的白蟻種類，給予不同的防治方式，例如 *R. speratus* 和 *C. formosanus* 防治是依據《白蟻防治標準》規定，採用土壤處理和木材處理的防治方式，而 *I. minor* 和 *C. domesticus* 的防治則採用日本白蟻防治協會制定的"乾木白蟻綜合管理體系"進行防治。

（十）氣候變化對於生態系統、糧食安全及對水資源造成影響，甚而對人類的生存造成威脅，而溫度變化可能會影響昆蟲的繁殖力及發育，對昆蟲的生存、活動、分佈及行為也是最為關鍵的因素，例如日本在經過 20 年的調查，發現氣候變化使得白線斑蚊已逐漸向本日北方移動，這意味著登革熱病媒蚊廣泛分佈在日本的風險區域正在擴大，由於日本冬天天氣寒冷，所以埃及斑蚊目前並沒有棲息在日本，但因氣候的變化，他們也在關注埃及斑蚊入侵日本。

（十一）透過年會由專家演講在其國家對於環境害蟲在不同場所的監測、藥劑使用及防治技術、病媒防治業面對科技發展可能影響未來防治技術、殺蟲劑對害蟲的抗藥性、氣候變化對於病媒害蟲及病媒防治業的影響、病媒防治管理公司成功的案例等內容，可瞭解藉由害蟲的監測、風險評估、控制規劃及害蟲防治，以降低傳染病發生之可能性，維護人體健康及環境衛生，除此之外，也促進產、官、學各界相互間的交流。

二、建議事項：

（一）邀請病媒防治工作之環保、衛生、農政等政府機關人員參加，以強化專業知識、提升防治技術及相互交流。

（二）持續關注氣候變遷對環境衛生病媒生態之影響，並配合「氣候變遷因應法」，挹注環境用藥及病媒防治技術相關研究資源，以避免氣候變遷而影響環境衛生病媒控制。

（三）可於國內辦理病媒防治技術研討會，透過研討會提升病媒防治業者防治技術及專業智能，也可使國內環境用藥業者瞭解病媒防治情形，以提供研發新配方的藥劑。

（四）未來可續參與該類國際會議，以汲取病媒防治管理與相關最新防治技術。

JAPAN PEST CONTROL ASSOCIATION JPCA

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PEST MANAGEMENT IN THE EVER CHANGING, BORDERLESS WORLD

変化し続ける境界なき時代のペストマネジメント

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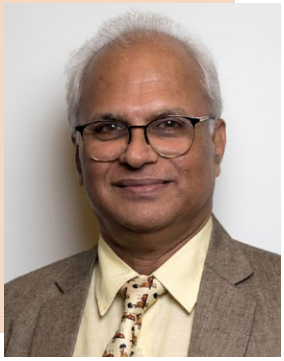

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Japan Pest Control Association (JPCA)

KENJIRO YAMAGUCHI

President of Japan Pest Control Association (JPCA)

Ladies and Gentlemen

Let me begin by expressing my sincere thanks to all of you from around the world for joining us here at the FAOPMA-Pest Summit 2022 in Kyoto. Twenty years ago, the Japan Pest Control Association held the FAOPMA General Meeting in Yokohama, and its theme was "Coexistence with the environment." A key topic of discussion at this meeting was the establishment of international standards for pest control in addition to other issues such as the growing severity of global environmental issues in the 21st century, the globalization of economic activity, the IT revolution, and the need to create a society that can adapt to change.

The Kyoto International Conference Center, where we are today, is where the Kyoto Protocol, which paved the way for the 2020 Paris Agreement, was adopted in 1997.

Against the backdrop of continued globalization, the time is now right for us to come together to find cross-border solutions to the common challenges that we face. These challenges include the current economic crisis and food supply issues caused by the actions of one particular country, the need for global standards for controlling infectious diseases, and the promotion of the SDGs to prevent destruction and encourage conservation of the global environment. Now, as the pest control industry gathers here to revisit the theme of the Yokohama meeting 20 years ago, "Coexistence with the Environment," we look forward to a fruitful and informative Kyoto summit.

The theme of this particular conference is "Pest Management in the Ever-Changing Borderless World". It is our role to create a society in which citizens can live with peace of mind.

The WHO declared a pandemic in response to the global spread of COVID-19, and this has led may countries to impose restrictions on cross-border travel. For this reason, the 2020 and 2021 summits were held online, and the conference scheduled to be held in Nagoya, Japan, was canceled. However, thanks to the hard work of the FAOPMA Executive Committee and the Japan Pest Control Association Organizing Committee, we are delighted to be able to welcome you to Kyoto for the first hybrid FAOPMA Summit.

I hope this will be a constructive summit that will provide a forum of discussion for the industry as it looks to navigate a path for the future.

We are profoundly grateful to the members of the Diet who act as advisors to our organization, and to all those in the Ministry of Health, Labor and Welfare who have given us their support in organizing this conference. In particular, I would like to thank former Prime Minister Suga, and Governor Nishiwaki of Kyoto. I would also like to extend our thanks to our sponsors for their generous support. We sincerely appreciate all your support and cooperation.

山口 健次郎

公益社団法人 日本ペストコントロール協会 会長

FAOPMA-Pest Summit 2022 京都大会に様々な国から多数ご参加頂き、心より御礼申し上げます。20年前、私達日本ペストコントロール協会は環境との共生をテーマに横浜でFAOPMA横浜大会を開催致しました。そこでは21世紀の地球環境問題の深刻化、経済活動のグローバル化、IT情報革命、そして、変化に対応出来る社会作りの必要性に加え、ペストコントロールの国際基準の確立なども話されました。

本日皆様にご出席頂きましたこの国立京都国際会館は、2020年パリ協定への道筋を示した京都議定書が1997年に採択された場所です。

全ての分野でグローバル化が進み、国境を越え、共通のテーマの解決に手を結ばなければならない時が来ています。一国が引き金を引いた経済危機や食料問題、そして感染症に対応する制御の世界基準の必要性、環境破壊や地球環境保全の為のSDGsへの取組など。参加各国のペストコントロール事業者達で、もう一度20年前のテーマ「環境との共生」を考え、成果のある京都大会にしたいと考えています。

私達が掲げた今大会のテーマは「変化し続ける境界なき時代のペストマネジメント」です。市民が安心して暮らすことの出来る社会作りは私達の役割です。

新型コロナウイルス感染症の世界的感染拡大にWHOはパンデミックを宣言し、多くの国が国をまたぐ行動を制限しました。その為2020及び2021年大会はオンラインによる開催となり、日本も予定されていた名古屋での大会は中止となりました。しかし乍ら、今般FAOPMA事務局や日本ペストコントロール協会開催実行委員会による開催に向けての努力の結果、ここ京都でFAOPMA大会初のハイブリッド開催が実現し、皆様をお迎え出来たことを大変嬉しく思っています。

本大会が有意義で、そして未来への道筋を示すことが出来る大会となりますことを願っています。

最後に、開会に際しお言葉を頂きました、菅前内閣総理大臣、西脇京都府知事はじめ、当協会顧問の国会議員の皆様、厚生労働省の皆様には、今大会を開催するにあたりご支援を頂きました。また、大会開催にあたりスポンサーの皆様にも多大なるご協力を頂いております。関係各方面からのご助力ご協力に深謝申し上げます。

祝　　辞

FAOPMA-Pest Summit2022京都大会が、盛大に開催されますことを心からお慶び申し上げます。

また、主催者である日本ペストコントロール協会の皆様のご尽力に敬意を表しますとともに、各国の皆様を心から歓迎いたします。

日本ペストコントロール協会の皆様には、日頃より一般家庭の害虫駆除から感染症の防疫まで幅広くご尽力いただき、快適な経済活動や暮らしをお支えいただいております。

そして何より新型コロナ対策に、まさに最前線で対応いただいております。

私自身、内閣総理大臣として約1年、新型コロナ対策を最優先に国民の命と暮らしを守り抜くために、全力で取り組んできました。新型コロナという人類が初めて直面する未知のウイルスとの戦いにおいて、混乱や不安もある中で、医療現場や救急車、介護施設など様々な場所で、使命感をもって消毒作業にあたっていただきました。皆様の活動があったからこそ、ワクチン接種や医療体制の確保などを進めることができ、感染者は減少、安心と賑わいのある日常に向け、大きな一歩を踏み出せたと思います。改めて、心より感謝申し上げます。

日本では50年程前からペストコントロール業が始まりました。経済成長するにつれ、人々の清潔な環境や健康への志向も高くなり、皆様は時代の要請に応えるために、技術力、専門性などを磨かれてきました。皆様のそうした日頃からの努力、そして業務の重要性が認識され、本年7月に国の日本標準産業分類上の位置づけとして、「ペストコントロール業」が新たな項目として立てられることが正式に決定されたものであります。

国際化した昨今、新型コロナなどの感染症やヒアリ等の侵略的生物には国境はありません。こうした世界で共通する課題に対して、日本をはじめ、本大会ご出席の各国のペストコントロール業界が情報共有し、連携を更に強化することで、国を超えて私たちの清潔な環境、安全安心の暮らしを守っていただけることを期待しています。

結びに、本大会の成功とFAOPMA-Pest Summitの今後益々のご発展を祈念し、お祝いの言葉とさせていただきます。

第99代内閣総理大臣
衆議院議員　菅 義偉

祝　　辞

FAOPMA-Pest Summit2022が、ここ京都において盛大に開催されますことをお祝い申し上げます。また、国内外からお越しいただきました皆様方を、京都府民を代表して心から歓迎いたします。

我々の周りには、ハエ・蚊・ねずみをはじめとする害虫・害獣やヒアリ・セアカゴケグモなどの外来生物、鳥インフルエンザや豚熱などの家畜伝染病、動物由来の感染症など衛生上の脅威が常に存在しています。また、近年は、激甚化・頻発化する風水害により浸水家屋や災害廃棄物の衛生対策などの課題もより深刻になっております。

このような中、公益社団法人日本ペストコントロール協会は、我が国における衛生行政の一端を担うことを目的に設立され、50年以上にわたり公衆衛生や環境衛生の向上のため、日々防疫活動に取り組まれてこられました。そのたゆまぬ努力に対しまして、深く敬意を表しますとともに、感謝を申し上げる次第であります。

さらに2019年以降、新型コロナウイルス感染症が世界中で猛威を振るい、人々を不安に陥れる中、貴協会や関係者各位におかれましては、専門的知識と御経験を活かし、宿泊療養施設等様々な施設において防除作業等に従事いただき、人々の安心安全に貢献いただいた功績は誠に多大であり、重ねて御礼申し上げます。

今後も世界的に人・物の交流が盛んになり、新たな感染症への不安が続く中、皆様方の果たされる役割はますます重要になってくると考えております。

京都府といたしましても、2025年に開催される大阪・関西万博などを見据え、国内外の皆様が安心して京都にお越しいただけるよう、感染対策を進め安心・安全で満足度の高い観光を実現できるよう取り組んで参りますので、皆様方の一層の御協力・御支援をお願いします。

結びに当たり、本大会の御成功並びに御出席の皆様方の御健勝と日本ペストコントロール協会のますますの御発展を祈念いたしまして私のお祝いの言葉といたします。

京都府知事　西脇 隆俊

祝　　辞

FAOPMA-Pest Summit 2022 京都大会に世界各国よりご参加いただきました皆様を歓迎し、国立京都国際会館において開催されることを心よりお慶び申し上げます。

FAOPMA-Pest Summit は、世界的な新型コロナウイルス感染症拡大の影響により、2020年、2021年はオンライン開催となるなか、今回は同大会として初となる集合とオンラインによるハイブリット開催とされました。前例のない取り組みにご尽力されたFAOPMAの皆様に心より敬意を表します。

2008年にFAOPMA大会として、第20回東京大会が開催されて以来の日本での開催となりますが、この間、日本では、口蹄疫、高病原性鳥インフルエンザや豚熱などの家畜伝染病、東日本大震災、熊本地震や豪雨等の自然災害の発生、港湾地区における特定外来生物ヒアリの初確認、そして、一昨年からの全世界で蔓延した新型コロナウイルス感染症の流行がありました。これらの困難に直面するたび、ペストコントロール協会の尽力と活躍があり、今後も、我が国の環境衛生・生活衛生と防疫活動には、ペストコントロール協会との更なる連携が欠かせないものと感じています。

今回のFAOPMA-Pest Summit2022京都大会のテーマは「変化し続ける境界なき時代のペストマネジメント」であります。アジア・オセアニア地域の皆様が一堂に会され、これからのペストコントロールについて、まさに境界を越えた国際間で技術・知識等の情報交換、交流の場として、本大会がペストコントロール業界の発展に果たす役割は大変顕著であります。

本大会が大きな成功を収め、ペストコントロール業界の益々の発展、並びにご参加の皆様の更なるご健勝とご活躍を祈念して、お祝いの言葉とさせていただきます。

公益社団法人 日本ペストコントロール協会 顧問
衆議院議員 小渕 優子

祝　　辞

FAOPMA-Pest Summit2022京都大会に各国からペストコントロール協会に関係される多くの参加者をお迎えし、盛会に開催されますことを心からお慶び申し上げます。

この3年間、新型コロナウイルス感染症のパンデミックにより全世界で多くの尊い命が失われ、この100年で最も深刻な健康・経済・安全保障上の被害が発生し、未だ完全終息の見通しも立っておりません。媒介生物も発生原因も正確には解明されていない中、感染症対策に長年取り組んでいるペストコントロール協会とアジア・オセアニア有害生物管理連合（FAOPMA）はそれぞれの国や地域で感染症対策に取り組まれ被災軽減に大きな役割を果たされたことに心から敬意と感謝を申し上げる次第です。

昨今、世界規模での気候変動や環境破壊、また国境を越えた人やモノの移動が拡大する中で有害生物の駆除や危険なウイルス感染症の予防対策などが人類共通の課題として益々重要になっています。こうした公衆衛生向上に向けた取り組みはもはや自国だけで完結できるものではなく、国際的な連携や情報交換の必要性は一層大きくなっております。

33回目を数える本大会が、この時代の要請に応えて大きな成果を収め、ご参加の各国の衛生水準の更なる向上と発展に資することを心から祈念申し上げ祝辞といたします。

公益社団法人 日本ペストコントロール協会 顧問
参議院議員 和田 政宗

祝　　辞

第33回アジア・オセアニア有害生物管理連合（FAOPMA）大会にご参加いただきました皆様を歓迎し、心からお祝い申し上げます。

皆様におかれましては、日頃から衛生水準の向上や環境保全活動に尽力され、快適な生活衛生の保持増進に寄与するとともに、健康的な生活の実現に大きな役割を果たされていることについて、心から敬意を表する次第です。

さて、ねずみや衛生害虫等は、さまざまな病原微生物を媒介し、人に感染症をもたらす恐れのあることから、住みよい生活環境を確保する上で、言うまでもなくその防除（ペストコントロール）が重要であります。

また、新型コロナウイルス感染症の世界的な感染拡大は、国民生活や社会経済活動に大きな影響を及ぼしており、我が国も大変厳しい状況に置かれています。ペストコントロールに従事する皆様方におかれましては、新型コロナ患者を受け入れる医療機関や宿泊療養施設におけるウイルスの消毒という場面でも御活躍いただくなど、社会活動の維持の観点から大変な貢献をいただいております。ねずみや衛生害虫等の防除の重要性は言うまでもありませんが、細菌やウイルスのペストコントロールという点でも、皆様の重要性はますます高まっているのではないかと考えております。

今回の大会は、2002年横浜、2008年東京に続く、3回目の日本開催と伺っております。「変化し続ける境界なき時代のペストマネジメント」をテーマに、アジア・オセアニア地域の皆様が一堂に会され、技術や知識等の情報交換が行われることは、誠に意義深いことです。今大会で得られた知見を持ち帰っていただき、それぞれの参加国・地域でのペストコントロールにお役立ていただけることを期待しております。

本大会が大きな成果を収め、アジア・オセアニア有害生物管理連合が益々発展されますとともに、本大会に参加された皆様方が今後とも御活躍されますことを祈念いたしまして、私の御祝いの挨拶といたします。

厚生労働省 大臣官房 生活衛生・食品安全審議官　佐々木 昌弘

Welcome Message from the President
Indonesia Pest Control Association (ASPPHAMI)

MUALLIF ZAINAL ASIKIN

President of Indonesia Pest Control Association (ASPPHAMI)

On behalf of the President of the Indonesia Pest Control Association (ASPPHAMI), I welcome and support the holding of the 2022 FAOPMA Pest Summit Conference in Kyoto Japan on 6th-8th November 2022 at the Kyoto International Conference Center, which will be held in Hybrid (Offline & Virtual), with the theme "Pest Management in the Ever Changing, Borderless world".

As we all know that with the decline in Covid-19 cases in various countries, the implementation of the 2022 FAOPMA Pest Summit in Kyoto, Japan, can begin to be carried out offline, although it is still combined with virtual (hybrid).

I express my high appreciation to the Japan Pest Control Association (JPCA) as the host and all the Pest Summit Organizing Committees who have worked hard to prepare this event well, so that this event can run smoothly and successfully.

I would also like to thank all the excellent speakers with their good and valuable materials.

Presentations from speakers and resource persons on technology and knowledge regarding urban pest management, strategies and leadership in business management, social and environmental responsibility, and others, will certainly be very interesting and useful for all participants.

I would also like to express my gratitude and appreciation to all sponsors who have made this event possible and successful.

Finally, to all participants, I would like to congratulate you on participating in this extraordinary conference, hopefully it can add insight and knowledge.

Thank you,

MUALLIF ZAINAL ASIKIN

Ketua Umum Asosiasi Perusahaan Pengendalian Hama Indonesia (ASPPHAMI)

Atas nama Ketua Umum Asosiasi Perusahaan Pengendalian Hama Indonesia (ASPPHAMI), saya menyambut baik dan mendukung diadakannya acara konferensi FAOPMA Pest Summit 2022 Kyoto Jepang, pada tanggal 6-8 Nopember 2022 di Kyoto International Conference Centre, yang dilaksanakan secara Hybrid (Offline & Virtual), dengan tema "Pest Management in the Ever Changing, Borderless world".

Sebagaimana kita ketahui bersama bahwa dengan mulai menurunnya kasus Covid-19 di berbagai negara, maka penyelenggaraan FAOPMA Pest Summit 2022 di Kyoto Jepang, mulai dapat dilaksanakan secara offline, meskipun masih dikombinasikan dengan virtual (hybrid).

Saya menyampaikan apresiasi yang tinggi dan penghargaan kepada Japan Pest Control Association (JPCA) sebagai tuan rumah dan seluruh panitia yang telah bekerja keras mempersiapkan acara ini dengan baik, sehingga acara ini dapat berjalan dengan lancar dan sukses.

Saya juga mengucapkan terima kasih kepada seluruh pembicara yang sangat luar biasa dengan materi-materinya yang bagus dan berbobot.

Presentasi dari para pembicara dan narasumber mengenai teknologi dan pengetahuan mengenai pengelolaan hama permukiman, strategi dan kepemimpinan dalam bisnis manajemen, tanggung jawab sosial dan lingkungan, dan lain-lain, pastinya akan sangat menarik dan bermanfaat untuk seluruh peserta.

Ucapan terima kasih dan penghargaan saya sampaikan juga kepada seluruh sponsor yang telah memungkinkan acara ini berjalan dengan baik dan sukses.

Terakhir, kepada seluruh peserta, saya mengucapkan selamat mengikuti acara konferensi yang luar biasa ini, semoga dapat menambah wawasan dan pengetahuan.

Terima kasih,

Welcome Message from the President
Indian Pest Control Association (IPCA)

UDAY MENON
President of Indian Pest Control Association (IPCA)

Greetings from the Indian Pest Control Association!

It gives me immense pleasure to wish the upcoming FAOPMA Pest Summit at Kyota, Japan the very Best. May the Convention achieve greater heights by way of participation and worthy contents.

As a founder member of FAOPMA , IPCA had always received guidance and support from the Federation and our members were always looking forward to the Pest Summit's where immense knowledge were shared. Hope the upcoming summit will excel above its predecessors.

Our Indian Pest Management Industry has been growing at a rapid phase in the last couple of years. Our growth has been both quantitative as well as qualitative. With more and more Pest Control Operators opting to join the organised sector the quality of services has also seen a positive transformation.

IPCA had actively partnered with the National Institute of Rural Development & Panchayati Raj a pivotal organization of Government of India, in rural development activities, and initiated employability and skill based vocational training programs in pest and vector management targeting Rural & Urban youth. The objectives were to identify vocational training programs to the different levels of personnel – Technician level, Supervisory level and Entrepreneurs' level in Pest/Vector management & Fumigation and on a project mode prepared certification and assessment standards, Qualification Packs for 8 levels of Pest Management sectors and curricula for the Qualification Packs, lesson plans, teaching and learning materials and teaching manuals To build capacity in development of competency standards, qualification packs, course curricula, learning material and assessment standards in the country.

We are now thrilled to announce that these Qualifications have now become National Standards and has been aligned with our National Skill Qualifications. And it will now be our endeavour to extend the scope of these qualifications to other FAOPMA member Nations and am sure that together we shall achieve the same.

Once again extending our wishes for the success of Kyoto summit.

Warm Regards

Welcome Message from the President
Korea Pest Control Association (KPCA)

Byung-Woo Kim
President of Korea Pest Control Association (KPCA)

Dear Chairman Suchart Relayoutthiotin and all FAOPMA members, professional pest management officers, colleagues, and friends!

It is a pleasure to finally meet you all in Japan, where the FAOPMA Summit 2022 will be held.

It is even more nice to see you again in a healthy state despite the difficult situation due to COVID-19. The past two years of COVID-19 may have been a time to realize how important our pest management services are in preventing COVID-19. The world is now in chaos due to the coronavirus, but before that, we were exposed to various kinds of pests. And sooner or later, there will be a new disease in the world that needs our help. Although COVID-19 has caused many deaths around the world, on the other hand, it is thought that it has also led to the development of disinfection technology. We must always be prepared for new diseases and pests. For this, continuous disinfection and pest management technology development is required, and education and training are required to properly apply them to the prevention. I have no doubt that this meeting will greatly contribute to the development of each other's pest industry. I think the meeting in Japan will be of great help in sharing information for the prevention of various infectious diseases including COVID-19 and promoting pest control and disinfection technologies. Finally, I sincerely wish for the success of this FAOPMA General Assembly in Japan, and I wish all of you good health in your lives.

Thank you

Byung-Woo Kim
President of Korea Pest Control Association (KPCA)

친애하는 Suchart Relayoutthiotin 회장과 모든 FAOPMA 회원, 전문 해충 방제 담당자, 동료 및 친구 여러분!

FAOPMA Summit 2022가 열리는 일본에서 이렇게 만나게 되어 반갑습니다. 코로나19로인해 힘든 상황 속에서도 건강한 모습으로 다시 뵙게 되어 더욱 반갑습니다. 코로나19가 발생한 지난 2년은 코로나19 예방에 있어 우리의 방역 활동이 얼마나 중요한지 깨닫는 시간이었을 것입니다. 지금 전 세계가 코로나 바이러스로 혼돈에 빠져있으나 그 전까지만 해도 우리는 다양한 종류의 해충에 노출되어 있었습니다. 그리고 조만간 세상에 우리의 도움이 필요한 새로운 질병이 생길 것입니다. 코로나19가 전 세계적으로 많은 사망자를 냈지만, 한편으로는 소독 기술의 발전도 가져다 주었다고 생각됩니다. 우리는 항상 새로운 질병과 해충에 대비해야 합니다. 이를 위해서는 지속적인 소독 및 해충방제 기술개발이 필요하며, 이를 방제현장에 적절하게 적용할 수 있도록 교육훈련이 필요합니다. 이번 만남이 서로의 소독기술 발전에 큰 기여를 하리라 믿어 의심치 않습니다. 일본에서의 만남은 코로나19를 비롯한 다양한 감염병 예방에 필요한 정보를 공유하고 방역기술을 홍보하는데 큰 도움이 될 것이라고 생각합니다. 끝으로 이번 일본 FAOPMA 총회의 성공을 진심으로 기원하며, 여러분 모두의 삶에 건강이 함께 하시기를 기원합니다.

Welcome Message from the President

Pest Control Association of the Philippines (PCAP)

Jess M. Asistin
President of Pest Control Association of the Philippines (PCAP)

Long Live!!!, May I greet all the officers, leaders and the entire organization of Federation of Asia and Oceanic Pest Manager's Pest Summit a very fruitful and blessedly day and Congratulations for a job well done. It is an honor that the Pest Control Association of the Philippines is one of the active members of the FAOPMA Pest Summit.

Jess M. Asistin
President of Pest Control Association of the Phils (PCAP)

Mabuhay!!!, Bumabati ako sa lahat ng mga opisyales, namumuno at bumubuo ng Federation of Asia and Oceanic Pest Manager's ng isang masagana at mapagpalang araw at congrats sa maayos na trabaho. Isang malaking karangalan na mapabilang ang Pest Control Association of the Phils bilang isang aktibong miembro ng FAOPMA Pest Summit.

Welcome Message from the President
Pest Exterminators Association of the Philippines (PEAP)

Clark Henry P. De Paz

President of Pest Exterminators Association of the Philippines (PEAP) -2021-2022

Hello Everyone!

Greetings of success from the Philippines for the 2022 FAOPMA Pest Summit which will be held in Kyoto Japan this coming November 6 to 8 this year.

After the two-year pandemic, our industry continues to fight and rise, and we embrace the opportunities that lie ahead. New knowledge was discovered and learned, and of course, most of all benefited.

The gathering of the FAOPMA Pest Summit is one of the open doors granted to each of its members to have a chance to learn innovative technologies, and methodologies which is our main weapon facing the future of our industry.

In addition, we are glad to personally meet each member, officers, and friends are from different countries, and of course the pest control operators that we have met via zoom and online meetings in the past two years where some of us are sometimes are in lockdown. We are excited to hear your stories of victory which can inspire others

Let us claim the end of this pandemic so that every fear can be replaced by hope, and every doubt with joy, above all the care and peace be upon us.

At the end, My request to everyone is to remain grateful to the divine God Creator whom main center for the success of this gathering.

Thanks, be God!

Clark Henry P. De Paz

President of Pest Exterminators Association of the Philippines (PEAP) -2021-2022

Mabuhay!

Pagbati ng tagumpay mula sa Bansang Pilipinas para sa taon 2022 FAOPMA Pest Summit na gaganapin sa Kyoto Japan ngaun darating na Nobyembre 6 hanggang 8 taong kasalukuyan.

Pagkatapos ng dalawang taon pandemya na nag daan, ang ating industriya ay patuloy na lumalaban at bumabangon, gayun din ating niyayakap ang nakahandang oportunidad sa kinabukasan. Mga bagong kaalaman ay nabuksan at natutunan, at syempre higit sa lahat ay napakinabangan.

Ang pagkakatipong ng FAOPMA Pest Summit ay isa sa bukas na pintuang ipinagkaloob sa bawat miyembro nito na namatuto ng mga makapanibagong teknolohiya at metodolohiya na siyang pangunahin nating sandata sa pagharap sa kinabukasan ng ating industriya.

Karagdagan dito ay lubos ang aming kagalakan na makilala din ng personal ang bawat miyembro, mga opisyales at mga naging kaibigan na mula sa ibang bansa pangunahin na ay ang mga pest control operators na aming nakilala via zoom at online meetings sa nag daang dalawang taon kung saan ang ilan sa atin kung minsan ay naka lockdown pa. Kami ay nasasabik marinig din ang inyong mga kwento ng pag pagbangon upang ito naman ay maging inspirasyun para sa marami.

Ating ariin ang katapusan ng pandemya upang ang bawat takot ay mapapalitan ng pag asa, at bawat pangamba ay maging saya, higit sa lahat ang pag iingat at kapayapaan ay manatili sa isa't-isa.

Katapustapusan, ang aking palagiang kahilingan para sa lahat ay ang manatiling maging mapagpasalamat sa Dakilang Lumikha na siyang pangunahing sentro sa matagumpay na pagkakatipong ito.

Salamat po sa Dios!

Welcome Message from the President

Singapore Pest Management Association (SPMA)

Albert Lee
President of Singapore Pest Management Association (SPMA)

On behalf of the Singapore Pest Management Association (SPMA), I welcome all pest management professionals, government officials and academics to the 2022 FAOPMA Pest Summit Conference in Kyoto Japan on 6th-8th November 2022 at the Kyoto International Conference Center.

This year's theme being "Pest Management in the Ever Changing, Borderless world", I look forward to learning the latest technology and strategies from top industrial, government and academic scientists on the presentation topics.

I hope all participants will benefit from the excellent programme and networking opportunities. I also look forward to the sharing of experiences and to synergise with all as one international body to overcome these trying times. The backdrop of the beautiful and culture-rich city of Kyoto will add to the pleasure of the conference and provide long-lasting memories beyond the science.

Lastly, I add my wishes for a successful and fruitful conference, and extend my upmost appreciation and full support to the host, Japan Pest Control Association (JPCA), and the Pest Summit Organizing Committee who worked tirelessly behind the scenes to set up this conference.

Thank you,

Welcome Message from the President
Taiwan Environmental Pest Management Association (TEPMA)

Hsiu-Hua Pai
President of Taiwan Environmental Pest Management Association (TEPMA)

On behalf of Taiwan Environmental Pest Management Association, we are delighted to welcome you to Kaohsiung, Taiwan in the coming year. The FAOPMA-Pest Summit 2023 is coming up in 10 months, following the significant success of FAOPMA PEST SUMMIT 2022 KYOTO JAPAN. In 2023, we will present to you the outstanding achievements from brilliant participants in Taiwan.

It is our honor to have this opportunity for showing the beauty of Taiwan. Taiwan have earned a reputation name "Formosa" is what the Portuguese called beautiful island when they came to Taiwan in 16th century. Surrounding by sea, Taiwan located at the western edge of the Pacific Ocean where situates between Japan and Philippines, and forms a tropical and subtropical island climate. It has been abundantly endowed with mountains; over 200 of its peaks are more than 3,000 meters above sea level, making a geographically unique. Attribute to the amazing environment, Taiwan contains numerous endemic species and encompassing biodiversity.

Kaohsiung is a southern city of Taiwan, where is the holding place located on the coming up conference next year. Kaohsiung has several tourist sites for all visitors, including the Love River, Shoushan (Mt. Shou), Xiziwan Bay, Lotus Pond, Qijin to have a drinking, feast on delicious food and take a walk. Based on the public transportation in Kaohsiung visitors can easily reach scenic mountains, ocean views, cultural and historic attractions and enjoy the views while shuttling in this city.

The pleasure is all mine to hold the FAOPMA-Pest Summit 2023, by earning more attractions from publics, kind assistance from authorities including the Environmental Protection Administration, National Museum of Natural Science, Kaohsiung City Government, and the extensive support from pest control operators、environmental pesticide manufacturing and retailer as well. We are looking very much forward to hosting this significant conference and inviting your joining.

白秀華
臺灣環境有害生物管理協會

亞洲大洋區害蟲防治峰會2022年在日本京都取得重大成功後，我們代表臺灣環境有害生物管理協會，歡迎大家明年來臺灣高雄參加2023年亞洲大洋區害蟲防治峰會，2023年9月距離現在只有10 個月了，我們將為您呈現臺灣優秀參與者的傑出成就。

有機會展示台灣之美，是我們的榮幸。臺灣享有盛譽的"福爾摩沙"是16世紀葡萄牙人的船艦經過臺灣時所說的"美麗之島"。臺灣四面環海，位於太平洋西部邊緣，介於日本和菲律賓之間，形成熱帶島嶼氣候。它擁有豐富的山脈；具200多座山峰超過海拔3000公尺，在地理上獨樹一幟。得益於令人驚嘆的環境，臺灣擁有眾多特有物種和生物多樣性。

高雄是臺灣南部城市，明年即將舉行的會議的舉辦地點在此。高雄有愛河、壽山(壽山)、西子灣、蓮潭、旗津等多個旅遊景點，供遊客小酌、大快朵頤、散步。乘坐高雄市內的公共交通工具，遊客可輕鬆抵達山水、海景、文化和歷史景點，並在穿梭於這座城市的同時欣賞美景。

很高興能在臺灣高雄舉辦亞洲大洋區害蟲防治峰會，我們已贏得更多公眾的關注，得到環保署、國立自然科學博物館、高雄市政府等部門的熱心協助，以及害蟲防治業者、環境衛生除害劑的生產和銷售業者的廣泛支持。我們非常期待主辦這次重要的會議及您的加入。

Welcome Message from the President

Thailand Pest Management Association (TPMA)

SUPANUT KIATYINGPRACHA
President of Thailand Pest Management Association (TPMA)

The Event You Don't Want to Miss.

Achieving success with a pest management strategy today takes strategies, solutions, knowledge, and best products. For every challenge, it seems there are many new solutions to research and consider. Pest management professionals could spend all their time researching the best move – or they could focus their energy on taking the business to the next level.

The FAOPMA PEST SUMMIT 2022 in Kyoto International Conference Center, Japan is where you will meet to gather knowledge on the best solutions the pest control industry currently has to offer. No other event gives the same level of access to the latest innovation in Pest management and many more aspects of this vital industry.

See you soon!

ศุภณัฐ เกียรติยิ่งประชา
นายกสมาคมผู้ประกอบกิจการกำจัดแมลง (TPMA)

งานสัมมนาที่คุณไม่ควรพลาด

การประสบความสำเร็จด้วยกลยุทธ์การจัดการควบคุมและกำจัดแมลงและสัตว์พาหะในปัจจุบัน ต้องใช้ทั้งกลยุทธ์ แนวทางการแก้ไข องค์ความรู้ และผลิตภัณฑ์ที่ดีที่สุด สำหรับทุกความท้าทาย ดูเหมือนว่าจะมีวิธีแก้ไขปัญหาใหม่ๆ เข้ามามากมาย ให้ค้นคว้าและพิจารณาอยู่เสมอ ผู้เชี่ยวชาญด้านการจัดการควบคุมและกำจัดแมลงและสัตว์พาหะ อาจใช้เวลาทั้งหมดไปกับการค้นหาแนวทางที่ดีที่สุด หรืออาจมุ่งความสนใจไปที่การพาธุรกิจไปสู่ระดับต่อไป

FAOPMA PEST SUMMIT 2022 ครั้งนี้จัดขึ้นที่ศูนย์การประชุมนานาชาติ เกียวโต ประเทศญี่ปุ่น เป็นที่ที่คุณจะพบปะเพื่อรวบรวมความรู้เกี่ยวกับ solutions ที่ดีที่สุดที่อุตสาหกรรมควบคุมและกำจัดแมลงมีให้ในปัจจุบัน ไม่มีงานสัมมนาอื่นใด ที่ให้การเข้าถึงนวัตกรรมล่าสุดในการจัดการควบคุมและกำจัดแมลง และแง่มุมอื่น ๆ อีกมากมายของอุตสาหกรรมที่สำคัญนี้ในระดับเดียวกัน

Welcome Message from the President

Australian Environmental Pest Managers Association (AEPMA)

Vasili Tsoutouras
President of Australian Environmental Pest Managers Association (AEPMA)

On behalf of the Australian Pest Management Association (AEPMA), I welcome all delegates and exhibitors to the 2022 FAOPMA Pest Summit Conference in Kyoto Japan.

I extend my appreciation and congratulations to the JPCA Pest Summit organising committee. Meeting with like-minded people at the FAOPMA-Pest Summit is always enlightening and a true reflection of dedication to the industry. As always, it is an honour and a delight to meet fellow FAOPMA members.

The theme of the Summit is "Pest Management in an Ever Changing and Borderless world" and brings a distinguished list of speakers to present their expertise. The program will provide members and attendees opportunities to learn from exhibitors and exchange ideas towards the evolution of the pest industry.

I hope that you find the FAOPMA Pest Summit informative, and I look forward to meeting you.

Kind regards

Welcome Message from the President
Pakistan Pest Management Association (SPMA)

Irfan Fiaz Ali Akbir

President of Pakistan Pest Management Association (SPMA)

I Irfan Fiaz Ali Akbir CEO C Shine Rentokil Pakistan and President SPMA Pakistan welcome to all the participants in FAOPMA Pest Summit Japan 2022. I am very grateful to you all for your precious time to gather for this summit and I congratulate JAPAN Pest Control Association for organizing this valuable summit in Japan this year.

This is the first Physical Faopma

FAOPMA is a platform which connects people of different countries at one platform where they can come to learn and share new information, technologies and innovations. These platforms are really worthy to make new connections which can promote trade among different industries which stretches positive impact over the IPM industries worldwide.

Although Pest Management was initiated in Pakistan from independence of this country but it took long time to make it more flourished. In 1998 our Pest Management companies in Pakistan gathered to make a platform for IPM activities. This association remained dormant in past but started working actively from 2020. Participating in National as well as in International Conferences and Summits for maximum connectivity and knowledge sharing.

SPMA President, Cabinet and all members sent their best wishes and regard for this upcoming event.

Best Regards,

میں عرفان فیاض علی اکبر (چیف ایگزیکٹو آفیسر) سی۔ای۔او سی۔شائن۔گروپ اور بحیثیت صدر سٹرکچرل پیسٹ مینجمنٹ ایسوسی ایشن آپ کا تہہ دل سے شکر گزار ہوں کہ آپ سب نے اپنا قیمتی وقت نکالا اور اس Summit کے لیے حاضر ہوئے اور میں مبارکباد پیش کرنا چاہتا ہوں جاپان Pest Control Association کو کہ انہوں نے ایک بہترین اور کامیاب summit کا انعقاد کیا۔

یہ ہماری عالمی وباء کے بعد پہلی ملاقات ہوگی تو میں سب کو اس ملاقات کے لیے بھی مبارکباد پیش کرتا ہوں۔ FAOPMA ایک ایسا پلیٹ فارم ہے جو دنیا بھر کے مختلف ممالک کے لوگوں کو ایک جگہ اکٹھا کرتا ہے تا کہ وہ مل کر IPM میں ہونے والی اختراعات اور جدت سے جڑی معلومات کو ایک دوسرے تک پہنچا سکیں ایسے پلیٹ فارم بہت کارآمد ہوتے ہیں۔ یہ فارمز ربط سازی اور منافع میں اضافے سے متعلق آگاہی کا باعث بنتے ہیں۔ ہمارے ملک اور انڈسٹری کو بھی اس پلیٹ فارم سے بہت مدد ملی ہے۔

1947ء میں پاکستان کے معرضِ وجود میں آنے کے بعد سے ہی ہر چھوٹے بڑے ادارے اور انجمن کی طرح صنعتی پیسٹ مینجمنٹ پر بھی کام کا آغاز ہوا اور ہر گزرتے سال میں بہتری کی طرف قدم گامزن رہے۔

1998ء میں مختلف پیسٹ انتظامیہ کمپنیوں اور باشعور باشندوں نے مل کر Structural Pest Management Association کی بنیاد رکھی چند سال تک یہ ایسوسی ایشن غیر فعال رہی لیکن 2020ء میں دوبارہ متعلقین کو جمع کر کے SPMA کو فعال کیا گیا ہے تا کہ موجودہ حالات کے پیشِ نظر پاکستان میں بھی مل کر پیسٹ مینجمنٹ کو بہتری کی طرف لے جایا جا سکے۔ ہر مہینے یہ نت نئی علم و آگاہی کی آن لائن سرگرمیوں میں مصروف رہتی ہے۔

SPMA کے سب ممبر FAOPMA سے جڑے لوگوں سے اس بار ملاقات کریں گے۔ اس بار SPMA پاکستان کی ایک بڑی تعداد اس Summit میں شرکت کرنے آ رہی ہے۔ یہ ممبر اس ملاقات کے لیے بہت پر جوش ہیں۔

مجھے امید ہے کہ یہ ملاقات ہمارے تعلق کو مزید مضبوط اور فائدہ مند بنائے گی۔ اور سب کے لیے سیکھنے کے مواقع پیدا کرے گی

SPMA، President SPMA Cabinet Members اور تمام ممبران اس Summit کے انعقاد کے لیے نیک خواہشات کے ساتھ دعا گو ہیں۔

Welcome Message from the President

Pakistan Pest Management Association (PPMA)

ASHRAF SATTAR ADAMJEE

President of Pakistan Pest Management Association (PPMA)

This has been a great pleasure to be associated with FAOPMA, the only Federation serving Pest Management industry in two continents. FAOPMA provides excellent support to their members in learning the latest methodologies in improving services beside providing full support in finding the best equipment, especially the substitute devices, replacing the application of toxic chemicals. GREAT RECENT SUPPORT TO SRILANKA & PAKISTAN DURING THE RECENT NATIONAL CRISES IS REMARKABLE & GRATITUDE CANNOT BE EXPLAIN IN WORDS. Pakistan Pest Management Association, the only government recognized trade association in Pakistan has also done its best by involving flood relief activities. Long Live FAOPMA & salute to the Executive Committee and Founder Members of FAOPMA for supporting the industry in every area.

دو براعظموں میں پیسٹ مینجمنٹ انڈسٹری کی خدمت کرنےوالی واحد فیڈریشن FAOPMA کے ساتھ منسلک ہونے پر ہے بہت خوشی کی بات ہے- FAOPMA اپنے اراکین کو بہترین آلات، خاص طور پر متبادل آلات، زہریلے کیمیکلز کے استعمال کو تبدیل کرنے کی تلاش میں مکمل تعاون فراہم کرنے کے ساتھ ساتھ خدمات کو بہتر بنانے کے لیے جدید ترین طریقہ کار سیکھنے میں بہترین معاونت فراہم کرتا ہے- حالیہ قومی بحرانوں کے دوران سری لنکا اور پاکستان کے لیےزبردست حمایت قابل ذکر ہےاور گراؤنڈ ویٹ کو الفاظ میں بیان نہیں کیا جا سکتا- پاکستان پیسٹ مینجمنٹ ایسوسی ایشن، پاکستان میں واحد حکومتی تسلیم شدہ تجارتی ایسوسی ایشن نے بھی سیلاب سے متعلق امدادی سرگرمیوں میں شامل ہو کر اپنی بہترین کارکردگی کا مظاہرہ کیا ہے- FAOPMA زندہ باد اور ہر شعبے میں صنعت کو سپورٹ کرنے پر ایگزیکٹو کمیٹی اور FAOPMA کے بانی ممبران کو سلام-

Welcome Message from the President

Malaysia Pest Management Association (MPMA)

Regine Lim

President of Malaysia Pest Management Association (MPMA)

Salam Mesra!

Greeting from Malaysia Pest Management Association, MPMA.

We are grateful to be part of the industry fighting thru the Covid-19 pandemic for the last 2.5 years and looking forward to grow the industry together!

There are huge opportunities for Pest Management Professionals (PMP) globally after the pandemic. It's important for us here to share professional knowledge and information to deliver service excellence to our clients and the society.

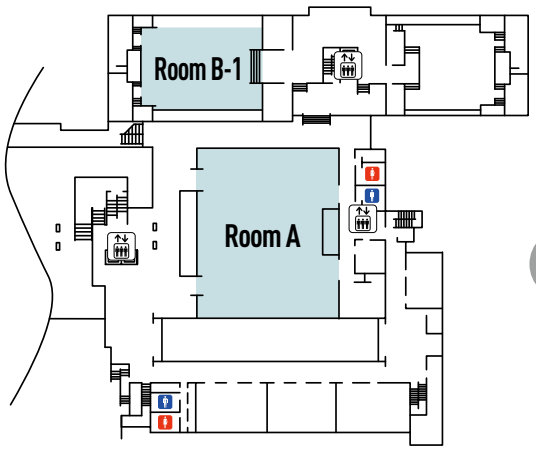
Besides, we will never forget the friendships we built along the journey with FAOPMA since year 1989. All members are always upholding the common goal and interest to advance the professional pest management industry through the mutual exchange of knowledge, information, experiences and to adopt or develop 'best practice' methodologies relevant to our region and specific regional needs.

Let's continue to celebrate the friendship and contribute selflessly to our beloved PMP industry!

Cheers,

FLOOR MAP［会場図］

2F



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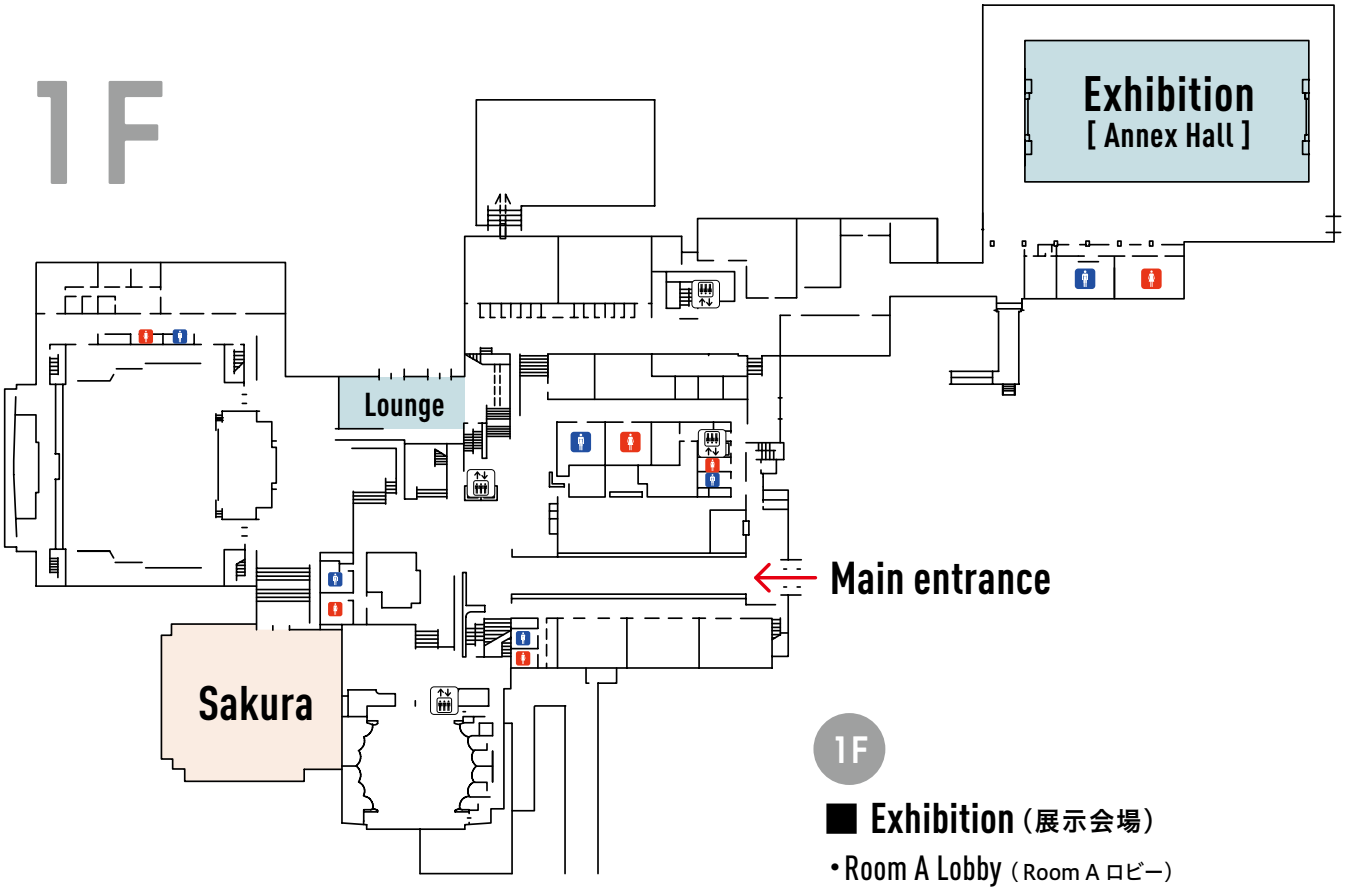
■ SESSION.1-7

- Seminar Room A
- Seminar Room B-1

1F



Main entrance

1F

■ Exhibition（展示会場）

- Room A Lobby（Room A ロビー）
- Annex Hall（アネックスホール）

■ Lunch

- Annex Hall（アネックスホール）
- Sakura

■ Japanese Culture Experience（日本文化体験）

- Annex Hall Lobby（アネックスホール ロビー）

FAOPMA PEST SUMMIT 2022 京都大会

PEST MANAGEMENT IN THE EVER CHANGING, BORDERLESS WORLD

プログラム

DAY.1 11.7 MON 08:30－17:00
GALA Dinner 18:00－20:30

07:30	参加登録受付 開始
08:30－09:00	開会式

基調講演

座長：金澤 太郎　Room A

09:00－09:45	変化し続ける境界なき時代のペストマネジメント PEST MANAGEMENT IN THE EVER CHANGING, BORDERLESS WORLD 片山 淳一郎　環境機器株式会社、日本

SESSION.1

座長：SuChart Lee　Room A

10:15－10:45	日本ペストコントロール協会および業界の歴史と挑戦 平尾 素一 博士　公益社団法人日本ペストコントロール協会（JPCA）、日本
10:45－11:15	鋭い化学的視点に基づいた2020年代のネズミ防除管理 Dr. Bobby Corrigan　Corrigan Consulting, USA
11:15－11:45	CESCOグループの成長と成功のストーリー Chan Hyuk Chyun　CESCO, South Korea
11:45－12:15	ワンヘルス世界における持続可能なペストマネジメント Dr. Qiyong Liu　CPCA, China CDC, China

SESSION.2

	A-ゴキブリ/トコジラミ防除 座長：Jo Lynn Teh　Room A	B-木材害虫 座長：Dr. Faith Oi　Room B-1
13:30－14:00	集合住宅におけるアセスメント型チャバネゴキブリ防除 Dr. Dini Miller　Virginia Tech University, USA	シロアリ防除管理の科学とビジネス Dr. Don Ewart　The Institute of Pest Risk Management, Australia
14:00－14:30	チャバネゴキブリの薬剤抵抗性 -現状、メカニズム、管理戦略について- Dr. Chow-Yang Lee　University of California, Riverside, USA	乾材シロアリ防除および施工技術 Dr. S Khoirui Himmi　BRIN, Indonesia
14:30－15:00	トコジラミの薬剤抵抗性 Dr. Stephen Doggett　Westmead Hospital, Australia	日本のシロアリ防除について Dr. 板倉 修司　近畿大学、日本

2会場（A・B）並行開催

SESSION.3

	A-ビジネス/リーダーシップ/資源 座長：Vasili Tsoutouras　Room A	B-IPM/革新的手法 座長：新井 健一郎　Room B-1
15:30－16:00	コロナ禍におけるリーダーシップ 混乱、イノベーション、アジャイル Dr. Su-Yee Lim　Envu APAC, Malaysia-Singapore	食品工場における不快害虫ユスリカの生態と対策 Dr. 木村 悟朗　イカリ消毒株式会社、日本
16:00－16:30	$200の元手から約20億のPCO企業を育てた経緯と戦略 Irfan Fiaz Ali Akbir　C-Shine Group, Pakistan	我々の経験をもとにした日米欧の有害生物防除管理の比較 Dr. 田中 康次郎　株式会社フジ環境サービス、日本
16:30－17:00	ペストコントロール会社の自己破壊とデジタル変革の方法 Sutee Leelayouthyotin　King Service Center, Thailand	日本のゴキブリ防除について Dr. 小松 謙之　株式会社シー・アイ・シー、日本

2会場（A・B）並行開催

18:00－20:30	懇親会 - GALA Dinner -　会場　〒606-8505 京都府京都市左京区岩倉幡枝町1092-2 ザ・プリンス 京都宝ヶ池

プログラム

DAY.2 11.8 TUE 08:30－17:50

SESSION.4 シンポジウム：ペストマネジメントに関する気候変動の影響

Room A

08:30－10:00	座長－イントロダクション	Dr. Stephen Doggett Westmead Hospital, Australia
	気候変動の現状	Dr. Partho Dhang Urban entomologist, Author, Philippines
	気候変動が日本の媒介蚊に及ぼす影響	Dr. 葛西 真治 国立感染症研究所、日本
	気候変動の都市害虫への影響	Dr. Chow-Yang Lee University of California, Riverside, USA
	PM業界として気候変動に積極的に取り組む必要性と可能な対応	Dr. Stephen Doggett Westmead Hospital, Australia
	レントキル社の気候変動に対する取り組み事例	Carol Lam Rentokil Initial, Malaysia
	パネルディスカッション（１０分）	

SESSION.5

	A-媒介生物/ペストマネジメント 座長：Dr. Err-Lieh Hsu Room A	B-害虫アリ/防鳥対策 座長：Dr. Dini Miller Room B-1
10:30－11:00	コロナ以降の世界におけるペストマネジメント Dr. Faith Oi University of Florida, USA	グローバル視点におけるアルゼンチンアリ問題と防除戦略 Dr.Michael Rust University of California, Riverside, USA
11:00－11:30	シンガポールにおける感染症媒介生物の薬剤抵抗性 Dr. Agnes Koou Sin Ying EHI, NEA, Singapore	ヒアリの生態と防除 Dr. Xu Yijuan South China Agricultural University, China
11:30－12:00	ベクターコントロールにおける市民参加とコミュニケーション Dr. Christina Liew NEA, Singapore	ヒアリの日本における侵入状況と防除技術の開発 Dr. 坂本 洋典 国立環境研究所、日本
12:00－12:30	ドローンによる感染症媒介蚊防除の試み 芝生 圭吾 鵬図商事株式会社、日本	台湾におけるヒアリ防除 Dr. Chung-Chi Lin National Changhua University of Education, Taiwan
12:30－13:00	パンデミック後の世界におけるM&A Chris Hunt and Tony Poulsen Rentokil Initial, Global (UK) and Asia Region (SG) Paid Speaker Topic	マレーシア都市部における鳥・コウモリ防除管理 Julie Na Malaysia

2会場（A・B）並行開催

SESSION.6 スポンサー講演

座長：Jojo Duenas

Room A

14:00－14:20	Platinum Sponsor envu	成功体験が次のステップにつながる Gilles Galliou Envu
14:20－14:40	Platinum Sponsor SUMITOMO CHEMICAL / SC Environmental Science Co., Ltd.	革新的で持続可能なペストコントロールソリューション 手嶋 勇人 Sumitomo Chemical Co., Ltd. / 馬場 庸介 SC Environmental Science Co., Ltd.
14:40－14:50	GOLD Sponsor IKARI イカリ消毒株式会社 IKARI SHODOKU CO., LTD.	イカリ消毒：これまでとこれから 黒澤 尚子 / 悟罕 イカリホールディングス株式会社
14:50－15:00	GOLD Sponsor FUJI FLAVOR CO., LTD.	フェロモントラップによるモニタリングデータを使った発生源探索 Dr. 佐々木 力也 富士フレーバー株式会社
15:00－15:10	GOLD Sponsor EARTH Earth Group	抵抗性害虫の徹底駆除を可能にする2種類のテネベナール製剤の開発 原田 惠理 アース製薬株式会社
15:10－15:20	GOLD Sponsor KINCHO	もっと知ってほしい KINCHOのこと 上山 史朗 大日本除虫菊株式会社
15:20－15:30	ZMCP	新規しろあり防除剤 ジクロロメゾチアズの卓越した伝搬性効果 佐々木 基之 ZMクロッププロテクション株式会社

SESSION.7

	A-食品安全・医薬品製造基準 座長：Raju Parulkar Room A	B-ビジネス/ソーシャルメディア/デジタル戦略 座長：Regine Lim Room B-1
15:50－16:20	顧客視点におけるペストマネジメント企業への要求事項 高久 尚裕 株式会社日清製粉ウェルナ、日本	ペストマネジメントビジネスの進化論 Viren R. Merchant PCAMB, India
16:20－16:50	食品製造施設における貯穀害虫防除 Dr. David Lilly Ecolab, Australia	ペストマネジメント企業における業務プロセスのデジタル化 Carol Lam Rentokil Initial, Malaysia
16:50－17:20	医薬品製造施設における品質リスクマネジメント(ICH Q9)を導入した防虫管理 谷 壽一 シーアンドエス株式会社、日本	世代を超えペストマネジメント企業を存続させる方法 金澤 太郎 株式会社ダイナミック・サニート/HYSIA、日本

2会場（A・B）並行開催

17:20－17:50	閉 会 式

FAOPMA PEST SUMMIT 2022 KYOTO JAPAN

PEST MANAGEMENT IN THE EVER CHANGING, BORDERLESS WORLD

PROGRAMS

DAY.1 11.7 MON 08:30–17:00
GALA Dinner 18:00–20:30

07:30	Registration start
08:30–09:00	Opening Ceremonies and Speeches

KEYNOTE ADDRESS

Session Chair：Taro Kanazawa — Room A

09:00–09:45	Pest Management in the Ever Changing, Borderless World Junichiro Katayama Semco, Japan [Former President of FAOPMA]

SESSION.1

Session Chair：SuChart Lee — Room A

10:15–10:45	History & Challenge of Japan Pest Control Association & Japan Pest Management Industry Dr. Motokazu Hirao Japan Pest Control Association (JPCA)
10:45–11:15	Staying Scientifically Sharp in Rodent Pest Management During the 2020 Decade Dr. Bobby Corrigan Corrigan Consulting, USA
11:15–11:45	The Growth and Success Story of the CESCO Group Chan Hyuk Chyun CESCO, South Korea
11:45–12:15	Sustainable Pest Management for One Health World Dr. Qiyong Liu CPCA, China CDC, China

SESSION.2

	A-Cockroach/Bed Bug Management Session Chair：Jo Lynn Teh — Room A	B-Wood-destroying Insects Session Chair：Dr. Faith Oi — Room B-1
13:30–14:00	Assessment-Based Pest Management for German Cockroach Control in Multi-Unit Housing Dr. Dini Miller Virginia Tech University, USA	The Science and Business of Termite Management Dr. Don Ewart The Institute of Pest Risk Management, Australia
14:00–14:30 (concurrent)	Insecticide Resistance in German Cockroaches - Present Status, Mechanisms, and Management Strategies - Dr. Chow-Yang Lee University of California, Riverside, USA	Drywood Termite Prevention and Integrated Management Strategies Dr. S Khoirui Himmi BRIN, Indonesia
14:30–15:00 (concurrent)	Insecticide Resistance in Bed Bugs Dr. Stephen Doggett Westmead Hospital, Australia	Termite Management in Japan Dr. Shuji Itakura Kindai University, Japan

SESSION.3

	A-Business/Leadership/Resources Session Chair：Vasili Tsoutouras — Room A	B-IPM/Innovative Approaches Session Chair：Ken Arai — Room B-1
15:30–16:00 (concurrent)	Leading teams through COVID-19: Disrupt, Innovate, Agile Dr. Su-Yee Lim Envu APAC, Malaysia-Singapore	Biology and Management of Nuisance Midges (Diptera: Chironomidae) in Food Factories Dr. Goro Kimura Ikari Shodoku, Japan [In Japanese]
16:00–16:30 (concurrent)	Building a Successful Pest Management Company $200 to $20M Irfan Fiaz Ali Akbir C-Shine Group, Pakistan	Comparisons of Pest Control Management among USA, Europe, and Japan Based on Our Experiences Dr. Kohjiro Tanaka Fuji Environment Service, Japan
16:30–17:00 (concurrent)	How to Self-disrupt and Digitally Transform a Pest Control Company Sutee Leelayouthyotin King Service Center, Thailand	Cockroach Management in Japan Dr. Noriyuki Komatsu CIC, Japan [In Japanese]

18:00–20:30	GALA Dinner at The Prince Kyoto Takaragaike	VENUE 1092-2 Iwakura Hataeda-cho Kyoto-city, 606-8505 The Prince Kyoto Takaragaike

PROGRAMS

DAY.2 11.8 TUE 08:30–17:50

SESSION.4 Symposium on the Impact of Climate Change on Urban Pest Management

Room A

08:30–10:00	Session Chair - Introduction	Dr. Stephen Doggett Westmead Hospital, Australia
	Climate Change: An Overview	Dr. Partho Dhang Urban entomologist, Author, Philippines
	Impact of Climate Changes on Mosquito Vectors in Japan	Dr. Shinji Kasai National Institute of Infectious Diseases, Japan
	Impact of Climate Changes on Urban Insect Pests	Dr. Chow-Yang Lee University of California, Riverside, USA
	Why the Pest Management Industry Needs to be Proactive on Climate Change and What They Can Do	Dr. Stephen Doggett Westmead Hospital, Australia
	Rentokil Initial's Climate Change Initiatives	Carol Lam Rentokil Initial, Malaysia
	Open discussion - 10mins -	

SESSION.5

	A-Insect Vectors/Pest Management Session Chair：Dr. Err-Lieh Hsu Room A	B-Pest Ants/Bird Management Session Chair：Dr. Dini Miller Room B-1
10:30–11:00	Pest Management in Post-COVID environment Dr. Faith Oi University of Florida, USA	Controlling the Argentine Ant - A Worldwide Invader - Dr. Michael Rust University of California, Riverside, USA
11:00–11:30	Insecticide Resistance Management in Singapore Dr. Agnes Koou Sin Ying EHI, NEA, Singapore	Fire Ant Biology and Management Dr. Xu Yijuan South China Agricultural University, China
11:30–12:00	Public Communications and Engagement for Vector Control Dr. Christina Liew NEA, Singapore	Status of Invasion of the Red Imported Fire Ant Solenopsis invicta in Japan and Development of Control Techniques Dr. Hironori Sakamoto National Institute of Environmental Studies, Japan
12:00–12:30	A Field Efficacy Trial of Caged ***Aedes albopictus*** by ULV Aerial Application of Phenothrin Using a Drone Keigo Shibo Hohto Shoji, Japan In Japanese	Red Imported Fire Ant Management in Taiwan Dr. Chung-Chi Lin National Changhua University of Education, Taiwan
12:30–13:00	M&A in a Post Pandemic World Chris Hunt and Tony Poulsen Rentokil Initial, Global (UK) and Asia Region (SG) Paid Speaker Topic	Urban Bird and Bat Management in Malaysia Julie Na Malaysia

concurrent

SESSION.6 SPONSOR SPEECHES

Session Chair：Jojo Duenas

Room A

14:00–14:20	Platinum Sponsor envu	Introducing Envu, where what works drives what's next Gilles Galliou Envu
14:20–14:40	Platinum Sponsor SUMITOMO CHEMICAL / SC Environmental Science Co., Ltd.	Innovative & Sustainable Pest Control Solutions Hayato Teshima Sumitomo Chemical Co., Ltd. / Yosuke Baba SC Environmental Science Co., Ltd.
14:40–14:50	GOLD Sponsor IKARI イカリ消毒株式会社 IKARI SHODOKU CO., LTD.	The Story of IKARI Shodoku: Past, Present, and Future Naoko Kurosawa / Uhaan Ikari Holdings
14:50–15:00	GOLD Sponsor FUJI FLAVOR CO., LTD.	Effective Use of Monitoring Data from Pheromone Trap: How to Narrow Infestation Area Rikiya Sasaki FUJI FLAVOR Co., Ltd.
15:00–15:10	GOLD Sponsor EARTH Earth Group	Development of two-types of groundbreaking formulations containing a novel insecticidal compound, TENEBENAL(TM), against insecticide-resistant pests Eri Harada Earth Corporation
15:10–15:20	GOLD Sponsor KINCHO	Never forget our bird logo Shiro Ueyama KINCHO
15:20–15:30	ZMCP	An Excellent Transfer Effect of the Novel Termiticide, Dicloromezotiaz Motoyuki Sasaki ZM Crop Protection Corporation

SESSION.7

	A-Food Safety/Pharmaceutical Standards Session Chair：Raju Parulkar Room A	B-Business/Social Media/Digital Technology Session Chair：Regine Lim Room B-1
15:50–16:20	Pest Management Requirements from Client's Perspective Naohiro Takaku Nisshin Seifun Welna, Japan	Darwinism of the Business of Managing Pests - 'Unpacking' the COVID Effect - Viren R. Merchant PCAMB, India
16:20–16:50	Strategies for Managing Stored Product Pests in Food Manufacturing Facilities Dr. David Lilly Ecolab, Australia	Digitalising Business Processes in Pest Management Companies Carol Lam Rentokil Initial, Malaysia
16:50–17:20	Pest Management Concept from the Perspective of ICH Q9 Quality Risk Management Toshikazu Tani C&S, Japan In Japanese	Building a Pest Management Business Sustainable for Generations Taro Kanazawa HYSIA, Japan President-Elect-FAOPMA

concurrent

17:20–17:50	Closing Ceremony

FAOPMA PEST SUMMIT 2022 KYOTO JAPAN

PEST MANAGEMENT IN THE EVER CHANGING, BORDERLESS WORLD

The SPEAKERS

Junichiro Katayama (Japan) A
SEMCO, President

Dr. Motokazu Hirao (Japan) A
Japan Pest Control Association, Honorary president

Dr. Bobby Corrigan (USA) A
Corrigan Consulting

Chan Hyuk Chyun (Republic of Korea) A
CESCO, VICE CHAIRMAN & C.E.O

Dr. Qiyong Liu (China) A
Chinese Center for Disease Control and Prevention, Prfessor Chief Expert of Vector Control

Dr. Dini Miller (USA) A
Virginia Tech Department of Entomology, Professor of Urban Pest Management

Dr. Chow-Yang Lee (USA) A
University of California, Riverside, Professor & Endowed Presidential Chair in Urban Entomology

Dr. Stephen Doggett (Australia) A
Medical Entomology, NSW Health Pathology, Westmead Hospital, Director

Dr. Don Ewart (Australia) B-1
The Institute of Pest Risk Management, Australia

Dr. S Khoirul Himmi (Indonesia) B-1
National Research and Innovation Agency (BRIN), Indonesia, Senior Researcher

Dr. Shuji Itakura (Japan) B-1
Kindai University, Professor

Dr. Su-Yee Lim (Singapore) A
Envu APAC, Malaysia-Singapore

Irfan Fiaz Ali Akbir (Pakistan) A
C SHINE GROUP, CEO

Sutee Leelayouthyotin (Thailand) A
King Service Center Co., Ltd., Managing Director

Dr. Goro Kimura (Japan) B-1
Technical Research Laboratory, / Ikari Shodoku Co. Ltd., Manager

Dr. Kohjiro Tanaka (Japan) B-1
Fuji Environment Service, Assistant Manager

Dr. Noriyuki Komatsu (Japan) B-1
Civil International Corporation, director

Dr. Partho Dhang (Philippines) A
PCAP, Urban Entomologist

Dr. Shinji Kasai (Japan) A
National Institute of Infectious Diseases, Director, Department of Medical Entomology

Dr. Chow-Yang Lee (USA) A
University of California, Riverside, Professor & Endowed Presidential Chair in Urban Entomology

Dr. Stephen Doggett (Australia) A
Medical Entomology, NSW Health Pathology, Westmead Hospital, Director

Carol Lam (Malaysia) A
RENTOKIL INITIAL MALAYSIA, Managing Director, Malaysia, Philippines and Brunei

Dr. Faith Oi (USA) A
University of Florida, Associate Extension Professor

Dr. Agnes Koou Sin Ying (Singapore) A
National Environment Agency, Senior Scientist

Dr. Christina Liew (Singapore) A
National Environment Agency, Singapore, Deputy Director, Strategic and Media Communications Department, Corporate Communications Division

Keigo Shibo (Japan) A
HOHTO SHOJI CO.,Ltd., Planning Department Manager

Chris Hunt (UK) A
Rentokil Initial plc, Group Head of M&A

Tony Poulsen (Singapore) A
Rentokil Initial Asia, Regional Director M&A and Operations

Dr. Michael Rust (USA) B-1
Department of Entomology, University of California, Distinguished Professor of Entomology

Dr. Xu Yijuan (China) B-1
Entomology, Professor

Dr. Hironori Sakamoto (Japan) B-1
National Institute for Environmental Studies (NIES), Researcher

Dr. Chung-Chi Lin (Taiwan) B-1
National Changhua University of Education, Professor

Julie Na (Malaysia) B-1
Casa Chemical Sdn Bhd, Technical Director

Gilles Galliou (USA) A
Envu, CEO

Hayato Teshima (Japan) A
Sumitomo Chemical Co., Ltd., General Manager, Branded Products Marketing Department, Environmental Health Division

Yosuke Baba (Japan) A
SC Environmental Science Co., Ltd, Senior Research Associate, Professional Products Development Department, Research & Development Sector

Naoko Kurosawa (Japan) A
IKARI Holdings CO., LTD., Senior Managing Director

Uhaan (Japan) A
IKARI Shodoku Co., Ltd, Subsection chief of International Business Division

Dr. Rikiya Sasaki (Japan) A
Fuji Flavor Co., Ltd., Senior Manager of R&D

Eri Harada (Japan) A
Earth Corporation, Subsection chief, Research Laboratories, Research & Development Headquarters

Shiro Ueyama (Japan) A
KINCHO, Director General Manager of Sales Division Market Development Division

Motoyuki Sasaki (Japan) A
ZM Crop Protection Corporation, Manager, Development Dept.

Naohiro Takaku (Japan) A
Nisshin Seifun Welna Inc., Product Management Division, Quality Control Group Manager

Dr. David Lilly (Australia) A
Ecolab Global Pest Elimination – RD&E, Staff Scientist

Toshikazu Tani (Japan) A
C&S Corporation, Director

Viren R. Merchant (India) B-1
Pest Control Associates (AMB) Pvt. Ltd., Director & COO

Carol Lam (Malaysia) B-1
RENTOKIL INITIAL MALAYSIA, Managing Director, Malaysia, Philippines and Brunei

Taro Kanazawa (Japan) B-1
Hysia, CEO

Room A

SEMCO
President

Junichiro Katayama (Japan)

片山 淳一郎 環境機器株式会社

2009: FAOPMA President
2000: President of Semco
1995: Master in Economics Cambridge University
1990: Graduate from Kyoto University, law degree

Mr. Junichiro Katayama is a president of Semco Co., Ltd., the leading distributor of professional pest management products in Japan.
He graduated from Kyoto University (BA in Law) and the University of Cambridge (MPhil in Economics), he worked for the Industrial Bank of Japan. He is a Past President of FAOPMA, 2008-2009, and served as a Board of Director for more than 10 years. He is also involved in international aid activities as a Vice President of The Nippon International Cooperation for Community Development (NICCO), a prominent Japanese Non-Governmental Organization established in 1979. Together with Japan Pest Control Association, NICCO had conducted the post-Tsunami fly management project in Great East Japan Earthquake in 2011.

Pest Management in the Ever Changing, Borderless World

In this keynote speech, main message is "think the other side of the border ". People say there is a border between countries. Some say our industry is different from other industries, so there must be a border between industries. But I would say, there is no such thing as a border. The border is something we create in our mind. First example is the disasters. Disaster can happen anywhere anytime. There is no border. In Japan, we experienced the Great East Japan Earthquake in 2011. The earthquake the magnitude of 9 hit northeast of Japan. Following the earthquake, it triggered tsunami waves which caused 18,131 death and destroyed 130,000 of houses, together with factories and warehouses. Massive flies emerged alongside of 400 km of coast. Japan Pest Control Association and NGO cooperated to solve this unprecedented problem. Second example is technology. Once invented, technology will transfer to other industries and other countries without any limit. Recently, IoT and AI technology have been developed rapidly. The use of these technology can be found in many areas. Soo, our industry will be heavily impacted. Regular treatment by human labor will be replace by the remote monitoring system and robot. The progressive companies will become even more productive using this technology. The third example is money. Money can move around to seek better opportunity to raise profit. Our industry is very good target. Top global pest management companies are rapidly growing using M&A. There is no border for money to move.

FAOPMA PEST SUMMIT 2022

KYOTO JAPAN

PEST MANAGEMENT IN THE EVER CHANGING, BORDERLESS WORLD

DAY.1 11.7 MON 08:30—20:00 DAY.2 11.8 TUE 08:30—17:50

PRESENTATION ABSTRACT

SPEAKER INFORMATION

Room A

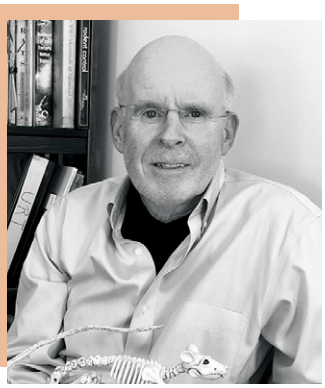
Japan Pest Control Association
Honorary president

Dr. Motokazu Hirao (Japan)

After having graduated Kyoto University, he worked at Matsushita (Now Panasonic Co.) as a researcher of rodent repellents for 10 years. Via pest control company for 10 years, he started his consultancy company, Hirao biological Institute, in 1984. He was president of FAOPMA from 1994 to 1999, president of JPCA from 2009 to 2018, and names in the Hall of Fame of PMP magazine in 2009. Over 20 research papers, 14 books on food sanitation and pest control, IPM, Bed bug, and many textbooks were published.

History & Challenge of Japan Pest Control Association & Japan Pest Management Industry

1.Short history of JPCA and our pest problems
2.How did we deal with people who dislike pesticides?
3.Main public contributions of JPCA in 2021 and 2022 were distributed to our local governments.
  1) Disinfection of ambulances after transporting COVID-19 patients by Tokyo members.
  2) Investigation of fire ants invaded from overseas and border control operations.
  3) Outdoor training for Dengue fever control.
4.Improving technical capabilities for members of JPCA.



Room A

Corrigan Consulting
Rodentologist

Dr. Bobby Corrigan (USA)

Bobby has been active in pest control for 33 years. Most of his emphasis addresses urban rodents and designing large scale rat-free programs for city governments, shopping malls, airports and university campuses. Bobby ran a pest control route in NYC for 3 years full time; and eventually obtained his BS, MS and PhD in rodent control from Purdue University. He still spends much time in alleyways, basements, ceilings and other verey dark spaces chasing rodents.

Staying Scientifically Sharp in Rodent Pest Management During the 2020 Decade

Remaining scientifically sharp in rodent control in these complex times is not easy. Rats and mice have been increasingly more troublesome on a global scale. Reports from pest professionals of rodents avoiding and or disregarding traps and bait stations, suspected bait resistance, behavioral shifts in rodents and overall chronic persistence of rodents at accounts of all sorts are now common. The bottom line is current day rodent control demands strong attention to science advancements and responding to those issues. FAOPMA professionals must be increasingly more resourceful, more innovative, more tech-savvy, and pursue rodent work with a strong drive towards higher-level assessments prior to beginning the work. In other words, there is no "standard" when it comes to rodent infestations in residential or commercial stops. This session will emphasize how to take advantage of current rodentology to ensure remaining among the top of rodent service specialists.

Room A

CESCO
VICE CHAIRMAN & C.E.O

Chan Hyuk Chyun (Republic of Korea)

2022 CESCO Vice Chairman & C.E.O
2006 CESCO Chief Executive Officer
2002 CESCO Senior Managing Director
1994 CESCO R&D Research & IT Department Director
1989 CESCO Service Technician

The Growth and Success story of CESCO Group

CESCO Group was established in 1976, and has grown into the one of the global comprehensive environmental hygiene companies. CESCO Group consists four companies. Moreover, CESCO Group has more than 5,000 employees, 3,500 of service vehicles, 170 of company owned branch office, and the world's leading R&D Center. The R&D Center has about 300 researchers who have degree of master's or doctoral working in various fields; biology, chemistry, physico-chemistry, microbiology, viral-bacterial, atmospheric chemistry, water environmental, entomology, electronics, mechanical engineering, IT software, AI, pedagogy, psychology, etc.

Room A

Chinese Center for Disease Control and Prevention
Professor Chief Expert of Vector Control

Dr. Qiyong Liu (China)

Dr. Qiyong LIU's research focuses on vector and vector borne disease surveillance and control. He invents the innovative strategy "Sustainable Vector Management (SVM)" and the biennial International Forum for Sustainable Vector Management to facilitate international communications. He has been designated as the Head for WHO Collaborating Center for Vector Surveillance and Management since 2012. He established Shandong University Center for Climate Change and Health (SUCH) and was appointed as the chief scientist for climate change and human health in China, the lead author on human health for IPCC AR5 and AR6. He serves as the Deputy Secretary-General for CPCA.

Sustainable Pest Management for One Health World

Pests are organisms that damage human life, production, and even survival. They can cause significant losses in lives and property and also great loss in other fields such as agriculture, food, environment, and ultimately have a negative impact on people's health and well-being. In recent years, climate and environmental change, globalization, urbanization, insecticide resistance, human behavior change, etc., pose new challenges for pest management causing unfavorable effects to the health and well-being of humans. In addition, there are still many deficiencies and gaps concerning capacity building such as insufficient ability for the fast identification of pests, lack of high-tech pest surveillance and control tools, lack of selfprotection awareness against pests, etc. Therefore, sustainable pest management (SPM) was developed to cope with the challenges. It stresses on systematic and sustainable pest management through pest surveillance, risk assessment and alert, control planning, good pest control practice, monitoring and evaluation. Sustainable vector management (SVM) was invented to control and prevent deadly vector borne diseases (VBDs). In the aspects of promoting human and host animal health and maintaining and improving the ecological civilization, SVM strategy fits One Health well. Using this strategy, it promoted and realized the transition from the passive outbreak response to the proactive outbreak risk management of VBDs especially for Aedes-borne diseases in China. At present, SVM was adopted by the WHO "Global Vector Control Response 2017-2030" and other WHO guidelines. Globally, it provides an innovative solution for the management of vectors and VBDs for WHO and its member states. Global and regional cooperation, multisectoral joint action and multidisciplinary integration should be strengthened, and the participation of the whole society should be advocated to actualize the sustainable control of pests, the achievement of sustainable development goals (SDGs) and the promotion of human health and well-being.

Room A

Virginia Tech Department of Entomology
Professor of Urban Pest Management

Dr. Dini Miller (USA)

Dini Miller is a Professor and Urban Pest Management Specialist at Virginia Tech University. Dr. Miller is an internationally recognized expert in urban pest management, particularly German cockroach and bed bug control. She has produced multiple bed bug action plans and has published scientific papers on bed bug and cockroach response to diverse treatment methods. Dr. Miller's program trains pest management professionals, public health officials, apartment and hotel managers, and homeowners how to control indoor pests by making intelligent management decisions. Her research currently focuses on the cost and efficacy of assessment-based pest management (APM) for structural pest control.

Assessment-based Pest Management for German cockroach control in multi-unit housing.

Over the last several decades, low-income public housing facilities have been known to be infested with particularly large German cockroach populations. These populations persist even though the housing pest control contracts often require, and pay for, IPM practices to be used in their facilities. When reviewing the pest management contract, it was easy to see why these 'IPM programs' were not successful. Many of these 'low-bidder' contracts do not allow the technician enough time in each apartment to assess the size of the pest population. In addition, these pest management contracts did not require German cockroach population monitoring, even though all IPM programs are based on assessments of the pest population. There was a clear need for an effective, easy to apply cockroach management program in low-income housing facilities. This study determined the long-term efficacy of an Assessment-based Pest Management (APM) program for German cockroach control in U.S. public housing facilities. Specifically, we evaluated an APM program where the residents were not asked to clean or prepare for treatment, and where overnight cockroach trap counts were used to determine the volume of gel bait that would be applied. The APM baiting program was conducted for 15 months in three housing facilities. In all test units, German cockroach populations were reduced < 90%.

Room A

University of California, Riverside
Professor & Endowed Presidential Chair in Urban Entomology

Dr. Chow-Yang Lee (USA)

Dr. Chow-Yang Lee is the Professor and Endowed Presidential Chair in Urban Entomology at the University of California, Riverside. His research interests are behavioral, ecological, and physiological adaptations of urban insect pests. He has published over 250 peer-reviewed papers and books and mentored 16 Ph.D. and 32 M.S students. Chow-Yang received many awards at international and national levels, including the 2022 Distinguished Achievement Award in Urban Entomology from the National Conference on Urban Entomology (USA) and the 2021 Medical, Veterinary and Urban Entomology Award from the Pacific Branch of the Entomological Society of America.

Insecticide resistance in German cockroaches – present status, mechanisms, and management strategies

The German cockroach, Blattella germanica, is a major indoor public health insect pest in the United States, especially in residential premises and food preparative establishments such as restaurants, food courts, food packaging factories, etc. The negative consequences of a German cockroach infestation include mechanical transmission of pathogenic microorganisms, respiratory illness (allergy and asthma), and hygiene issues. Pest management professionals' control of this species has relied heavily on residual insecticide sprays and baits. Because of their quick action, low cost, and availability, insecticides have been the most preferred approach to cockroach management. Over-reliance and frequent usage of insecticides have led to the development of insecticide resistance in the German cockroach, especially towards pyrethroids, phenyl pyrazole, and neonicotinoids, and the accumulation of pesticides in the indoor environment that could seriously impact human health. A primary physiological mechanism associated with insecticide resistance is the activity of cytosolic and microsomal enzymes such as cytochrome P450 monooxygenases (P450), esterases, and glutathione S- transferases (GST) that are known to detoxify xenobiotics. Measurable increases in activity or concentration of these enzymes are associated with resistant German cockroach populations. Additionally, several target site mutations (kdr and rdl) in the German cockroach maintain normal channel function in the presence of insecticides, resulting in decreased susceptibility. The principal strategy to manage resistance in the German cockroach is to conserve susceptible genes in the population by reducing the selective pressure. This could be achieved via insecticide rotation, mixtures, and non-chemical alternatives. Among these options, insecticide rotation is the most feasible approach. To do insecticide rotation, it is essential to use insecticides of different modes of action in sequences on a generational basis. Using this approach, pest management professionals will be able to slow down the development of insecticide resistance.

Room A

Medical Entomology, NSW Health Pathology, Westmead Hospital
Director

Dr. Stephen Doggett (Australia)

Stephen L. Doggett is the Director of the Department of Medical Entomology, NSW Health Pathology at Westmead Hospital in Sydney, Australia. He has more than 37 years' experience, produced over 770 articles, and presented more than 470 lectures at local and international conferences. His research background is broad having published articles on bed bugs, mosquito surveillance, mosquito-borne diseases, mosquito management, ticks and tick-borne diseases, and has been cited by over 3,040 scientific papers. Stephen has appeared in the media on more than 420 occasions with over 30 television interviews and is the Chief Editor for the FAOPMA Magazine.

Insecticide resistance in bed bugsa

Insecticide resistance has been the single major contributing factor for the modern global bed bug resurgence. Both the common (Cimex lectularius) and the tropical (Cimex hemipterus) bed bugs have evolved a range of resistance mechanisms. This includes a modified cuticle that slows down the penetration of an insecticide into the insect, a range of enzymes that can breakdown the insecticide once it enters the body, and mutations that prevents the insecticide acting at the target site (called 'knockdown' resistance). Recently, it was shown that the naturally occurring symbiont, Wolbachia, confers reduced insecticide susceptibility. For each type of resistance there are many forms, for example, 12 different mutations have been associated with knockdown resistance in C. hemipterus. Bed bug field strains typically possess differing combinations of these mechanisms, which means resistance between strains is often highly variable, with some strains showing extremely high levels of resistance. For example, the Sydney strain of C. lectularius was shown to be more than 1.2million times more resistant to permethrin than a susceptible strain. The outcome of the different mechanisms is that modern bed bugs are resistant to most insecticide classes on the market and no one product should be relied upon in bed bug management. A complicating factor is formulation, for example, pyrethroid-based aerosols will kill all resistant strains if sprayed directly, however such products provide little to no residual control. A consequence of the resistance is that control failures are common, which can lead to the infestations spreading. The control of modern infestations of bed bugs must take an integrated approach, with an emphasis on non-chemical methods of control, and monitoring the success of the control program is crucial. Modern industry standards, such as the Australian 'Industry Code of Best Practice for Bed Bug Management' should be adhered too for guidance on eradication.

Room B-1

The Institute of Pest Risk Management,
Australia

Dr. Don Ewart (Australia)

Don Ewart BSc (Hons) PhD, known as Dr Don, is a scientist and educator best known for termite work. He does contract research and assessments, consulting, training, facility quality assessments for industry and provides expert witness reports and testimony. Recent work has included amphipods, booklice, cockroaches, stored product moths & beetles, rodents and of course, drywood, dampwood and subterranean termites.

The Science and Business of Termite Management

Science provides pest managers with a great deal of information about termites. Knowledge and explanations of behaviours and control methods keeps expanding. In this talk, focusing on pest Rhinotermitids, we will review the impact of scientific advances and some business developments, trends and opportunities that arise from them. Research has also provided new products and tools that have changed the industry. New insecticides are produced for the large agricultural pest market and some of these new molecules become formulated as termiticides and bait toxicant products. Research also improves formulations of existing products. For new buildings, termite management systems can provide decades of reduced risks and baiting systems evolve and gain new capacities. For some businesses, the early adoption of this knowledge and the new products builds market share and profit. But the path from laboratory and invention to marketplace is not always smooth and all pest management is local. Successful business builds on market experiences and develops systems to best manage the pests. This focus must meet the unique business challenges that are shaped by the interactions of many locally varying factors such as client needs and preferences, which termites are present, the construction styles of buildings, the climate and the topography. In a post-pandemic world, additional limits are created because clients have concerns about their capacity to pay for services. We will explore how systems thinking provides a framework that allows business to confidently adopt and evaluate new findings and approaches, to embrace change with the protection of a business suitability filter. Systems thinking, as you might do for integrated pest management, provides knowledge-based evaluation.

Room B-1

National Research and Innovation Agency (BRIN), Indonesia
Senior Researcher

Dr. S Khoirul Himmi (Indonesia)

Dr. Himmi earned his doctoral degree from Kyoto University in the field of forest & biomaterials science, studied nesting biology of drywood termite using a non -destructive monitoring technique, X -ray tomography. He received the HOPE Fellowship award from the Japan Society for the Promotion of Science (JSPS) in 2016. Since 2017, he is actively involved as a Project Leader in the Japan -ASEAN Science Technology Innovation Platform (Working Package 3: Biodiversity and Bioresources), a collaborative program that is supported by the Japan Science and Technology Agency (JST). Currently, he is serving as the Secretary -General of the Pacific-Rim Termite Research Group (PRTRG) 2020 – 2024.

Drywood Termite Prevention and Integrated Management Strategies

Rapid urbanization and global trade of woods and lignocellulosic-based materials have led to the increased number of invasive and economically-important termites. Of the 28 global-invasive termite species listed in a comprehensive review by Evans et al. (2013), eight species are drywood termites and their economic impacts have been estimated to account for ≈20% of the worldwide annual costs for termite control (est. US$40 billion in 2010) (Rust and Su, 2012). Drywood termites' behavior and social organization differ from their subterranean or mound-building relatives. They have the ability to infest timber and furniture without any need to contact with the ground to obtain moisture and have high resilience to adapt to low-moisture conditions for lengthy periods. Furthermore, the small size of their colonies frequently results in entire colonies being transported in a single, even small wooden material, and therefore, it increases the invasiveness of these cryptic termites.

The past practices in controlling drywood termites have been emphasizing the extensive use of pesticides. However, to have a successful control, we need to overcome major obstacles in drywood termite detection and locating the real-time presence of the colony since the entire colony is living within a piece of wood. Technological breakthroughs in drywood termite detection have come slowly, with currently available tools ranging from acoustics, infrared, microwaves, to x-rays. Each of these detection tools, however, has its limitations/disadvantages and is more an aid in problem-solving rather than a definitive solution. Management options for controlling drywood termite infestations are typically placed into two broad categories: remedial or preventative, with further divisions into local (spot treatments) or whole-structure approaches (Lewis and Forschler, 2014). To achieve satisfactory eradication results in drywood termite control, the prevention and management strategies must look into more comprehensive approaches by integrating wood science and urban entomology (Yoshimura, 2011). The basic principle of pest control is that one must understand the organism in order to effectively control it, and thus, further research and efforts to unravel drywood termite biology, ecology, and behavior are important.

Room B-1

Kindai University
Professor

Dr. Shuji Itakura (Japan)

Dr. Shuji Itakura is the Professor at Kindai University, Japan. His research involves the control of termite caste differentiation for the utilization of termites as biological resources and microsatellite analysis of termite colony structures for less chemical soil treatment. He has published more than 50 peer-reviewed papers and mentored 12 master's students and more than 150 undergraduate research students. He received Society Award (2021) and Progress Award (2003) from The Japanese Society of Environmental Entomology and Zoology and Award from The Japan Termite Control Association (2013). He is one of the co-editors of the book Encyclopedia of termites (2012).

Termite management in Japan

In Japan, 24 species of termites in 12 genera of 4 families have been recorded, and the representative species are Hodotermopsis sjostedti, Cryptotermes domesticus, Incisitermes minor, Reticulitermes speratus, Coptotermes formosanus, Odontotermes formosanus, Nasutitermes takasagoensis. Among these species, economically important species are C. domesticus and I. minor of the Kalotermitidae, and R. speratus and C. formosanus of the Rhinotermitidae.

R. speratus and C. formosanus control work is carried out by the soil treatment and the wood treatment methods specified by "the termite control standard specifications", while control of I. minor and C. domesticus is carried out by "the comprehensive management system for dry wood termites" established by Japan Termite Control Association (JTCA). These treatments may be used in combination with preservative-treated wood. Wood preservatives are certified by JTCA and Japan Wood Protection Association (JWPA), respectively. JTCA certifies 84 soil treatment agents and 75 wood treatment agents, as well as 8 dry wood termite control agents. These agents contain any of anthranic diamides, carbamates, mesoionic compounds, meta-diamides, neonicotinoids, non-ester pyrethroids, phenylpyrazoles, phenylpyrroles, and pyrethroids as the active ingredient. The dosage forms of soil treatment agents are emulsion, granule, micro capsule, water soluble chemicals, and wettable powder, and the dosage forms of wood treatment agents are emulsion, oil solution, and water soluble chemicals. Borates-based agents are not approved by JTCA. JWPA also certifies 81 soil treatment agents and 136 wood treatment agents with various active ingredients such as borates, ACQ (alkaline copper quaternary), copper azole, and copper napthenate other than the chemicals mentioned above. Furthermore, seven bait agents are registered in JTCA, and two bait agents are registered in JWPA.

Room A

Envu APAC, Malaysia-Singapore

Dr. Su-Yee Lim (Singapore)

Dr. Su-Yee Lim received her PhD from the University of Georgia (Athens), USA. She is presently the Head of Solutions Development for APAC ENVU, and was previously with Rentokil Initial Singapore Pte Ltd, as their Key Account and Technical Director (2020-2022).
Prior to those roles, she led the Mekong Cluster business as the Country Division Head for Bayer, Project Manager East Asia Pacific Bayer, and Research Scientist with Orkin LLC. in the USA, Rollins Inc., USA.

Leading teams through COVID-19; Disrupt, Innovate, Agile

The COVID-19 pandemic caused the loss of many human lives globally. Beyond the loss of lives, the face of global workforce was forced to change, adapt and behave differently from pre-COVID times. Borders closed, global travelling stopped, and many businesses were shut due to restrictions imposed by governments globally. As we slowly move from this recent pandemic, the impact on the global workforce is still unveiling. Having the responsibility of leading teams during the pandemic came with its challenges and stresses that were previously unthought-of. Here in this talk, I share my personal experience, learning and what I think could have done better as we move towards the post-pandemic era.

Room A

C SHINE GROUP
CEO

Irfan Fiaz Ali Akbir (Pakistan)

Irfan Fiaz Ali Akbir is the CEO of C-SHINE GROUP (A Leading Pest Management Company) in Pakistan. He has more than 20 Years of experience in the Professional field of Integrated Pest Management and Food Safety. He has done Msc Hons with Food Science and Technology, MBA in Business Management from Sunway Monash University Malaysia, PGD in Urban Pest Management, PDG in Certified Quality Professionals from NUST and Lead Auditor Courses in FSSC22000, ISO9001 and ISO17025.

Building a successful Pest Management Company from 200$ to 20 million $

1. A Brief Introduction of Irfan Fiaz Ali Akbir 2. A Brief Introduction of C Shine Group 3. Success story... 4. What you need to be successful
a. (Mind is everything, what u think u become) First Always dream big. Your dream will be your vision, Divide your dream into three stages (Primary, Middle, Destination) it will keep u motivated b. Evaluate what you have and when you will achieve your dream c. Plan it d. work for it and make ways
5. Plan- select a potential business which you understand by yourself and always think GLOCAL 6. Make a promise or in writing that dedicate some percentage of business or profit to God. (Charity) 7. Make a Golden Team, train them well and give them confidence that they can do (Find a team with the same dreams) 8. Always take calculative risk, if u loss u still in the game 9. Make SWOT analysis about your competitors 10. Value addition and something new always attract customers, always bring innovation and change in the market. it will make u unique and different 11. In service business Response time is Key to success 12. Keep adding value in the business by adding new service or product every year and then whole year promote it 13. Set a target every year and make sure to achieve it. 14. Evaluate your team performance every month 15. Make sure your team must share the benefits of your success 16. Keep your next move secret until time comes to reveal it 17. Keep personal and professional stuff separate 18. Diversify your business 19. Travel and explore the world and attend exhibitions and seminars as it will give you exposure knowledge and experience 20. Once you achieve your vision-Mid then u need to be social as well 21. Every next level demands a different you(for example, SMEs needs and Corporate needs are different, u need to learn how to uplift yourself according to the need of your company 22. Patience is Power in the services business. A calm mind is the ultimate weapon against your battles 23. Focus on listening rather than speaking 24. No 1 skill in life is not giving up

Room A

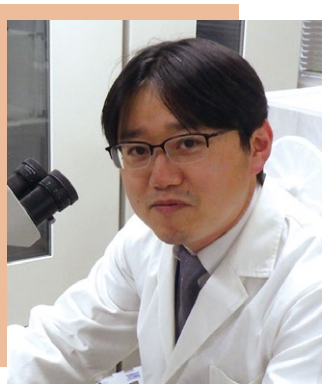
King Service Center Co., Ltd.
Managing Director

Sutee Leelayouthyotin (Thailand)

Sutee Leelayouthyotin is the current managing director at King Service Center, a Thai pest control company founded by his parents in 1977. He graduated from a Thai high school and then went on to study in the USA as a scholarship student. He came back to Thailand to complete his bachelor's and master's degree. Sutee is a second-generation pest control family business management with an education background and previous experience in information technology. Faced with challenges to operate and transform a well-established company with generation gap and resistance to change, the aim is to turn good to great.

How to Self-disrupt and Digitally Transform a Pest Control Company

King Servicer Center is a Thai pest control company established by Mr. Suchart Leelayouthyotin, together with Mrs. Chantra Leelayouthyotin. Back in 1977 when the company was founded, the number of pest control companies in Thailand was close to none. Given Mr. Suchart's experience working as a pest control service technician when he was in Los Angeles, he had introduced soil-treatment service to the Thai consumers while most of the services offered at that time were still dust-based treatment. Time passed and the company grew larger and gained more clients, but like the rest of the other stuff in the world in the 80s and 90s, things were happening and changing at a much slower pace than today. In the early noughties, King Service Center had its first glimpse of digital transformation as it had started using simple computer and smart card to control and keep track of their services, but that transformation was only a hybrid. Many of the back-office work, sales, accounting, human resource and so on were still old-school paper-based work. The management realized that with no total digital transformation, the data collected was rarely and hardly utilized, and knew that the company needed to change to be able to take full advantage of becoming digital. But changes were always not easily implemented and accepted, until one day that COVID-19 took over the world. Those changes, especially digital transformation, that were seen unnecessary had then became mandatory if a company were to operate with fluidity during the pandemic. It was a blessing that the management team had already begun the digital transformation processes some time before the pandemic which enabled the company to function almost like business as usual soon after the arrival of COVID-19. This time it won't be just a hybrid, it's a full digital transformation.



Room B-1

Technical Research Laboratory, / Ikari Shodoku Co. Ltd.
Manager

Dr. Goro Kimura (Japan)

Ph. D. in Engineering , Shinshu University (2009)
Technical Research Laboratory, Ikari Shodoku Co. Ltd. (April 2009 - present)
Dr. Goro Kimura is the Manager of Technical Research Laboratory, IKARI SHODOKU Co., Ltd. He graduated from Shinshu University in 2009 with a Ph. D in Engineering. After graduation, he took an entry-level position at IKARI SHODOKU and was promoted to his current position in 2022. Dr. Kimura has spoken at various conferences and published many peer-reviewed papers in journals. In 2019, he earned the 29th Sasa award (award for excellent articles by young scientists in The Japan Society of Medical Entomology and Zoology) for the article entitled "Efficacy of etofenprox mist for controlling Aedes albopictus and impact on non-target invertebrates". In the same year, he received awards from The Society of Urban Pest Management, Japan, and The Japanese Society of Pestology, respectively.

Biology and Management of Nuisance Midges (Diptera：Chironomidae) in food factories

The Chironomidae -non-biting midges- are one of the largest groups of the order Diptera, containing over 10,000 species and having a worldwide distribution. Chironomid adults may cause economic problems, such as contaminating the final products in pharmaceutical and food processing factories. Chironomidae is not listed as a household pest, places indoors are generally invaded by adults from outdoor habitats. On the other hand, the abundance of Limnophyes natalensis indoors has been reported nearly a decade ago. In this presentation describe a series of our chironomid studies, such as flight activity of adult L. natalensis using automatic counting system in a food factory.

Room B-1

Fuji Environment Service
Assistant Manager

Dr. Kohjiro Tanaka (Japan)

Kohjiro Tanaka received his Ph.D. in Graduate School of Environmental Science from Hokkaido University in 2002. After stints as a postdoctoral fellow at University of Kentucky from 2002 to 2006 and at National Institute of Advanced Industrial Science and Technology (AIST) from 2006 to 2009, he was appointed to Fuji Environmental Service as a Pest Control Operator (PCO). His major interest is management of pest insects such as booklice that are widely distributed in food and pharmaceutical factories.

Comparisons of Pest Control Management among USA, Europe, and Japan based on our experiences.

Present food industry is required to meet some global standards for food safety, in order to avoid contamination from foreign materials and bacteria causing food poisoning. We daily work in many food and pharmaceutical factories, warehouses, and their packaging material factories as pest control operators. In these factories, we offer some systems and products to meet various needs of individual clients based on global food safety management systems such as FSSC2200, BRC and so on. Since 2000, we have had opportunities to offer pest control consulting services to multinational companies based in Japan that have factories in the United States of America, France and England. In this presentation, I will introduce our experiences in the overseas factories, the differences in pest control techniques and methods between Japanese and foreign factories. I will also emphasize the points required in pest control especially for the production line for Japan. We learned some reasons why pest controls were so different between them and found them related to their own cultures in some parts. Furthermore, I will talk about some challenges of our company in utilizing IoT technologies for pest control, which will surely contribute to the pest control in factories of foreign countries in the near future.

Room B-1

Civil International Corporation
director

Dr. Noriyuki Komatsu (Japan)

My name is Noriyuki Komatsu and I am the Director of Research and Development Department at Civil International Corporation. My specialty is sanitary zoology, studying cockroaches and commensal rodents. I graduated from the Department of Environmental Health at Azabu University in 1985. I received my Ph.D. from the Azabu university in 2015. My hobby is breeding pest.

Cockroach Control in Japan

The most important species of cockroach in Japan from a medical insects is the German cockroach. This species is often found in the kitchens of restaurants, hospitals, and hotels. Integrated Pest Management (IPM) is used for pest control. Preliminary surveys are important in the process of pest control.Based on the results, control methods are planned.

Control methods are divided into "environmental control" and "chemical control. Afterwards, efficacy evaluation is conducted to evaluate the control methods. Chemical control" is an important method for PCO control. However, the decline in efficacy of insecticides has become a problem in the field. Insecticide sensitivity tests were conducted on 10 strains of German cockroach, Bllattella germanica, collected from restaurants.

Four insecticide Baits were used: 2.15% hydramethylnon, 0.5 w/w% dinotefuran, 0.6% indoxacarb, and 0.005% fipronil. Four liquid insecticides were used: 20% fenitrothion MC, 20% propetanphos MC, 5% permethrin, and 1% propoxur. The test method for insecticide Baits was the voluntary ingestion method. The liquid insecticides were tested by the 80-minute residue contact method on a plywood plate. As a result, a strong decrease in sensitivity was found in the two strains collected from the city center.

The results also showed that the sensitivity to insecticides varied from strain to strain, indicating that the standard selection of insecticides was not successful in controlling the pest.

Room A

PCAP
Urban Entomologist

Dr. Partho Dhang (Philippines)

Partho Dhang received his B.S., M.S. and Ph.D. in zoology from University of Madras, Chennai India. His close association with the pest control industry, covering works such as research and development, training and business development has allowed him to edit and write a number of books, all published by CABI. He is also a prolific speaker in international conferences across the world and has spoken in National Pest Management Association (NPMA), International Conference on Urban Pest (ICUP) and major conferences in Asia Pacific region. He is a regular contributor of articles to various international magazines. He is also a technical consultant for international pest control magazine. Presently he resides in Philippines and India.

Climate Change: An Overview

Evidence of climate change and its impact are now apparent all over the world. Its affects are often complex and intertwined with human lifestyle and economics. For humans, climate change realization is mostly through extreme weather events posing threat to livelihood and business. The affects are caused by climate related wild fires, storms, flood, drought, crop failures, loss of livelihood, human migration, power outages, numerous types of occupational hazards, spread of infectious diseases, certain respiratory diseases, vector borne diseases, and many more. To the pest control industry climate change will bring stress to health of technicians, affect commerce, raw material and production of pest control items, changes in pest bio-ecology and efficacy of pest management tools. Climate change can be used as a way to make permanent structural changes in companies which will make the business sustainable.

Room A

National Institute of Infectious Diseases
Director, Department of Medical Entomology

Dr. Shinji Kasai (Japan)

1998, Received Ph.D. from Tsukuba University
1998-2000, Post Doctoral Associate at Cornell University
2000-present, Department of Medical Entomology, National Institute of Infectious Diseases
2019-present, Director, Department of Medical Entomology
Major in Medical Entomology and Insect Toxicology

Impact of climate changes on mosquito vectors in Japan

Aedes albopictus is the vector of several arbovirus including dengue, chikungunya and zika. In 2014, Japan experienced dengue epidemic for the first time in the past 70 years. Approximately 160 dengue cases were reported, mostly from Tokyo metropolitan. Since Ae. aegypti does not inhabit, Ae. albopictus is the major dengue vector in Japan. Our investigations over the past 20 years have shown that the distribution area of Ae. albopictus has gradually moved northward due to climate changes and it is now found in all areas of Japan except Hokkaido. Widespread distribution of vector mosquitoes means that the risk area for arbovirus infection is expanding. Our previous studies have estimated that Ae. albopictus can overwinter in the areas where annual mean temperatures are above 11 °C. Given multiple sites in Hokkaido already meet this condition that we are now focusing the invasion of Ae. albopictus to Hokkaido. We are also focusing our attention on the invasion problem of another important mosquito vector, Ae. aegypti. Ae. aegypti does not currently inhabit in Japan although it used to distribute in some areas including Okinawa, Kyushu, and Ogasawara. Prior to the Colona disaster, the number of inbound travelers increased year by year and Ae. aegypti were often captured at several international airports of Japan. At this point of time, it is considered difficult for this species to establish in Honshu due to the cold winters. The risk of establishment of this mosquito in Japan, however, is gradually increasing due to the climate changes as well so that we are paying attention to the invasion of Ae. aegypti to our country.

Room A

University of California, Riverside
Professor & Endowed Presidential Chair in Urban Entomology

Dr. Chow-Yang Lee (USA)

Dr. Chow-Yang Lee is the Professor and Endowed Presidential Chair in Urban Entomology at the University of California, Riverside. His research interests are behavioral, ecological, and physiological adaptations of urban insect pests. He has published over 250 peer-reviewed papers and books and mentored 16 Ph.D. and 32 M.S students. Chow-Yang received many awards at international and national levels, including the 2022 Distinguished Achievement Award in Urban Entomology from the National Conference on Urban Entomology (USA) and the 2021 Medical, Veterinary and Urban Entomology Award from the Pacific Branch of the Entomological Society of America.

Impact of climate change on urban insect pests

Today climate change not only has become a significant environmental challenge but also an economic, human livelihood, and even a political challenge. It poses an existential threat to our ecosystems, food security, and water resources that could ultimately affect our survival. The latest United Nations IPCC 2021 report has revealed unequivocally that human activity is responsible for what we are experiencing today. The major effects of climate change are elevated atmospheric CO2, increasing temperature, and changing rainfall patterns. Insects are poikilothermic; hence temperature is perhaps the most crucial factor affecting fecundity, development, survival, activity, distribution, and behavior. However, elevated CO2 and changing rainfall patterns will also directly or indirectly affect insect populations. The urban environment is a complex habitat that is wholly or in part created by man from natural or agricultural ecosystems to meet their specific needs. By 2030, it is predicted that much of the world's population will live in urban areas. Urban pest insects have unique behavioral, ecological, and physiological adaptations to thrive well in these resource-limited and water-scarce environments. I will discuss how climate change impacts urban insect pests and the outcomes that could lead to severe pest issues.

Room A

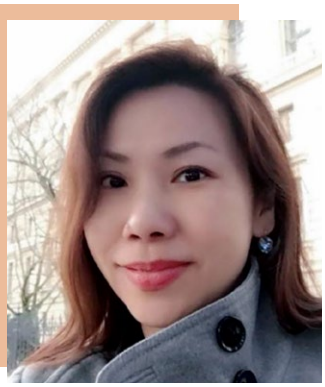
Medical Entomology, NSW Health Pathology, Westmead Hospital
Director

Dr. Stephen Doggett (Australia)

Stephen L. Doggett is the Director of the Department of Medical Entomology, NSW Health Pathology at Westmead Hospital in Sydney, Australia. He has more than 37 years' experience, produced over 770 articles, and presented more than 470 lectures at local and international conferences. His research background is broad having published articles on bed bugs, mosquito surveillance, mosquito-borne diseases, mosquito management, ticks and tick-borne diseases, and has been cited by over 3,040 scientific papers. Stephen has appeared in the media on more than 420 occasions with over 30 television interviews and is the Chief Editor for the FAOPMA Magazine.

Why the Pest Management Industry Needs to be Proactive on Climate Change and What They Can Do

Climate Change (CC) is the biggest threat to the future of humanity. All pest management companies and personnel will be required to, and be under pressure, to reduce their carbon footprint. This is to ensure that there is a future for generations to come. Furthermore, many companies and organizations have committed to becoming carbon neutral, including many of the large hotel chains, fast food outlets, airlines, retailers, manufacturers, software companies, and governments. In order to maintain their carbon neutrality, it is expected that all service providers to these groups will also have to be carbon neutral, which includes the pest management industry. Furthermore, the public is now demanding that governments take action against CC. It is likely that Pest management companies (PMCs) with some form of climate certification will be preferentially used by many clients in the future. To ameliorate the effects of CC, there are three basic actions that need to be undertaken; (1) Energy Conservation, (2) Electrification, (3) Fuels with no or low emissions. PMCs can become ISO14001 (Environment Management System) accredited. New buildings can be constructed according to LEED (Leadership in Energy and Environmental Design) principles. PMCs can achieve Climate Neutral Certification and provide carbon offsets for their work, use green power, switch to electric vehicles, employ remote pest monitoring to reduce technician travel, recycle and participate in programs such as drumMUSTER, and optimize technician scheduling or contract share to reduce the use of vehicles. The purchase and use of Climate Ethical Suppliers, such as those certified under programs such as 'Climate Active', 'Climate Neutral', or 'Fairtrade', will reduce a company's carbon footprint. A core component of CC is social responsibility and companies can become ISO26000 (Social Responsibility) certified, or 'Certified B Corporation' accredited.



Room A

RENTOKIL INITIAL MALAYSIA
Managing Director, Malaysia, Philippines and Brunei

Carol Lam (Malaysia)

Carol Lam is the Managing Director of Rentokil Initial Malaysia and oversees the Brunei and Philippines business. She has been with Rentokil Initial (M) Sdn Bhd since 1991, and after 18 years in the Hygiene business she became Managing Director in 2009 for both the Pest Control and Hygiene & Wellness businesses. Carol obtained her MBA from the University of Arcadia, Pennsylvania and Advanced Diploma In Business Administration, ABE UK. She has held roles as Deputy President, Vice President – Membership and Exco member with The Malaysia Pest Management Association (MPMA) and as Projects Chairman and School Education Chairman in the Quality Restroom Association of Malaysia (QRAM).

Rentokil Initial's Climate Change Initiatives

The progression of climate change and global warming have become a pressing concern in recent years. Since 1800, human activities have been the main driver of climate change and this has led to detrimental shifts in temperatures and weather patterns i.e. flash flood, prolonged winter/ summer, more earthquakes at unexpected places and many more.

To minimise environmental impact and avoid further devastation to the planet, transition to net zero initiatives need to be accelerated. Many corporate companies have made the shift to actively promote sustainable activities, and Rentokil Initial is no different. In fact, it has been an ongoing effort for the business, where our focus is on 3 main pillars: a) Sustainable Solutions b) Sustainable Operations and c) Sustainable Workplace, aiming to deliver net zero carbon emissions by 2040.

Room A

University of Florida
Associate Extension Professor

Dr. Faith Oi (USA)

Dr. Faith Oi is the Director of Pest Management University (https://pestmanagementuniversity.org/), an academy that provides state-of-the-art education and hands-on training for the industry. She works at a "grassroots-level" and does applied research to solve industry problems. She has published >250 Extension, refereed and technical journal articles. Led the development of 10 multiday curricula in structural pest management, and has given >350 presentations. She offers a graduate seminar titled Issues in Pest Management. She received her Ph.D. from the University of Florida and her M.S. and B.A. degrees from the University of Hawai'i, Mānoa.

Pest Management in a Post-COVID Environment

"Post-COVID" is aspirational as of this writing. SARS-CoV-2, the virus that causes COVID-19, continues to change and it may take several years before we enter an "endemic" phase. The good news is that the pest management industry has evolved as quickly. Structural pests are not susceptible to SARS-CoV-2, but management and control methods have been modified because our customers may have changed. This presentation will cover pertinent models and projections on COVID-19, the impacts of "working from home," changes in customer attitudes, pivots in restaurants, assisted care, hospitals, schools, and residents that will continue to pest control.

Room A

National Environment Agency
Senior Scientist

Dr. Agnes Koou Sin Ying (Singapore)

Dr. Agnes Koou Sin Ying is a Senior Scientist in Vector Biology and Control Division at the Environmental Health Institute, NEA, Singapore. She is heading the Taxonomy and Pesticide Efficacy Branch, where research activities include morphological and molecular identification of mosquitoes and other insects of public health importance, biodiversity assessment of local biting arthropods, insecticide resistance monitoring and management, laboratory and field evaluation of insecticide products for use in operational vector control program. Dr. Agnes also coordinates the research activities with local and international experts and collaborators. She is working with WHO and Worldwide Insecticide resistance Network (WIN) to establish and validate international standardized test protocols for monitoring of insecticide resistance in mosquitoes. She is also involved in technical evaluation for pesticide products registration in Singapore.

Insecticide resistance management in Singapore

Insecticide resistance in vector mosquitoes is a global threat to public health. Resistance to the four widely-used conventional classes of insecticides – pyrethroids, organochlorines, carbamates and organophosphates – has emerged in major mosquito vectors across the world. Resistance to new classes of insecticides, such as neonicotinoids, pyrroles, butenolides, juvenile hormone mimics and spinosyns, is likely if their use is scaled up. Thus, a sound insecticide resistance management programme is crucial to limit and prevent the development of resistance especially to these new compounds.

In Singapore, the use of insecticides is an integral component of the vector control programme, particularly in dengue outbreak management. To manage insecticide resistance and effective use of insecticides, regular monitoring of the susceptibility status of vectors to insecticides and field assessment are important. Laboratory susceptibility studies using classical WHO bioassays indicated that local populations of the primary dengue vector, Aedes aegypti have varying levels of resistance to pyrethroids. In-depth investigations involving the use of synergists, biochemical assays and molecular techniques revealed that pyrethroid resistance in local Ae. aegypti populations is mainly conferred by knockdown resistance (kdr) mechanism. In addition to laboratory studies, field efficacy assessments of formulated products using field mosquitoes are routinely conducted to ensure effective control and to guide operational use for local context.

Room A

National Environment Agency, Singapore
Deputy Director, Strategic and Media Communications Department, Corporate Communications Division

Dr. Christina Liew (Singapore)

Associate Professor Christina Liew is a Medical Entomologist, trained at Imperial College London, London School of Hygiene & Tropical Medicine, and National University of Singapore. Her research interests include mosquito behaviour, insecticide resistance, fogging, repellents, and novel vector control tools; and she invented and patented the Gravitrap. She managed international partnerships and scientific conferences for the National Environment Agency (NEA)'s WHO Collaborating Centre, and implemented public communications and engagement strategies for Wolbachia technology in Singapore. Currently as Deputy Director for Strategic and Media Communications at NEA, she leads crisis and risk communications for public health issues, including Dengue and COVID-19. She additionally holds adjunct positions at Nanyang Technological University, and has been active in student teaching and mentoring over many years.

Public Communications and Engagement for Vector Control

Public communications and engagement are critical to the success of vector control strategies and evaluation of novel technologies. They play significant roles in field trials, planning future roll-out, and population acceptability.

As a key example, the National Environment Agency (NEA) has been evaluating Wolbachia-based Aedes aegypti mosquito population suppression for dengue control, involving field releases of male Wolbachia-carrying Aedes aegypti mosquitoes to further suppress the urban Aedes aegypti mosquito population and thus reduce disease transmission. Public communications and community engagement are crucial factors for success of the field studies, involving extensive groundwork over many years to consult and engage a wide range of stakeholders, including residents at study sites, the general public, medical and scientific communities, and government agencies.

Strategic and consistent integrated public communications provides precise, timely and relevant information to the public, and ensures sustained and impactful communications outputs. Leveraging a combination of mainstream, online and social media platforms facilitates effective reach to target audiences and all sectors of the population. During crisis periods, such as with Singapore's dengue epidemics and the ongoing COVID-19 pandemic, risk and crisis communications to the Pest Management industry and other stakeholder groups provide essential updates on evolving situations, case numbers and disease vector populations, ground operational issues, and more. A robust and effective communications and engagement strategy thus ensures effective public health policies and implementation, with public support.

Room A

HOHTO SHOJI CO.,Ltd.
Planning Department Manager

Keigo Shibo (Japan)

April 2007 Joined HOHTO SHOJI Co., Ltd.
Visit pest control companies all over Japan as a sales department.
In addition to sales, product development, advertising, and sales promotion are carried out.
Established Planning Department in April 2015,
in charge of corporate planning, product development, public relations, sales promotion.

A field efficacy trial of caged Aedes albopictus by ULV aerial application of phenothrin using a drone

We tested the effectiveness of the aerial application of the insecticide 5% phenothrin with the use of a drone-mounted ultra-low-volume (ULV) sprayer flying 5 m above the ground. Caged Aedes albopictus adults were placed in an open field 80 cm above the ground in Tochigi Prefecture, Japan. A perfect mosquito knockdown was achieved within 10 min after the application. And all of the mosquito individuals were not resuscitated until 60 min after knockdown. We also observed that 0.3-μm microparticles of the insecticide were distributed around the test area. These results indicate that drone applications of insecticides might be a convenient way to reach areas that are difficult to access via the ground.

Room A

Rentokil Initial plc
Group Head of M&A

Chris Hunt (UK)

Chris joined Rentokil Initial in 2012. Previously he worked in M&A at AstraZeneca (2005 – 2012) and KPMG.
Chris returned Rentokil Initial to its Pest Control and Hygiene roots by disposing of its non-core businesses (e.g., Facility Management and Textiles) and has completed 350+ acquisitions in pest and hygiene including the recent $6.7b acquisition of Terminix, Inc.
Whilst North America has been a focus, Chris is passionate about growing Rentokil's capabilities in growth and emerging markets, especially Asia. His deals in the region include Aardwolf Indonesia, Sterix and a JV with Pest Control India

Rentokil Initial Asia
Regional Director M&A and Operations

Tony Poulsen (Singapore)

2010 Regional Director M&A and Operations, Asia
1998 GM Rentokil Pest Control NZ
1994 Operations Manager Initial (Hygiene) NZ

Tony is originally from Auckland in New Zealand. He lead the M&A program in NZ prior to moving to Singapore with Rentokil Initial in 2010.
Tony has spearheaded all deals across 11 markets in Asia and as a result welcomed over 9000 new colleagues to join the Rentokil Initial family

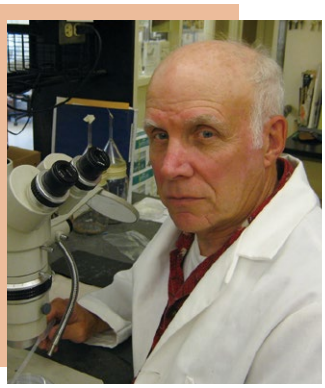
M&A in a post pandemic world

"Uncertainty is the biggest enemy of corporate investments, including mergers" LKCSB Associate Professor of Finance Fu Fangjian

The pandemic has changed the needs of consumers, businesses, employees and investors.
As part of the response companies are looking for acquisition partners to help innovate their products, services and operations.

The pandemic has reshaped the way deals are made, as stakeholders are less likely to meet in person due to travel restrictions and social distancing measures. Moreover, the unstable market environment has resulted in valuations becoming more volatile and uncertain than before with features such as earnouts increasingly common.

We explore how Pest Control companies have responded and share our learnings as we navigate to the "new normal".



Room B-1

Department of Entomology, University of California
Distinguished Professor of Entomology

Dr. Michael Rust (USA)

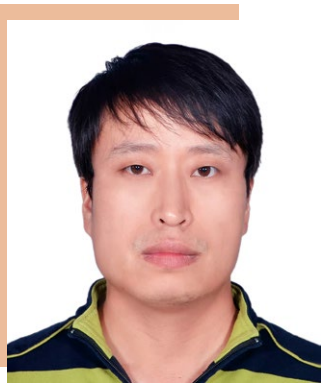
Professor Rust's 47-year career as an urban entomologist began at the University of California, Riverside in 1975. He is semi-retired and holds a special appointment in the Graduate Division. He has authored or co-authored over 186 scientific peer-reviewed and 140 technical papers dealing with urban pest management. Current research interests include the interaction of baits and sprays to control German cockroaches and developing baits for yellowjacket control. Awards include the ESA Distinguished Urban Entomology Award, Mallis Recognition Award, Pest Control Technology's 25 Most Influential People in the Industry, PCT/Zeneca Leadership Award 2002, and Pest Control Hall of Fame 2007.

Controlling the Argentine Ant – A Worldwide Invader

The Argentine ant, Linepithema humile (Mayr), is a tramp ant species found worldwide, especially in Mediterranean climates. The super colonies invade agricultural, natural, and urban settings, especially those in which insects that produce honeydew thrive. Even though its biology, behavior, and ecology have been extensively studied, Argentine ants continue to be one of the most challenging species to control.

Historically, control measures have primarily focused on baits and sprays. The earliest baits consisted of aqueous sugar sources and inorganic insecticides such as arsenic and thallium sulfate. From 1950 to 1988, perimeter barrier sprays of organochlorine insecticides such as chlordane, dieldrin, and lindane were routinely applied by pest management professionals (PMPs). Since their removal in the US, a variety of organophosphate and pyrethroid sprays have been used with varying success. In 2003, the registration of fipronil provided PMPs a treatment with delayed toxicity, excellent residual activity, and horizontal transfer to kill foraging ants. However, concerns over the increase of fipronil and pyrethroid insecticides in urban waterways have drastically altered their use and effectiveness as perimeter sprays. Essential oils have been tried as alternative sprays with limited success. Treatment strategies have come full circle and again, the use of baits has taken on additional importance.

The economics and safety of applying liquid baits in urban residential settings have always been a concern of PMPs. One of the major challenges has been to find active ingredients that are effective in aqueous sugar baits. In recent years, hydrogels have been used as carriers of aqueous sugar baits containing thiamethoxam and borates. The hydrogels extend the longevity of the baits and are easy to apply. In conjunction with sprays, these baits have provided excellent control around structures.



Room B-1

Entomology
Professor

Dr. Xu Yijuan (China)

2017.12-, professor, Department of Entomology, South China Agricultural University, Guangzhou, China
2012.12-2017.11, associate professor, Department of Entomology, South China Agricultural University, Guangzhou, China
2011.8-2012.8 Visiting scholar, Department of Entomology, North Carolina State University
2007.7-2012.11, assistant professor, Department of Entomology, South China Agricultural University, Guangzhou, China

Dr. Yijuan Xu is currently a professor in the Department of Entomology at South China Agricultural University. He received his Ph.D. degree in Agricultural Entomology from South China Agricultural University in 2007 and then joined SCAU as a lecture. He was awarded the Youth Science and Technology Award of the Entomological Society of China (2011), Guangdong science and Technology Progress Award (2011,2018), etc.Dr. Xu's research interests mainly include biology, behavior, ecology, and management technologies of invasive pests like fire ants, mealybugs and tephritid fruit flies. His research has been supported by National Natural Science Foundation of China, the National Key Research and Development Project of China, etc. He now is a senior editor of Ecological Entomology and section editor of Sociobiology.

Fire ant biology and management

My talk will focus on the biology and management of red imported fire ant, one of the most dangerous invasive species in the world. Some information of fire ant management in China will also been mentioned.

Room B-1

National Institute for Environmental Studies (NIES)
Researcher

Dr. Hironori Sakamoto (Japan)

Dr. Hironori Sakamoto is a researcher at the National Institute of Environmental Studies (NIES), the center for invasive alien species management in Japan. He earned his B.S. in science and M.S in science and technology from Waseda University and his Ph.D. in agricultural sciences from the University of Tokyo. He is an amazing naturalist who has discovered a new curious ant species living underground. Since joining NIES, he has focused on "developing technology that everyone can use without helps from specialist" for the early detection and management of invasive alien social insects, particularly the red imported fire ants.

Status of invasion of the red imported fire ant Solenopsis invicta in Japan and development of control techniques

The red imported fire ant Solenopsis invicta (hereafter RIFA), native to South America, is classified as a "designated Invasive Alien Species" under Japan's Invasive Alien Species Act and is prohibited from being kept in the country due to its serious impact on biodiversity and economic losses in different sectors. In Japan, RIFA was first detected on May 20, 2017, in a sea cargo unloaded at Kobe-Port, Hyogo Prefecture. Since then, until the summer of 2022, the number of invasion cases by RIFA has totaled 90 in 18 prefectures. Furthermore, since 2019, large nests have been discovered in major international ports, such as Tokyo, Nagoya, and Osaka, suggesting that the invasion and establishment of RIFA is steadily progressing. The nests were immediately eradicated by chemical control, and the area around them was continuously monitored to observe the new queens' flight dispersal. Although RIFA is not established in Japan, the ports where the nests were found were within 5 km of a metropolitan area that could be invaded by flight dispersal, thus making the nests a threat. The Invasive Alien Species Act, revised in 2022, has also brought up the need for urgent countermeasures and aims to strengthen current control measures. The National Institute for Environmental Studies (NIES) is developing reliable control methods for this species by classifying the stages of RIFA invasion and establishment into three main stages: pre-invasion, pre-establishment, and post-establishment, and by preparing control methods appropriate for each stage. This presentation will report on the current status of fire ant infestation and control in Japan, and introduce some of the latest control technologies.

Room B-1

National Changhua University of Education
Professor

Dr. Chung-Chi Lin (Taiwan)

Dr. Chung-Chi Lin is the Professor at Department of Biology, National Changhua University of Education, Taiwan. His research primarily focuses on taxonomy, biodiversity, and behavioral ecology of ants. He is an internationally recognized expert on invasive ants management, especially on the fire ants management in Taiwan. Currently, he is the chief executive officer of National Red Imported Fire Ant Control Center (NRIFACC) in Taiwan. He has more than 30-years experience in the studies of ants.

Red Imported Fire Ant Management in Taiwan

The red imported fire ant (RIFA) was first discovered in Taiwan in October 2003 and has ever since been a significant urban, agricultural and public health pest. Recognizing its negative impacts, a cross-agency cooperation working group and the National Red Imported Fire Ant Control Center (NRIFACC) have been established. Although management and control efforts led by the working group and NRIFACC have reduced the population density and spread rate of RIFA in Taiwan, eradication of this ant has not been achieved. At present, Taoyuan City, New Taipei City, Hsinchu County, and Kinmen County are the most heavily infested areas in Taiwan. Currently, the major RIFA control technique when dealing with large infestation is bait broadcasting. However, bait broadcasting is nearly impossible in some of RIFA-infested areas due to difficult local terrains (hills, steep slopes, rivers, valleys, military control zones, etc.) that have made these areas are inaccessible for treatments by field staff and all-terrain vehicles (ATVs). This results in only 70~75% treatment coverage of the current infestation. Some of these difficult terrain areas may have never received any treatment for years and thus represent a "blind spot" in which the ants are generally active and readily dispersing to establish new colonies. Our present project is focused on developing novel techniques to assist in the detection and control of RIFA, including RIFA App system that can be used by field staff for ant identification, multi-axis unmanned aerial vehicle (UAV) systems for field surveillance and bait broadcast in specific environments as well as use of RIFA detection dog in low-density and specific areas (airports, ports, nurseries, etc.).

Key words: Unmanned aerial vehicle (UAV), RIFA detection dog, RIFA App system, pest control

Room B-1

Casa Chemical Sdn Bhd
Technical Director

Julie Na (Malaysia)

Julie graduated with a Bachelor of Applied Science (Entomology) from Universiti Sains Malaysia (USM).
Julie had joined and served in Rentokil Initial (M) Sdn Bhd for more than a decade. Upon attaining the hands-on authorized installer training from industry experts: Bird-b-Gone (US) and P+L System (Bird Networks, UK), Julie devoted herself in various Bird/Bat Proofing jobs. She had advised and collaborated with multiple Professional Bird/Bat Proofing Installers to provide tailored Bird/Bat Management Solutions. Being a passionate trainer and advocate of Integrated Pest Management Strategies, she continues to conduct workshops, and consultation and she had spoken in various Pest Summit conventions and National Conferences on Urban Pests.
Julie is now the Technical Director of Casa Chemical Sdn Bhd - the Malaysia sole distributor of Pest Control Professional Pesticides for Sumitomo Chemical Enviro-Agro Asia Pacific Sdn Bhd.

Urban Bird and Bat Management in Malaysia

The Covid19 event has been with us for well over two years now. As people around the world conscientiously practise mandatory self-isolation at home and change their daily behaviour in hope to delay the spread of coronavirus, Birds and Bats are invading emptied structures and occupying overgrown vegetation along streets. Urban birds are becoming desperate and are getting closer to our homes in search of food. Populations of pigeons, sparrows and crows have out-numbered humans in some parks.

The 2021 online questionnaire survey on Professional Bird Management during the COVID-19 pandemic for the Asia Oceanic Region conducted by Julie revealed that Bird Spikes and Bird Netting were the two most common methods being deployed in Malaysia, followed by Bird Repellent Gel or Liquids. [Paper published in FAOPMA Magazine 2022 April]

Regrettably, management of Bat was not accounted at the time of this survey.

In the year 2021/2022, Julie noticed that some Malaysian Bird Proofing Professionals had discovered new Bird Proofing methods and had diversified to focus on Bat Proofing work as well.

Julie will share her installation experience working with professional Bird and Bat proofing teams within roof void, and on the roof-top surface. In some instances, climbing techniques like abseiling are combined with scaffolding, to cover inaccessible building exteriors.

Bat proofing often involved exclusion works carried out from the interior of the roof void, combined with work on the exterior surface of the roof. The clearing of Bat droppings, disinfection of the interior air space, forms another vital part of the task whilst directly addressing the main reason the customer needed an urgent and hygienic solution.

Julie will again cover paramount factors to consider when designing a robust Bird or Bat proofing plan such as site evaluation, work-at-height safety, proofing technique selection, as well as new innovations available. You will gain a better perspective of the quality and usefulness of aerial surveillance information which can be derived from such images and videos from a drone.

Room A

Envu
CEO

Gilles Galliou (USA)

As Envu's CEO, Gilles Galliou unites a wealth of experience in the crop science industry with a bold vision for the future. During his two decades with Bayer Crop Science, he oversaw a variety of workstreams, from e-business to product integration, global risk management, and regional businesses, including the Americas region for Environmental Science. He then went on to become CEO of the Environmental Science business and was instrumental in conceptualizing, launching and overseeing ES's divestment from Bayer and transformation into Envu, an independent industry leader. Gilles is a passionate leader who believes that building strong teams and empowering others are critical keys to success.

Introducing Envu, where what works drives what's next

Envu is a new vision for a company built not from the ground up but on top of the towering foundations laid by Bayer Environmental Science. Our legacy products are at the core of our new identity and will remain central to all the innovations we will create moving forward. Gilles Galliou will introduce Envu's mission which is entirely dedicated to the future of our environments and continuing our partnership with you to solve pest problems together.

Room A

Sumitomo Chemical Co., Ltd.
General Manager, Branded Products Marketing Department, Environmental Health Division

Hayato Teshima (Japan)

1988-1994, Joined Sumitomo Chemical's Agricultural Chemicals Research Laboratory as an entomology researcher
1994-2011, Global Marketing Department, Environmental Health Division
2011-2015, Group Manager, Agricultural Chemicals Research Laboratory (Currently Health & Crop Science Research Laboratory)
Present General Manager, Branded Products Marketing Department, Environmental Health Division

Hayato Teshima ("Paddy") is currently responsible for the branded products business in Professional Pest Control and Public Health fields.
Paddy previously worked on the R&D of various products for professional pest control field and sales & marketing for household, professional and public health insecticides.

SC Environmental Science Co., Ltd
Senior Research Associate, Professional Products Development Department, Research & Development Sector

Yosuke Baba (Japan)

2016-present, Professional Products Development Department, Research & Development Sector
2014-2016, Wood preservative Sales Department, Sales sector
2005-2014, Specialty Chemicals Technical Department, Research & Development Sector.
2004-2005, Jointed SC Environmental Science Co., Ltd (formerly Shinto Fine Co., Ltd.) as Research and development department

Yosuke Baba is involved in the development of wood preservatives, as well as termiticides and insecticides for Pest management professionals, and has also been active in the expansion of the PMP industry as a board member of the Japan Wood Preservation Association and the Japan Termite Control Association.

Innovative & Sustainable Pest Control Solutions

Sumitomo Chemical has its origin in the Sumitomo Fertilizer Manufactory in 1915, which was founded to resolve air pollution problem caused by Sumitomo copper smelting operation and improve agricultural production.

Sumitomo Chemical currently operates business in five sectors worldwide by fully focusing on solving social issues surrounding the environment and food, and improving the quality of life of people.

Environmental Health Division belongs to Health & Crop Sciences Sector and started its business in 1953 by commercial launch of Pynamin (allethrin) followed by various synthetic pyrethroids, insect growth regulator (IGR) and non-pyrethroids. They are currently used for household, professional pest control and public health insecticide fields worldwide.

Natural pyrethrum, an origin of all synthetic pyrethroids, became one of our key portfolios and has been developed and used for Pest Control as well as household and public health fields.

Sumitomo Chemical Environmental Health and its global affiliated companies are working on the new product development by leverage of active ingredients and new formulation/delivery technology to provide innovative and sustainable pest control solutions.

SC environmental Science Co., Ltd.("SES") as a subsidiary of Sumitomo Chemical is responsible for the professional and household pest control products business for the Japanese market. SES has created a variety of products with advanced technology and ideas, such as a carbon dioxide gas formulation (Mirakn), a termiticide using pyrethrin as an AI, a resin formulation for repelling flying insects. As a leading company of professional pest control products in Japan, SES will continue to innovate and advance our products and technologies to contribute to the development of the PMP industry.

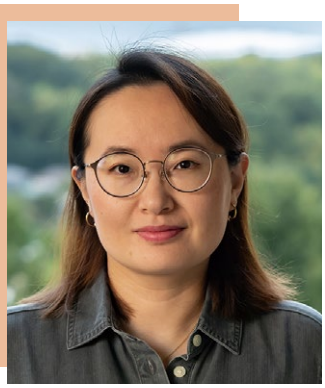
Room A

IKARI Holdings CO., LTD.
Senior Managing Director

Naoko Kurosawa (Japan)

1996 Joined IKARI Shodoku
2015 Director of IKARI Shodoku
2016 Managing Director of IKARI Shodoku
2022 Senior Managing Director of IKARI Holdings,Vice president of the Osaka Pest Control Association

Ms. Naoko Kurosawa is the senior managing director of IKARI Holdings, one of the leading pest and hygiene management companies in Japan. Naoko joined IKARI SHODOKU in 1996. Moving up the corporate ladder, she was appointed director in 2015 and managing director in 2016. Naoko has spent the past few years working to promote diversity and female empowerment. In order to enhance the industry from a female perspective, she also established the SakuLife Promotion Office.Naoko was appointed senior managing director of IKARI Holdings Co., Ltd. in 2022. She also serves as vice president of the Osaka Pest Control Association.



IKARI Shodoku Co., Ltd
Subsection chief of International Business Division

Uhaan (Japan)

2016 Master of Information and Communication from Meiji University - Graduate School of Information Communication
2016 Joined IKARI Shodoku
2018 Subsection chief of International business division

Ms. Uhaan joined IKARI Shodoku in 2016. Her proficiency in 3 languages helped her to start her career life at IKARI, mainly as a translator and interpreter at the beginning. She currently oversees a number of responsibilities after gaining years of expertise, including trade affairs, international product marketing and selling, and customer support representatives.

The Story of IKARI Shodoku: Past, Present, and Future

The speech from IKARI is divided into 2 sections and is delivered by two speakers. The senior managing director of IKARI Holdings, Naoko Kurosawa, will discuss the history of IKARI in the first section. She will discuss how her family started this business and grew it from a small rodent extermination contractor in Chiba, to the leading pest and hygiene management company in Japan, which is also on a success path to going global.

Along with the background, the audience will learn about IKARI's current status and areas of focus in this section of the speech, as well as how determined they are to adopt IPM in both Japan and their overseas branches. The social pursuits that IKARI has devoted these years will also be covered in this part.

The second section of IKARI's speech will begin with an overview of some of the company's key product developments and the current employee education program before moving on to the company's international operations and long-term goals.

Room A

Fuji Flavor Co., Ltd.
Senior Manager of R&D

Dr. Rikiya Sasaki (Japan)

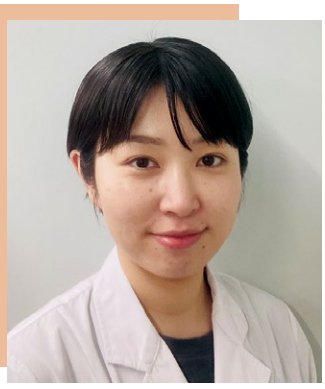
I'm a senior manager of R&D of Fuji Flavor. Fuji Flavor is a group company of Japan Tobacco. We develop, produce and sell pheromone traps to monitor insect pests. I engage in evaluation of attractants such as pheromone and kairomone and development of pheromone traps. I'm familiar with entomology and chemical ecology. The main field of our business is pest management industry of stored-product insects. For more information on us, visit the following websites (English: https://www.fjf.co.jp/en/ecomone/index.html, Chinese: https://www.fjf.co.jp/cn/ecomone/index.html).

Effective Use of Monitoring Data from Pheromone Trap: How to Narrow Infestation Area

Monitoring is one of key components in pest management, especially IPM (Integrated Pest Management). Quality of pest management is improved through effective use of monitoring data. Monitoring data is the number of catches of the target insects by trap as monitoring tool. Two figures, seasonal prevalence of catches and distribution map of infestation, are obtained from the monitoring data.

The distribution map of infestation is useful for identifying infestation area. We can narrow infestation area from an entire building or large area to a room or limited location. For narrowing infestation area efficiently, it is necessary to collect data more installing additional (or temporal) traps. It is generally recommended to put both data together in combination. Identifying an area more finely leads us to radical measures such as removal of infestation source or nest.

Pheromone traps, traps with lures containing pheromone as attractant have been used for stored-product insects. Pheromone is species-specific and a pheromone trap can attract the target insect. We examined if infestation area is narrowed based on the number of catches from pheromone traps, NEW SERRICO for the tobacco beetle. We show results of the experiments which carried out in a warehouse and discuss how to identify an infestation source at a site.



Room A

Earth Corporation
Subsection chief, Research Laboratories, Research & Development Headquarters

Eri Harada (Japan)

2015-2019 Join Earth Corporation Research Laboratories.
Researcher in weed control, biostimulant, agricultural pest control of Agricultural Product Group
2020-present Join Household Insecticide Group as subsection chief for Nuisance pest control, Hygiene pest control

Development of two-types of groundbreaking formulations containing a novel insecticidal compound, TENEBENAL™, against insecticide-resistant pests.

TENEBENAL™ is a novel meta-diamide insecticide invented by MITSUI CHEMICALS AGRO, INC. This insecticide is effective against various type of pests such as nuisance pests, agricultural pests and hygiene pests including insecticide-resistant cockroaches and bed bugs.

Spending a period of seven years, Earth Corporation has developed two-types of formulations, a metered-spray aerosol and a fumigant, that can easily diffuse TENEBENAL™ throughout an indoor space. By using these formulations, hard-to-control pests can be effectively killed without time-consuming work, huge costs and specialized skills.

We confirmed the high effectiveness with one time treatment using these formulations against pyrethroid-resistant cockroaches and bed bugs not only in laboratory tests, but in field tests also. In addition, surprisingly, we found that these effectiveness lasts for long-term, more than one year, and it continued to suppress damage by pests on the environment and human health.

In this speech, we will introduce two extermination cases of insecticide-resistant german cockroaches (Blattella germanica) and bed bugs (Cimex lectularius) with these formulations. Through these cases, it was indicated that these formulations are groundbreaking for both household and PCO use.

In order to solve various social problems caused by pests, we will continue to contribute to improving the quality of life of people around the world with the development of the formulations containing TENEBENAL™.

Room A

KINCHO
Director　General Manager of Sales Division　Market Development Division

Shiro Ueyama (Japan)

March, 2004　Graduated from Faculty of Economics,Keio University
April, 2004　Joined Ad agency company (IT, Sales)
October, 2014　Joined KINCHO (Factory Manager)
March, 2018　Director, General Manager (Sales Division, Market Development Division)

I am a great-great-grandson of Eiichiro Ueyama, founder of KINCHO, who invented a mosquito coil.
With our 138 years of history and innovative capabilities, we hope to support your pest management business.

Never forget our bird logo.

KINCHO has been watching insects and insecticides for 138 years since its establishment. In our speech and exhibition booth, we would like to introduce our history and innovative capabilities and hope to create new business with you.

We were founded in 1885 in Arida City, Wakayama Prefecture. Eiichiro Ueyama, the founder of the company at that time, established a method of growing pyrethrum flowers which contain insect repellent ingredients and educated farmers throughout Japan cultivating pyrethrum flowers. Eiichiro came up with the idea of kneading pyrethrum into incense sticks, and over the years invented a spiral-shaped mosquito coil. This is regarded as the world's first industrialized insecticide.

Later, in 1958, shortly after the end of World War II, Dr. Katsuda, a researcher at our company, elucidated the stereo-chemical structure of pyrethrin, a natural insecticidal ingredient contained in pyrethrum, and this marked the beginning of the history of synthetic pyrethroids. As you know, pyrethroids are superior in terms of both efficacy and safety, and are still used around the world as a major insecticidal ingredient.

Along with the development of pyrethroids, KINCHO, for the first time in the world, has developed various household insecticides such as household aerosol sprays "Kinchol," cockroach baits, liquid mosquito repellents, repellents for clothing, spatial repellents, one-push cockroach insecticidal sprays for spatial treatment, etc.

For pest management products, we established the ULV (Ultra Low Volume) technology 40 years ago. It is used in the kitchens of restaurants and outdoors where mosquitoes are likely to be generated. Recently, tests have been conducted to mount ULV on a drone and spray it from the air, and it is once again attracting attention as a technology with great potential.

Room A

ZM Crop Protection Corporation
Manager, Development Dept.

Motoyuki Sasaki (Japan)

2019 - ZM Crop Protection Corp.
2007 - 2018 BASF Japan, Agro Division, Manager, Technical Service
2001 - 2006 Syngenta, Japan, Crop Protection Division, Manager
1997 - 2000 Novartis Region Asia Pacific, Marketing Manager.
1978 - 1996 Ciba-Geigy Japan, Agricultural Div. R & D

Born in Japan in 1955
Graduated Kobe University, Master's degree of Applied Entomology

An Excellent Transfer Effect of the Novel Termiticide, Dicloromezotiaz

Dicloromezotiaz (Nexus®Z-800), novel termiticide has been launched in Japan in May 2021.

Dicloromezotiaz, a new insecticide has many suitable physicochemical and biological properties for use as a termiticide, such as no-repellency and very slow acting to termite, very low water solubility and vapor pressure with high safety to mammals and environment. A product profile and performance will be presented with underlined excellent transfer effect to subterranean termite, Coptotermes formosanus.

Room A

Nisshin Seifun Welna Inc.
Product Management Division, Quality Control Group Manager

Naohiro Takaku (Japan)

Naohiro Takaku is working for Nisshin Seifun Welna Inc., one of Japanese major food company and a member of Nisshin Seifun Group. In his current role since 2017, he is Quality Control manager for Flour, Premix, Pasta, Pasta sauce and Frozen food of Nisshin Seifun Welna. He has 20 years Quality Control and Quality Assurance experience including Pest Control in Thailand, Indonesia and Japan. A master of Kyoto University (Applied Life Sciences). He is married with three children.

Pest Management requirements From client' s perspective

For food manufacturers with global production network, it is essential to cooperate with PCO of each country in order to implement pest control appropriately in each factory. In this lecture, three requirements to PCOs from food manufacture's perspective will be taken up.

The first is "Understanding the level of Pest Control required in the market where the products are consumed". For each market where food is consumed, intensity of the consumer's negative feelings to food insect contamination varies. In particular, in the Japanese market, consumers have a strong negative feelings to cockroaches and flies. And, there is a risk that the food contamination of only one cockroach or fly might become a major social problem and might lead to a company bankruptcy.

The second is "Prevention of pesticide contamination in food when spraying pesticide". Depending on the type of pesticide to be used and the structure of the factory, there is a risk that the pesticide after spraying might be contaminated into the food, so it is preferred that a tight control of the contamination of the pesticide is performed. If the pesticide used is subject to food quarantine surveillance in the country where the food is exported, measures to prevent the contamination of the pesticide should be taken more carefully.

The third is "Pest Control education for plant employees". To enable plant employees to take the initiative in pest control, it is preferred that a PCO with expertise should educate plant employees about pest control. In particular, teaching about insect ecologies and control methods of insects and how to seal small gap and how to clean in the factory is important.

Room A

Ecolab Global Pest Elimination – RD&E
Staff Scientist

Dr. David Lilly (Australia)

David Lilly is a Staff Scientist with Ecolab Global RD&E, based out of Australia. In this role he is responsible for delivering innovative pest management solutions across the Asia Pacific and Greater China regions. He has over 15 years' experience in urban pest management, including both in the auditing and development of tailored pest management solutions, and providing qualified technical support to high-needs customers. David has extensive experience with many aspects of commercial pest management, including specialized knowledge in the field of bed bugs, ants, rodents, large filth flies, insecticides, and insecticide resistance. David holds a PhD from the University of Sydney, a Master of Entomology from the University of Queensland, and a Bachelor of Science (Hons) from the University of NSW.

Strategies for Managing Stored Product Pests in Food Manufacturing Facilities

'Stored product pests' are a diverse category of arthropods that includes numerous species of beetles, moths, mites and psocids (booklice) that are distinguished through their ability to infest and destroy almost any product of organic origin. Annually, these pests cause millions of dollars of economic loss through damaged and destroyed products, in addition to the costs incurred with their management and control. However, stored product pests are often difficult to monitor, detect and identify, making proactive and preventative management of their presence a task many professional managers have difficulty with. Strategies to mitigate the impact of stored product pests often also require greater thought and complexity in implementation than other food-related pests and, in some countries, limitations on the choice of effective insecticide options add further challenges to efficacious and economical management. Therefore, the aim of this presentation will be to provide an overview of the some of the major types of stored product pests and strategies to anticipate their presence and implement corrective measures to limit their impact. Aspects such as monitoring programs and analysis of data, including the establishment of critical limits, will also be reviewed and discussed

Room A

C&S Corporation
Director

Toshikazu Tani (Japan)

1983. Completed Master's program in Applied Entomology, Graduate School of Agriculture, Kyoto Prefectural University.
1984. Joined C&S Co. President and Representative Director (2004-2019), and currently Director and Technical Advisor.
2005. Participated, as the person in charge of insect control, in the preparation group of "Guidance on the Manufacture of Sterile Pharmaceutical Products by Aseptic Processing," a scientific research program of the Ministry of Health, Labour, and Welfare.
We provide quality management consulting services preventing contamination by insects, microorganisms, and food allergens in food and pharmaceutical manufacturing facilities. We also provide services implementing insect control programs from a risk management (QRM) perspective in pharmaceutical manufacturing facilities.

Pest management concept from the perspective of ICH Q9 quality risk management.

In 2006, the "Guidance on the Manufacture of Sterile Pharmaceutical Products by Aseptic Processing" described the "Insect Control Program" for pharmaceutical manufacturing facilities for the first time in the industry. The document states that the purpose of insect control in clean areas is to prevent contamination by foreign substances and microorganisms. In addition, in 2021, the Japanese GMP will be revised, and a new section on risk management will be inserted. In this presentation, he will introduce insect control from the viewpoints of pharmaceutical GMP, QMS, and IPM.

Room B-1

Pest Control Associates (AMB) Pvt. Ltd.
Director & COO

Viren R. Merchant (India)

Viren is an entrepreneur, international speaker & consultant with 20+ years of experience in the professional pest management & property hygiene.
Garnered IPM knowledge from Purdue University CFTRI, NIPHM, IPCA, NPMA & FAOPMA.
Principal educational program developer of NPMA & IPCA's PestWorld East August 2016 Goa India. Completed Basic & Advance Level IPM in Food Plants certificate program by AIB International & FAOPMA in 2017 & 2018.
Invited speaker in India, UAE, PestWorld2018 USA, Mexico, Peru, Philippines (virtual), ICUP 2022 Barcelona, Expoprag 2022 Brazil, Peruplagas 2021 virtual conferences.
Head Strategy for Global Pest Management Coalition & articles published in international industry publications Clean India Journal, LATAM Revista Plagas, etc. Past Chairman of Young Leaders Forum of IMC Indian Merchants Chamber.

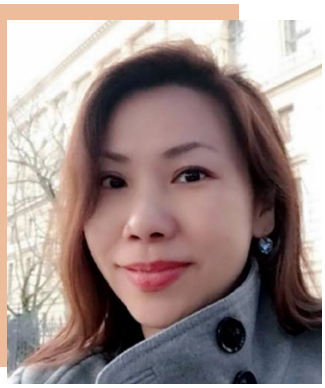
Darwinism of the Business of Managing Pests - 'Unpacking' the covidffect.

"A sustainable business is a resource efficient, respects the environment & is a good neighbour" - Phil Harding. Like all things in life, evolution of the urban structural pest management services business, is inevitable! And Covid-19 pandemic probably just fast tracked the necessity to evolve!

An industry that took generations to emerge from control to management, Urban IPM services needs the "Darwinian" change in an environmentally sensitive world. From 2500 BC where ancient Sumerians used sulphur compounds to kill insects to the the modern IPM approach, the structural pest management services business has come a long way. But, with global business/ trade constantly transforming, change in consumer expectations, digital transformation being witnessed, demands for inclusive & environmentally sustainable development, our industry's next step forward & upward has to be transformative!

According to Darwin's Origin of Species, it is not the most intellectual of the species that survives; it is not the strongest that survives; but the species that survives is the one that is able best to adapt and adjust to the changing environment in which it finds itself. Paraphrase this in context of our IPM services business, our industry needs to evolve through - pest adaptability to rapid urbanisation, upgrading application strategies, newer environmentally safe chemistry, digitisation, exclusion as a sustainable tool in structural design, focussed marketing, skilled knowledge based communication on importance of public health pest management!

The disruptive effects of Covid-19 kind of "vacc'ed" the industry's focus on resource optimisation, up-skilling, technology intervention, knowledge sharing with target audience, organisational inclusivity, exploring symbiotic relationships in business, business 'pivoting' strategy, etc. Our industry needs to use the pandemic recovery as an opportunity to accelerate prosperity through effective strategy.



Room B-1

RENTOKIL INITIAL MALAYSIA
Managing Director, Malaysia, Philippines and Brunei

Carol Lam (Malaysia)

Carol Lam is the Managing Director of Rentokil Initial Malaysia and oversees the Brunei and Philippines business. She has been with Rentokil Initial (M) Sdn Bhd since 1991, and after 18 years in the Hygiene business she became Managing Director in 2009 for both the Pest Control and Hygiene & Wellness businesses. Carol obtained her MBA from the University of Arcadia, Pennsylvania and Advanced Diploma In Business Administration, ABE UK. She has held roles as Deputy President, Vice President – Membership and Exco member with The Malaysia Pest Management Association (MPMA) and as Projects Chairman and School Education Chairman in the Quality Restroom Association of Malaysia (QRAM).

Digitalising Business Process in Pest Management Companies

Why are companies jumping into the bandwagon of digitalising their business process? It all started back in the 1950s when the first computer was created, and fastforward to 2022, the new digital landscape has never stopped evolving and transforming. With the advent of the Internet of Things, it's all about staying connected, streamlining seamless business processes from the internal stakeholders to the external customers.

To stay viable and thrive in this rapidly changing digital landscape, businesses need to be able to anticipate what's next and react in real time. This presentation covers the crucial elements to simplifying pest management processes, spearheading strategic plans with the right digital solutions and cultivating a culture of change management to every aspect of the business in order to accelerate business growth.

Room B-1

Hysia, CEO

Taro Kanazawa (Japan)

Taro is the president-elect of FAOPMA and the owner/CEO of HYSIA, a Japanese pest/hygiene management company with branches in Singapore, Malaysia and Australia.
Prior to joining the business in 2009, which was founded by his grand mother in 1969, Taro worked for management consulting companies as a HR strategy consultant and a marketing analyst in finance and automotive industries in Tokyo.
His life mission, inherited from his grand mother, is empowerment of pest management professionals and making our industry more relevant, respected and valued.
A graduate of Akita National College of Technology (Environmental and Civil Engineering)

Building a pest management business sustainable for generations

Taro runs a 53-year-old pest management company in Japan, which has branches in Singapore & Malaysia.

He will talk about the uniqueness of the Japanese business culture and the community, which is relevant to the modern business management strategy, especially for the pest control industry.

65% of 200 year old or older companies are Japanese companies, most of them are small companies between $0.5m to $10m. Such a community of long lasting businesses and the ecosystem of the business owner/manager helps us constantly inspired and reminded about what it takes to run a successful business that is sustainable for generations.

Practical wisdom and philosophies of Japanese businesses will be shared and elaborated into:

1. Implications to how we should be as a business owner/director
2. Implications to how we can build sustainable pest management companies
3. Implications to our Asian and Oceanic pest management industry

EXHIBITION BOOTH MAP［ブースマップ］

Seminar Hall

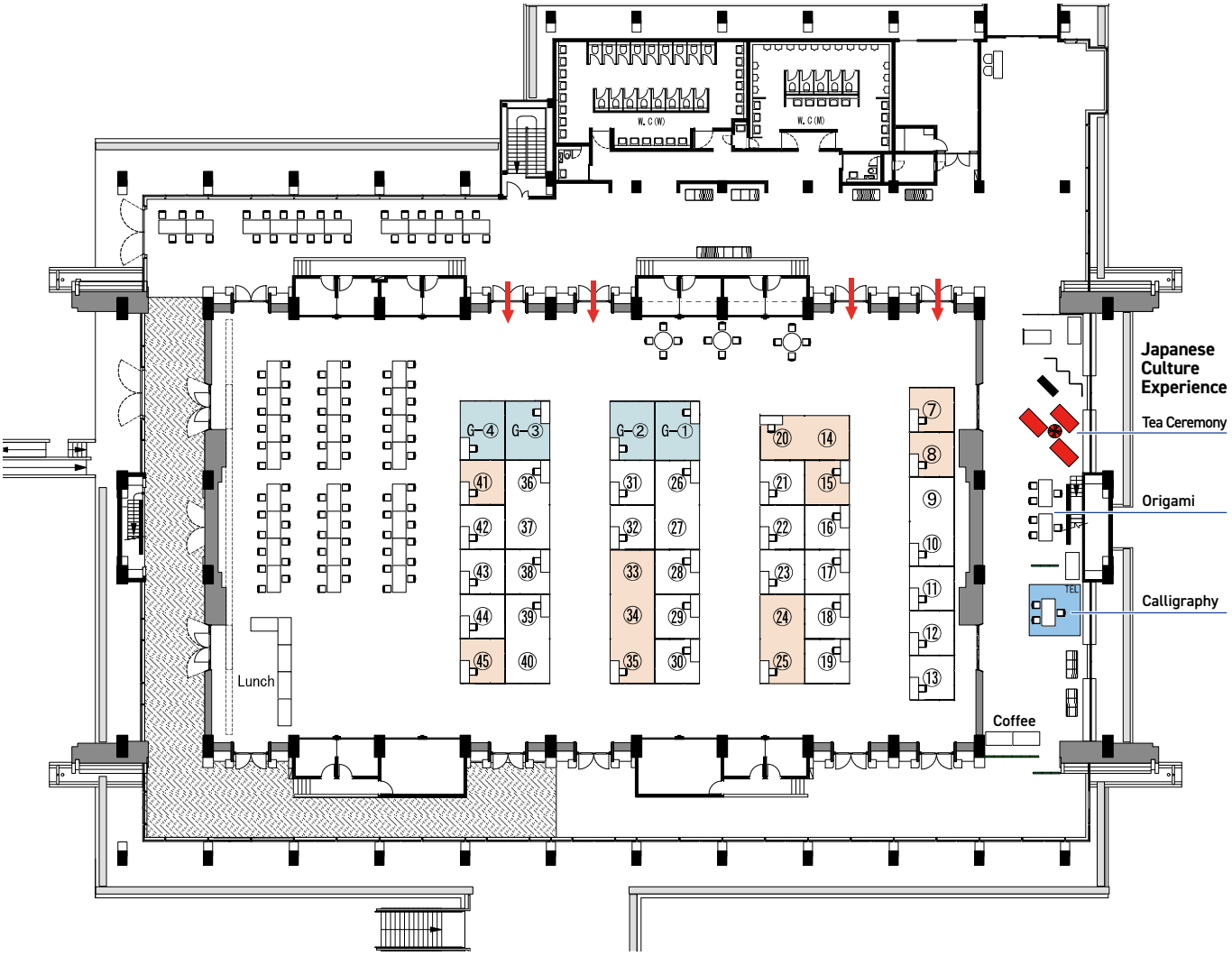
Booth P-1	Envu
Booth P-2	Sumitomo Chemical Co., Ltd.

Annex Hall

Booth G-2	IKARI SHODOKU
Booth G-4	FUJI FLAVOR Co., Ltd.
Booth G-1	Earth Group
Booth G-3	KINCHO
Booth 45	Semco Co., Ltd.
Booth 15	Hohto Shoji Co., Ltd.
Booth 7	BURRTEC Co., Ltd.
Booth 20 & 14	PestWest Starkeys
Booth 8	Syngenta
Booth 33 & 34 & 35	BASF
Booth 41	ChinCheX Bed Bugs Insecticide
Booth 24 & 25	FAOPMA / JPCA / TEPMA

Annex Hall

Booth 9 & 10	Pharmcle
Booth 11	Tsing Hua Environmental Protection Co., Ltd.
Booth 12	25SQM, Incorporated
Booth 13	RodeXit ApS
Booth 16	Peony
Booth 17	KOREA COWIN Co.,Ltd.
Booth 18	THU CUONG ENGINEERING CO.,LTD
Booth 19	Plascare
Booth 21	SEL
Booth 22	ZM Crop Protection Corporation
Booth 23	SIANG MAY PTE LTD
Booth 26 & 27	Innotech Co., Ltd.
Booth 28	MITSUI CHEMICALS AGRO, INC.
Booth 29	Entostudio
Booth 30	Mouse Stop
Booth 31	GAONIPM Inc.
Booth 32	CONTROL EQUIPMENT PTY LTD
Booth 36 & 37	KUKBO&G.SSEN
Booth 38	TIANJIN HC HARDWARE PRODUCTS CO., LTD.
Booth 39 & 40	SM BURE CO., LTD
Booth 42	ENSYSTEX
Booth 43	PLASTDiVERSiTY-KYZONE PEST CONTROL
Booth 44	TYENG LONG INCORPORATION



Envu

https://www.envu.com/

The future is bright for Environmental Science (ES)! Upon the successful close of Cinven's acquisition of the business from Bayer, our new standalone company will be named #Envu. Pronounced "ehn-VIEW," the name is derived from "environment" and "vision." As Envu, we remain dedicated to bringing you innovative solutions as we work together to tackle the toughest challenges our environments face today. Our focus will solely be on environmental science, which will allow us to solve problems faster, smarter and more efficiently.

Booth P-1

Sumitomo Chemical Co., Ltd.

https://www.sumitomo-chem-envirohealth.com

Sumitomo Chemical Co., Ltd. and its affiliates (SC Environmental Science Co., Ltd. and Sumitomo Chemical Asia Pte Ltd. etc.) are solution providers in the field of professional, household and public health specialized global pest control.

Our mission is to make life healthier and happier by creating innovative and environmentally friendly pest control solutions to protect and improve people's lives and environments.

The dream of chemistry in your life.

We are always close to you, and aim to help you live a better more comfortable life and be even more useful to you.

Booth P-2

IKARI SHODOKU

https://www.ikari.co.jp/

Founded in 1959, IKARI SHODOKU is a Japanese one-stop-platform hygiene management company that provides a variety of customers, from food processing to residential, with services covering a wide range of fields, such as pest management, contaminant identification, various analyses, microbial control, etc.

With more than 1,000 employees and over 100 offices covering every prefecture in Japan, we are now expanding our business overseas and have established our first two international subsidiaries in Indonesia and Malaysia.

We strive to keep providing our customers with the highest standard of hygiene management service that focuses on preventative measures and low environmental impact, and to keep contributing to global food safety and environmental sustainability.

Booth G-2

FUJI FLAVOR CO., LTD.

GOLD Sponsor

FUJI FLAVOR Co., Ltd.

https://www.fjf.co.jp/en/ecomone/index.html

FUJI FLAVOR is a manufacturer of high-quality pheromone traps. Pheromone traps using pheromone that is natural chemical substance which has special feature to attract only specific insects are possible to effectively capture the specific insects and monitor the outbreaks. Therefore, our products will lead from pesticide-based pest management to more efficient, safe and secure management reducing the amount of insecticide. Our business started to expand to more than 100 countries all over the world since we launched world's 1st pheromone trap "NEW SERRICO" for Tobacco Beetles in 1981. FUJI FLAVOR and our high- quality products will definitely contribute in your efficient and safe pest management.

Booth G-4

Earth Group

GOLD Sponsor

Earth Corporation

https://corp.earth.jp/en/index.html

Established in 1925, Earth Corporation is a leading provider of household insecticides and daily items that support healthy and comfortable lives of people. With a dominant position in the insecticide market, the company also offers "Mondahmin" oral care, "ONPO" carbonic acid bath, and "Raku Hapi" cleaning supplies. The company is driving the market in Japan with its strong ability to deploy products through retailers systematically with agility. At the same time, the company now exports to about 50 countries, focusing on expanding its revenue base in Asia. Earth Corporation leads the growth of Earth Group by striving toward "Creating a Market with customers" and vigorously working to generate group synergies.

Booth G-1

KINCHO

GOLD Sponsor

KINCHO

https://www.kincho.co.jp/

KINCHO was founded in Wakayama in 1885 by Eiichiro Ueyama. He started his business by growing pyrethrum, and in 1890 he invented the world's first mosquito repellent, the stick-shaped mosquito coil.

In 1902, KINCHO began selling "Kincho no Uzumaki," a spiral-shaped mosquito coil that enabled burning longer.

Since our founding, we have dedicated ourselves to insecticides and have successfully developed various insecticides, including Japan's first aerosol spray "Kinchol," one-push insecticidal sprays, repellents for clothing, spatial repellents and more.

KINCHO is committed to creating products that are not only effective, but also considerate of people, society, and the environment, and through these efforts, KINCHO has been supported worldwide for 138 years.

Booth G-3

Semco Co., Ltd.

https://www.semco.net/english/eng.top.html

Semco was established in 1969 and becomes the leading supplier of professional pest management products and services in Japan. The company has been led by Mr. Junichiro Katayama who is the one of the leaders of the industry both in domestic and international. Our goal is to upgrade the industry. We conduct seminars for the professionals. We are also committed to develop the new technologies such as AI based monitoring system, Pest Vision, which will change the rule of the industry.

Booth 45

Hohto Shoji

https://www.hohto.co.jp/

HOHTO SHOJI Co. Ltd. is a supplier in pest control with 59 years of history. We import and sell the world's pest control technologies and products to Japan, and we strive to develop the pest control industry. (e.g. B&G Sprayer, ULV, Actisol, CDC Miniature Light Trap)

Booth 15

BURRTEC Co., Ltd.

https://burrtec.co.jp/ https://www.burrtecusa.com/

Burrtec Co., Ltd - We are a Japanese company that specializes in pest control door sweeps for commercial & industrial environments. Since 1962, we have been fully committed to finding solutions to on-site issues through our knowledge and technologies. With over 100,000 installations of our gap-prevention brushes for rollup doors and man-doors, we have positioned ourselves at the top of the market for gap-prevention pest control products here in this country. Rather than focusing on our position as a manufacturer, we develop and deliver products with an emphasis on solving our customers' problems. At Burrtec, we are the experienced, trusted, and reliable door sweep team!

Booth 7

Pest West Starkeys

https://www.pestwest.com.au/

Semco was established in 1969 and becomes the leading supplier of professional pest management products and services in Japan. The company has been led by Mr. Junichiro Katayama who is the one of the leaders of the industry both in domestic and international. Our goal is to upgrade the industry. We conduct seminars for the professionals. We are also committed to develop the new technologies such as AI based monitoring system, Pest Vision, which will change the rule of the industry.

Booth 20 & 14

Syngenta

https://www.syngentappm.com.au/

Syngenta Professional Pest Management is a dedicated organization and the name behind a portfolio of trusted products and services being used worldwide.

We understand the needs of pest management professionals and the challenges they face every day. Our scale, expertise and curious nature gives us an industry-leading advantage. We create

innovative solutions to resolve a wide variety of pest problems, quickly and responsibly. We employ methods that ensure people and businesses are treated with consideration.

We work alongside pest management professionals and use our expertise to ensure that people from all over the world have the chance to conduct their lives uninterrupted by the nuisance and disruption of pests.

Booth 8

BASF

https://www.basf.com/

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The approximately 110,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is organized into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of around €78,6 billion in 2021.

Booth 33 & 34 & 35

ChinCheX Bed Bugs Insecticide

https://en.chinchex.com/

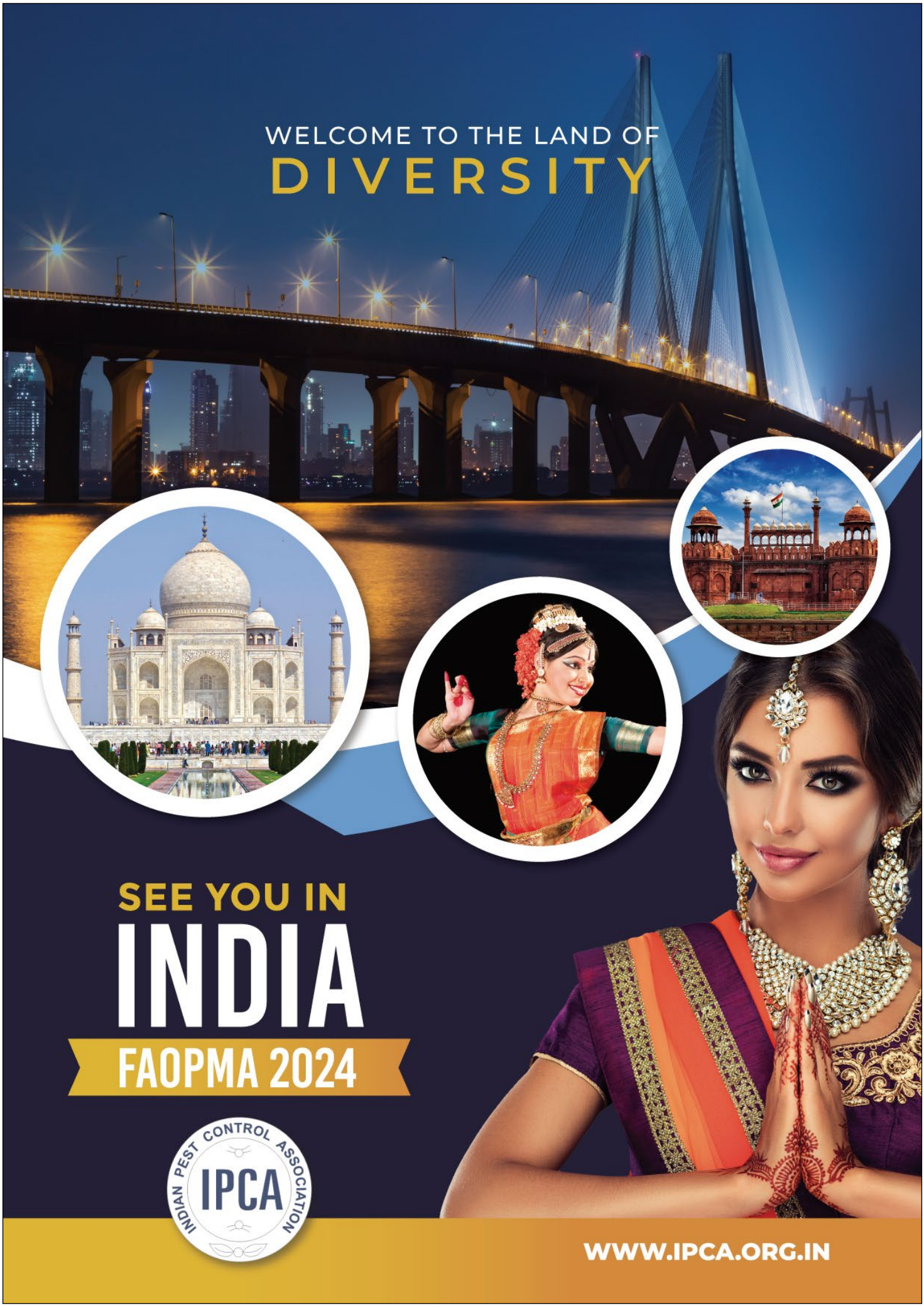
CHINCHEX is a 100% silica gel BED BUGS INSECTICIDE. It is proven to be a top product in the world for bed bugs combat by the most renowned experts:

Dr. STEPHEN DOGGETT: "ChinCheX is highly efficacious against susceptible and modern resistant strains of the common bed bug" Dr. ALVARO ROMERO: "bed bugs do not avoid CHINCHEX. Bedbugs can transfer "CHINCHEX" to other members of the aggregation.100% mortality was observed at 9h postexposure".

Dr. RICHARD NAYLORD: "The results indicate that ChinCheX is extremely good for bedbug control".

STC: "No irritation was observed, no evidence of delayed dermal contact sensitization".

Booth 41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DIVERSITY
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INDIAN PEST CONTROL ASSOCIATION
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