

Global Integrated Pest Management (IPM) Forum Summary Report and Recommendations

This forum was organized by the World Technology Access Program (WorldTAP), Institute of International Agriculture in collaboration with the Department of Entomology and the College of Agriculture and Natural Resources, Michigan State University

Report compiled by Dr. Karim Maredia, Dr. Dieudonné Baributsa and Dr. George Bird



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Global Integrated Pest Management (IPM) Forum

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Global Integrated Pest Management (IPM) Forum

Summary Report and Recommendations

June 15-17, 2008 * East Lansing, Michigan, USA.

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Executive Summary

In celebration of the completion of 100 years of the Department of Entomology at Michigan State University (MSU) and within the context of the issues related to new global agriculture, MSU organized a Global Integrated Pest Management (IPM) Forum from June 15 - 17, 2008 in East Lansing, Michigan, U.S.A. More than 98 IPM specialists, program/project managers, research scientists, extension personnel, students, farmers, private sector, and NGO representatives from more than 28 countries from Africa, Europe, Asia, Middle-East, Latin America, and USA attended this Forum. This participatory and interactive Global Forum provided opportunities for sharing IPM experiences and lessons learned from around the world. Country and regional presentations highlighted a great diversity and variation in current IPM capacity in different parts of the world, which should be considered when designing collaborative IPM research, education and outreach programs.

During group discussions, participants identified a strong need for enhancing and strengthening IPM

educational programs for both academic and non-academic stakeholders focusing on practical education and experiential learning opportunities through public private sector partnerships. There was a greater appreciation for collaborative research on landscape ecology and systems approach to pest management within the context of global food production and energy security. Key note addresses and plenary sessions suggested to build future IPM programs in the context of new global agriculture, moving beyond just production systems to market oriented systems, linking IPM programs to issues related to local, regional and international trade. IPM communication with various stakeholders using both conventional (radio, television, on-farm demonstrations, etc) and emerging ICT tools (internet, cell phones, etc) was identified as one of the key priority areas for capacity building, especially to reach out to the smallholder farmers. Finally, the participants emphasized importance of information and knowledge sharing and networking to foster collaboration and cooperation among the global IPM community.

Summary Report and Recommendations

I. Background of the Forum

Integrated Pest Management (IPM) has played an important role in reducing losses from pests and reducing the use of chemical pesticides, thereby enhancing agricultural productivity and environmental quality. For the past five decades, Michigan State University (MSU) has been a leader among many national and international organizations in promoting IPM practices. For more than 100 years, the Department of Entomology along with other Departments, Units, and Colleges at MSU have been actively involved in providing Integrated Pest Management (IPM) education, information and networking opportunities to the global community. Through its well established IPM programs MSU has played a major role in building human resources and collaborative research programs worldwide.

The international cooperation and collaboration has been a hallmark of MSU. With the new trends of globalization, the university has broadened its mission from land-grant to a world-grant mission. The need for enhancing cooperation and collaboration among global IPM community continues to grow especially to help address the emerging challenges related to the “new global agriculture”, climate change, and the global food security.

In this context, Michigan State University organized a global IPM Forum from June 15 – 17, 2008 at the Kellogg Center on the campus of MSU. Dr. Karim Maredia, Dr. George Bird and Dr. Dieudonne Baributsa provided leadership in the development and coordination of the Forum program. The Global IPM forum brought together the key representatives of the global IPM community for an interactive dialogue on emerging issues related to IPM research, education, extension/outreach, communication and networking to help enhance the development and adoption of IPM practices. In addition, the forum served as an event to celebrate the completion of 100 years of the Department of Entomology at MSU.

More than 60 Global IPM leaders, program/project managers and research scientists from 29 countries in Africa, Europe, Central Asia, South Asia, Latin America, and North America attended this Forum. The participants represented National Agricultural Research Systems (NARSs), policy makers, and representatives of international organizations, private sector, NGOs and donor community. Among the attendees were former participants of the MSU's annual International IPM short course that has been offered since 1995.



The Goals and Objectives of the Global IPM Forum were to:

- Provide a platform for interactive discussions on the lessons learned in IPM implementation during the past 25-50 years and their implications for a new, equitable and sustainable global agriculture.
- Identify short-term and long-term global priorities in IPM research, education, and outreach activities towards meeting the emerging challenges and opportunities of the new global agriculture.
- Develop a plan of action for creating new global partnerships and strategies for strengthening IPM research, education, extension/outreach, communication, and networking globally.

II. Description of the Forum Program

The Forum program started with welcoming remarks from Dr. Frank Fear, Senior Associate Dean of MSU College of Agriculture and Natural Resources, and Dr. Ernest Delfosse, Chairman of the Entomology Department at MSU. They both gave an historical perspective on MSU's role in promoting IPM globally and re-affirmed the University's commitment towards IPM capacity building programs. Dr. Karim Maredia gave an overview of the Forum program, highlighted how the Forum came about, and discussed expected outcomes of the Forum towards enhancing collaboration and cooperation in building IPM capacity globally. This was followed by a recognition ceremony in memory of Prof. Thomas Odhiambo from Kenya, Dr. Ray Smith from California, and Mr. John Clark from Michigan. These three leaders made significant contributions in promoting IPM and sustainable agriculture.

A key note address on “New Global Agriculture and IPM” was given by Dr. Aziz Lagnaoui, Senior IPM Policy Advisor at World Bank to set the stage to the Forum. This key note presentation highlighted global challenges and emerging issues related to agriculture and how IPM can help address some of the key challenges such as global food security, environmental quality, human health and sustainable development within the context of new global agriculture.

The following two days of the Forum program included perspectives and experiences of various stakeholders in designing and implementing IPM programs globally. These sessions started with an overview of global IPM experiences and perspectives of the international programs, donor community and IPM specialists from six regions of the world. Dr. Mustapha Bouhssini from ICARDA presented the experiences and successful IPM case

studies implemented through the CGIAR Center's System-wide IPM program (SP-IPM). Mr. Camilo Acosta presented the perspective of Costa Rica-USA Foundation, and Dr. Julian Smith presented the key priority areas such as pest surveillance and IPM adoption that are under consideration for capacity building through the support of the Bill and Melinda Gates Foundation.

These perspectives were followed by short presentations highlighting successes, failures and lessons learned from various IPM programs in six regions of the world. The six regional case studies were presented by Dr. Dona Dakouo (Africa region), Dr. Helga Blanco (Latin America Region), Dr. Omprakash Bambawale (Asia Region), Dr. Lara Maistrello (European Region), Dr. Frank Zalom (North America), and Ms. Gulnaz Kaseeva (Former Soviet Union Countries). These presentations clearly indicated that different regions of the world are at different stages of IPM development and implementation, and IPM capacity building needs vary from region to region.

In addition to the regional perspectives, the Forum program included presentations from NGOs, farmers, and private sector representatives – key players in IPM globally. Ms. Tererai Trent (originally from Zimbabwe) representing Heifer International gave the NGOs perspective on the role of IPM in improving the livelihoods of small-scale farmers. Ms. Trent stressed the importance of conserving and integrating indigenous knowledge in IPM programs. Mr. Jim Koan, a Michigan farmer shared his experiences in implanting IPM within the context of organic agriculture. In addition, Dr. Ray McAllister representing CropLife America gave the industry perspective on IPM.

Recognizing the importance of networking and partnerships, a presentation from Dr. Short Heinrichs from University of Nebraska highlighted the importance and benefits of building Global IPM networks in terms of sharing experiences, information and technologies among the global IPM community.

III. Stakeholders' Input towards Identifying Key Issues and Formulating Recommendations for Global IPM Capacity Building

Building on the background information presented and issues highlighted during various sessions, the forum participants were divided into six breakout groups for interactive discussions to identify key issues, needs and capacity building gaps, and develop recommendations that can be included in developing an action plan for Global IPM capacity building and implementation.

Group # 1 – IPM Research

Significant progress has been made in Integrated Pest Management research globally. However, most research programs are generally crop- and pest-centric (targeting single pest and crop). The group recognized the need for a holistic and system approach to pest management that incorporates modern concepts of landscape ecology to best provide ecosystem services while reducing pest pressures.

Key Issues:

- a. Need to restore/maintain sustainable landscape and ecosystem services - Need for IPM research programs that focus on the entire landscape instead of a single field.
- b. Need for IPM research programs to address food security and livelihood issues.
- c. Need for long-term research on potential impacts of climate change on pest populations and IPM practices.
- d. Need for participatory research approaches that integrate indigenous knowledge with modern IPM tools.
- e. Need for multidisciplinary research programs that integrate new and emerging technologies into IPM programs and address gender issues (integration of social scientific approaches.)

Key Recommendations:

- a. Initiate IPM research programs to adapt existing principles and practices of landscape management (e.g. Research on the use of native plants for conserving natural enemy communities and enhancing biological control of pests).
- b. Initiate research programs to validate indigenous knowledge of local biodiversity for pest management.
- c. Initiate long-term research programs that assess the impact of global climate change on pest population and IPM practices.
- d. Broaden the scope of IPM research programs to encompass human health benefit aspects.
- e. Design multidisciplinary IPM research programs that address gender issues and build partnerships with private sector.

Group #1 Members:

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Group # 2 – IPM Research

Biotic stresses caused by insect, disease and weed pests continue to impact productivity of the agricultural sector worldwide. This group, composed of members representing various organizations from both developed and developing countries, focused on challenges and opportunities for IPM research in the context of increased demand for food, feed and fuel globally. The group identified and discussed several contemporary and potential IPM research areas worthy of continued support or increased investments by global research community.

Key Issues:

- a. Need for research on implications of biofuels, plant material production on pest dynamics and pest management programs.
- b. Need for research on how global climate change will affect cropping systems and incidence of pests and natural enemies.
- c. Need for research on biological control, bio-pesticides, semiochemicals, and biotechnological approaches to pest management.
- d. Need for research on pesticide use and human health.
- e. Need for research on viruses.
- f. Need for research on invasive species.
- g. Need for risk/benefit assessment research on crop insurance related to IPM.

Key Recommendations:

- a. Design and implement research programs related to landscape and habitat management for conserving natural enemies and beneficial organisms in agro-ecosystems.
 - Screen native plants for attracting beneficial organisms.
 - Create incentives for adoption and conduct benefit-cost analysis for ecosystems services through landscape management.
- b. Initiate research programs on impact of global climate change on pest populations and dynamics.
 - Develop models (spacial and temporal) to predict



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Group #2 members

Dr. Scott Swinton, MSU Department of Agricultural, Food & Resource Economics (**Moderator**)
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Dr. Lara Maistrello, University of Modena and Reggio Emilia, Italy
Mr. Sanjeev Kumar, Haryana Agricultural University, India

- changes in crops, pest virulence, geographical distribution, climate, beneficial organisms.
- c. Strengthen research programs on pest resistance, management for new IPM tools and technologies.
 - d. Initiate research for developing models related to surveillance and forecasting of pests using remote sensing tools to predict pest outbreaks (early warning systems).
 - e. Strengthen research programs related to viruses and invasive species.

Group # 3 – IPM Academic Education/ Instruction

Academic educational systems in agriculture in developing as well as developed nations are constrained by their course contents, overall curricula and learning tools and technologies. The current IPM and plant protection educational programs focus more on theory and principles and less on practical aspects. The current educational format is not relevant to addressing the needs of farmers and industry and is not adequately preparing students for job markets.

The group felt that many well taught courses in specific disciplines of IPM and plant protection exist all over the world; however, the overall content of IPM education is not well structured and comprehensive. In addition, the institutional linkages are weak to foster IPM knowledge exchange among academic institutions in developing and developed countries. Additionally, the group members expressed interest in engaging the global academic community in sharing and exchanging IPM related information through the use of new and emerging ICT technologies.

Key Issues:

- a. Academic educational programs do not adequately cover practical and experiential learning aspects of IPM.

Group #3 members:

Dr. Karen Renner, MSU Department of Crop and Soil Science (**Moderator**)
Dr. Buddhi Marambe, University of Peradeniya, Sri Lanka (**Co-Moderator**)
Ms. Marcia Jn-Baptiste, MSU Department of Crop and Soil Science (**Rapporteur**)
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Mr. Kuldeep Singh, Haryana Agricultural University, India
Dr. Ovidio Gomez, Universidad Autónoma de San Luis Potosí, Mexico

- b. Lack of appropriate mechanisms, platforms, and resources for faculty and student exchange programs that foster sharing of IPM knowledge, information and experiences among and within academic institutions in developing and developed countries.
- c. Need for curriculum enhancement to integrate new and emerging areas of IPM to make the curriculum more comprehensive and relevant to the real world needs.

Key Recommendations:

- a. Develop web-based training materials on IPM (including online modules, CDs, DVDs, etc) that capture IPM experiences of global community.
- b. Develop a system for more meaningful involvement of stakeholders (private sector, government, NGOs, etc) in the development and delivery of IPM educational programs.
- c. Enhance IPM educational programs/curriculum by including internships and experiential learning components to strengthen students understanding of IPM in the field.
- d. Develop programs and practical teaching tools such as textbooks and manuals on “how to teach IPM” to various stakeholders including students, training of trainers (ToTs) and farmers.
- d. Establish sandwich and/or joint degree programs to facilitate access to existing IPM knowledge, information and resources already available worldwide.

Group # 4 – IPM Extension/Outreach

Extension and outreach are the most important part of the successful implementation and adoption of new IPM practices. Collaboration and partnerships among different actors and players (government, NGOs, private sector, farmer organizations, etc.) are required for effective extension systems. Various tools and approaches are used

to transfer IPM knowledge and information to the end-users (e.g. farmer field schools, radio, television etc.). This group recognized the importance of tailoring IPM extension/outreach programs to the needs of different clients (small scale vs. large scale farmers, high value crops vs. staples, urban vs. rural) and specific geographic regions.

Key Issues identified for developing countries:

- a. Lack of policies to support IPM extension and outreach.
- b. Lack of Resources for IPM Extension – Extension is under-funded and short-staffed.
- c. Weak IPM Extension and outreach systems (public and private), especially at village/farmers level.
- d. Weak research-extension-farmer linkages and coordination.
- e. Poor consumers and producers education in IPM and other environmental issues.
- f. Lack of gender focus in IPM extension and outreach system.

Key Issues identified for developed countries:

- a. Undervalued IPM research and implementation by the leadership.
- b. Lack of support for the consulting industry.
- c. Need for improved consumer education on IPM.

Key Recommendations for developing countries:

- a. Develop extension systems (with incentives) that effectively reach end-users, address gender issues, and incorporate their feedback.
- b. Mobilize traditional and non-traditional resources to enhance current extension systems and training of extension specialists and educators (e.g. public-private

Group #4 members:

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Ms. Maggy Hanlon, Michigan State University
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Dr. Chan Lai Keng, Universiti Sains Malaysia , Malaysia
Dr. Carlos Garcia Salazar, MSU Department of Entomology
Dr. Larry Gut, MSU Department of Entomology

- partnerships, create networks and establish pilot programs)
- c. Integrate already developed/available IPM packages into existing agricultural extension and outreach programs.
- d. Establish local and regional facilities for pest surveillance and diagnostics
- e. Document innovative IPM projects for use as case studies in IPM extension and outreach programs.
- f. Make IPM an integral part of the Good Agricultural Practices (GAP) for meeting local and export standards including food safety and sanitary and phytosanitary requirements.

Key Recommendations for developed countries:

- a. Increase awareness of IPM among decision makers.
- b. Establish industry standards for IPM consultants.
- c. Increase communication targeting the public about the value of IPM.
- d. Develop programs and networks to promote and sustain collaboration and information exchange between developed and developing countries.

Group # 5 – IPM Communication

Although a lot of IPM related information has been generated, this information has not been effectively communicated with various stakeholders in an easily understandable format. In this context, effective IPM communication programs are essential to communicate the complex scientific information in a language that is appropriate to various stakeholders.

This group representing various countries and organizations recognized that the global IPM community has been generating a wealth of information, however, group members pointed out that there is a need for effectively communicating the complex scientific information in a language and format that is appropriate and targeted for each stakeholder group. This will help build the trust among IPM stakeholders and will allow end-users to benefit from the pool of available information. The group strongly



Group #5 members

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 Ms. Tereria Trent, Heifer Internacional, Zimbabwe
 Ms. Monica Alarcon, Fundación Nambi, Ecuador
 Dr. Anamaria Gomez, MSU Department of Entomology

recognized the need for improving scientific communication in a way that is understandable to the end-users (farmers, general public, etc).

Key Issues identified:

- a. Need for making communication tools and approaches country, region, stakeholders and crop specific.
- b. Need for recognizing and enriching wealth of indigenous knowledge.
- c. Lack of governmental support for disseminating IPM related information.
- d. Need for creating linkages with media for dissemination of IPM related information.

Key Recommendations:

- a. Utilize traditional and emerging ICT tools such as radio, video, cell phones and internet for effective and rapid communication of IPM related information – rural radio programs, video films, SMS text messages and photos.
- b. Use locally trusted community leaders and innovative farmers as spoke persons for IPM communication and outreach programs.
- c. Recognize the value of local indigenous knowledge and integrate/mainstream (where necessary) into IPM programs.
- d. Integrate IPM related information into existing agricultural programs.
- e. Train scientists and extension workers to become effective communicators.
- f. Integrate feedback mechanisms in various communication strategies through participatory approaches.

Group # 6 – IPM Networking and Partnerships

In the globalized and interconnected world, networking and partnerships are key elements to efficient sharing and exchange of knowledge, information and resources. Even though the global community has accumulated a wealth of experience, access to IPM information by various stakeholders in a timely manner still remains a big challenge.

This group of 10 members representing various organizations recognized that there is a wealth of IPM related information generated and available around the world, but the information is not efficiently shared. The group strongly recognized the need for enhanced networks and building innovative partnerships that harness new IT tools for accessing and sharing IPM related information.

Key Issues identified:

- Lack of easy access to information on pest identifications and diagnostic tools for key pests.
- Lack of IPM related web-resources focusing on specific regions of the world
- Lack of a global IPM portal that facilitate links and communications among IPM programs and resources worldwide.

Key Recommendations:

- Develop a web resource for easy access to pest identification and diagnostic keys for key pests.
- Support the development of region-specific IPM resources and make them available through electronic means (websites, DVDs, etc) targeting various stakeholders.

Group #6 members

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- Dr. Braima James, CGIAR Systemwide IPM Program
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- Dr. David Mota-Sanchez, MSU Department of Entomology **(Rapporteur)**
- Mr. Camilo Acosta, Costa Rica-USA Foundation, Costa Rica
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- Dr. Padmini Giriagama, Council for Agricultural Research Policy, Sri Lanka
- Dr. Michael Brewer, MSU IPM Program, U.S.A.
- Dr. Ray S McAllister, CropLife America/CropLife International, Washington, D.C.
- Ms. Ximena Garcia, Environmental NGO, Colombia
- Dr. Karim Maredia, MSU Institute of International Agriculture, USA

- Develop a Global Portal that would facilitate links and communications among IPM programs worldwide.
 - Create a central repository of Global IPM information and knowledge-base that can be easily accessed by IPM stakeholders around the world.
 - Enhance platforms for networking in IPM (e.g. IPM and Plant Protection Associations and Societies) and use Wiki approach for on-line interactions in IPM.
- Enhance regionalization of IPM programs through collaboration and cooperation.

Each breakout group presented a summary to the Forum participants. Through an open discussion session, the Forum participants gave their feedback and input on recommendations developed by each group.

The Forum program ended with closing remarks from Dr. Doug Buhler, Associate Director of Michigan

Agricultural Experiment Station, Dr. Kim Wilcox, MSU Provost, and Dr. George Bird, Professor, Department of Entomology. They stressed the importance of international collaboration and partnerships towards developing and implementing sustainable IPM programs.



IV. Synthesis of the Global IPM Forum

The Global IPM Forum provided an excellent platform for networking, interactive discussions and exchanges of information. With the diverse group of participants from more than 20 countries attending this forum, the program was very interactive and participatory, providing participants with ample opportunities for sharing their experiences. The presentations and small group breakout sessions provided opportunities for more focused discussions on a wide range of issues related to IPM program development and implementation.

The panel discussions covering case studies of IPM programs in eight geographic regions of the world (East Africa, West Africa, South Asia, Central Asia, North America, Latin America, and Europe) clearly indicated that countries/regions are at different stages of IPM capacity. This variation and diversity in IPM capacity should be considered when designing and implementing new IPM programs. The design and implementation of new IPM programs should be tied closely with the emerging issues such as global climate change while addressing local, regional and global food security.

The capacity building of both academic and non-academic stakeholders supporting IPM programs was highly emphasized during the Forum. The participants stressed the need for IPM educational and training programs that are practical and hands-on training through experiential learning tailored to solve problems relevant to local/regional pest management issues. One avenue for achieving these goals is to develop IPM projects that foster public-private sector partnerships to serve as platforms for educational programs for both academic and non-academic stakeholders. Innovative mechanisms were suggested for providing experiential learning opportunities including internships, short courses, student and faculty exchange programs, sandwich or joint degree programs, etc. Michigan State University for example has initiated a student exchange with Haryana Agriculture University in India for sharing each others experiences.

The Forum participants strongly emphasized the input and voices of farmers and end-users in the design, implementation and delivery of IPM programs. Therefore, education and communication with farmers was identified as an important aspect of IPM capacity building. Participants discussed strategies to address challenges to reach out to smallholder farmers using both conventional approaches and modern information and communication tools (ICTs). The participants stressed the importance of use of readily available communication media and tools such as rural radio programs, videos, cell phones for rapid dissemination of IPM related information. As many developing countries are establishing village knowledge centers to provide real-time information to farmers in rural areas, IPM information should be integrated in to agricultural information packages using the conventional and modern ICTs tools.

The key note address of the forum acknowledged the need to build future IPM programs in the context of new

global agriculture. The new trends in agriculture are moving beyond production systems to market driven agriculture that integrate the sanitary and phytosanitary (SPS) and good agricultural practices (GAP) issues as they relate to local, regional and international trade. Also, in the context of recent global food and energy crisis, there was a greater appreciation for landscape ecological approach to pest management. IPM could play a significant role to address emerging pest management issues related to trade, climate change, food and energy security.

Participants recognized that there is a lot of information and experiences that have been generated in IPM throughout the world. However, the information is fragmented and not easily accessible. There is a need for enhancing information exchange and for creating networking platforms and opportunities. Hence, the participants suggested that more fora of this kind should be organized in different regions of the world to foster linkages and networking among IPM specialists. The forum participants from Europe, South Asia and Latin America have already expressed interest in organizing such fora in their respective regions. In addition, the forum participants suggested creating a central repository of Global IPM information and knowledge-base that can be easily accessed by IPM stakeholders worldwide using the new tools of ICTs. Through its well established global IPM network and in collaboration with other IPM programs, MSU will widely share the recommendations of this forum and facilitate the follow-up activities.

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Department of Entomology
Michigan State University- IPM Program
Michigan State University- Fruit Program
George and Anne Bird
Michigan State University - International IPM Course

Saturday, June 14, 2008

Arrival of Delegates

Lodging: Hotel TownePlace Suites by Marriott,

Sunday, June 15, 2008

10:00 am- 1:00 pm Pre-forum optional field trip

4:00 – 5:00 pm Registration and Reception
Lincoln Room, Kellogg Center, MSU Campus

Session 1: Inaugural Session, Lincoln Room

Session Moderator: Dr. George Bird, MSU

5:00 - 5:15 Welcoming Remarks and Forum Background
Dr. Frank Fear, MSU
Dr. Karim Maredia, MSU

5:15 - 5:45 Introduction of Participants

5:45 - 6:15 Honors Ceremony
Presenter: Dr. Ernest Delfosse, MSU
In Memory of:
- **Dr. Thomas Odhiambo, Kenya**
- **Dr. Ray Smith, California**
- **Dr. John Clark, Michigan**

6:15 - 7:00 New Global Agriculture and Integrated Pest Management
Dr. Aziz Lagnaoui, The World Bank

7:00 – 8:30 Dinner

Monday, June 16, 2008

Session 2: IPM Perspectives, Lincoln Room. Moderator: Dr. Jeffrey Riedinger, MSU

- 8:00-8:30 am** **Global IPM Experiences - International Perspective**
Dr. Mustapha Bouhssini, CGIAR/ICARDA
- 8:30-9:00 am** **IPM Capacity Building/Donor Perspective**
- Mr. Abiola Adeyemi, USDA-Foreign Agricultural Service
- Mr. Camilo Acosta, Costa Rica-USA Foundation
- Dr. Julian Smith, Consultant to Bill and Melinda Gates Foundation
- 9:00-9:30 am** **Questions/Open Discussion**
- 9:30-10:00 am** **Coffee/Tea Break (Group Photo)**

Session 3: Lessons Learned, Lincoln Room. Moderator: Dr. Karim Maredia, MSU

- 10:00-11:30 pm** **Lessons Learned in IPM Implementation, Experiences from:**
- Africa: Dr. Dona Dakouo (Burkina Faso)
- Latin America: Dr. Helga Blanco (Costa Rica)
- Asia: Dr. Omprakash Bambawale (India)
- Europe: Dr. Lara Maistrello (Italy)
- North America: Dr. Frank Zalom (USA)
- Former Soviet Countries: Ms. Gulnaz Kaseeva (Kyrgyzstan)
- 11:30-12:00 pm** **Panel Discussion**
- 12:00- 1:30 pm** **Luncheon Address: NGO Perspective on IPM**
- Moderator: Dr. Stuart Gage, MSU
- Ms. Tererai Trent, Heifer International

Session: 4: IPM Breakout Group Sessions, Lincoln Room. Moderator: Dr. Mark Whalon, MSU

- 1:30 – 3:30 pm** **Session 4: 1 IPM Breakout Group Sessions**
Group 1: Research (Room 102), Dr. Doug Landis, Facilitator,
Dr. Nutan Kaushik, Co-Facilitator,
Dr. Cholani Weebadde, Rapporteur
Group 2: Research (Room 106), Dr. Scott Swinton, Facilitator
Dr. Rami Kfir, Co-Facilitator
Dr. Callista Ransom, Rapporteur
Group 3: Academic Instruction (Room 107), Dr. Karen Renner, Facilitator
Dr. Buddhi Marambe, Co-Facilitator
Ms. Marcia Jn-Baptiste, Rapporteur
Group 4: Extension/Outreach (Room 110), Dr. Frank Zalom
Dr. Margaret Mulaa, Co-Facilitator
Ms. Barbara Zawedde, Rapporteur

Group 5: Communication (Lincoln Room), Ms. Joy Landis, Facilitator

Dr. Helga Blanco, Co-Facilitator

Ms. Dilshani Sarathchandra, Rapporteur

Group 6: Networking and Partnerships (Lincoln Room), Dr. Short Heinrichs, Facilitator

Dr. Braima James, Co-Facilitator

Dr. David Mota-Sanchez, Rapporteur

3:30 - 4:30 pm IPM Breakout Group Session Reports

4:30 - 5:00 pm Discussion of Breakout Group Reports

6:30 – 8:30 pm Networking Dinner and Farmer Keynote

Cadillac Club, Lansing, Michigan

Master of Ceremony: Mrs. Merrill Clark

Perspectives of a Michigan Farmer/Citizen Leader

Mr. Jim Koan, Almar Orchard

Tuesday, June 17, 2008

Session 5: Making IPM Work, Lincoln Room. Moderator: Dr. Mike Brewer, MSU

8:30 – 9:15 am Building Global IPM Network

Dr. Short Heinrichs, University of Nebraska

9:15-10:00 am Private Sector Perspective on IPM

Dr. Ray McAllister, CropLife America/CropLife International

10:00-10:30 am Coffee and Tea Break

Session 6: IPM Breakout Group Sessions (continued), Lincoln Room

Moderator: Dr. Dieudonne Baributsa, MSU

10:30 am-12:00 pm Breakout group sessions

12:00-1:00 pm Lunch

Session 7: A Way Forward - Action Plan, Lincoln Room. Moderator: Dr. Karim Maredia, MSU

1:30-2:30 pm IPM Breakout Group Recommendations and Action Plans

2:30-3:00 pm Forum Recommendation and Action Plan Discussion

3:00-3:30 pm Closing Remarks (Coffee and Tea will be served)

Dr. Doug Buhler, Associate Director, MAES, MSU

Dr. Kim Wilcox, Provost, MSU

4:00-7:00 pm Visit to Lansing Area (Optional)

Appendix 2. List of participants: Global IPM Forum

Africa

Dr. Dona Dakouo, Burkina Faso
Dr. Rami Kfir, South Africa
Dr. Margaret Mulaa, Kenya
Dr. Jonas Mugabe, Rwanda
Ms. Barbara Zawedde, Uganda
Dr. Kandiouura Noba, Senegal
Mr. Forbuzo Benjamin, Cameroon
Mr. Patrick Boitshwarelo, Botswana
Mr. Julius Rukara, Uganda
Mr. Saliou Djiba, Senegal

Middle-East

Dr. Emad Metry, Egypt
Dr. Salah Mostafa, Egypt
Mr. Saif Al Shereiqi, Oman

Latin America and Caribbean

Dr. Helga Blanco, Costa Rica
Ms. Cindy Cathy Eugene, St. Lucia
Dr. Ovidio Díaz Gómez, Mexico
Mr. Rafael Lopez, Argentina
Ms. Yadira Bedon, Ecuador
Ms. Monica Alarcón, Ecuador
Ms. Maria Romero, Ecuador
Ms. Ximena García, Colombia

Asia

Dr. Nutan Kaushik, India
Ms. Gulnaz Kaseeva, Kyrgyzstan
Dr. Nurali Saidov, Tajikistan
Dr. Buddhi Marambe, Sri Lanka
Dr. Omprakash Bambawale, India
Dr. Padmini Giriagama, Sri Lanka
Dr. Zarifa Kadirova, Uzbekistan
Dr. Hj. Ibrahim Che Omar, Malaysia
Dr. Chan Lai Keng, Malaysia
Mr. Kuldeep Singh, India
Mr. Sanjeev Kumar, India

International Organizations

Dr. Mustapha Bouhssini, CGIAR-ICARDA
Dr. Aziz Lagnaoui, World Bank
Dr. Braima James, CGIAR-IITA
Dr. Julian Smith, Consultant to Bill and Melinda Gates Foundation
Mr. Camilo Acosta, CRUSA Foundation
Mr. Nduka Okaro, USAID-Nigeria
Ms. Tererai Trent, Heifer International

Europe

Dr. Lara Maistrello, Italy

USA

Mr. Abiola Adeyemi, USDA-Foreign Agricultural Service
Dr. Ray McAllister, CropLife America
Dr. Short Heinrichs, University of Nebraska
Dr. Frank Zalom, University of California-Davis
Dr. Scott Swinton, Michigan State University
Ms. Marcia Jn-Baptiste, Michigan State University
Dr. David Mota-Sanchez, Michigan State University
Ms. Joy Landis, Michigan State University
Dr. Douglas Landis, Michigan State University
Dr. Mywish Maredia, Michigan State University
Dr. Richard Bernsten, Michigan State University
Dr. Mike Brewer, Michigan State University
Dr. Larry Olsen, Michigan State University
Dr. Don Isleib, Michigan State University
Dr. Carl Eicher, Michigan State University
Dr. Karen Renner, Michigan State University
Dr. Callista Ransom, Michigan State University
Ms. Dilshani Sarathchandra, Michigan State University
Dr. Cholani Weebadde, Michigan State University
Mr. Andrew Skwiercz, Michigan State University
Mr. Nyadia Goita, Michigan State University
Ms. Kiana Miller, Michigan State University
Dr. Jeff Riedinger, Michigan State University
Dr. Dan Clay, Michigan State University
Dr. Stuart Gage, Michigan State University
Dr. Larry Gut, Professor, Michigan State University
Ms. Barbara Stinnett, Michigan State University
Ms. Erin West, Michigan State University
Dr. Walter Pett, Michigan State University
Dr. Mark Whalon, Michigan State University
Dr. Matthew Grieshop, Michigan State University
Dr. Karim Maredia, Michigan State University
Dr. George Bird, Michigan State University
Dr. Dieudonne Baributsa, Michigan State University
Mr. Matthew Kelterborn, Michigan State University
Ms. Maggy Hanlon, Michigan State University
Mr. David Epstein, Michigan State University
Ms. Lesley Schumacher, Michigan State University
Dr. Ernest Delfosse, Chair, MSU Dept. Entomology
Dr. Doug Buhler, Assoc. Dir., MI Agric. Expt. Sta., MSU
Dr. Kim Wilcox, Provost, MSU
Mr. Jim Koan, Almar Orchard, Flushing, MI
Mrs. Merrill Clark, Roseland Organic Farm, Cassopolis, MI
Mr. Toby Clark, Roseland Organic Farm, Cassopolis, MI
Mr. Lincoln Clark, Roseland Organic Farm, Cassopolis, MI
Ms. Shelly Clark, Roseland Organic Farm, Cassopolis, MI
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Dr. Jim Kells, Chair, MSU Dept. Crop and Soil Sciences
Dr. Ray Hammerschmidt, Chair, MSU Dept. Plant Pathology
Dr. Randy Beaudry, Chair, MSU Dept. Horticulture
Dr. Steve Pueppke, Director, MI Agric. Experiment Station
Dr. Tom Coon, Director, MSU Extension
Mr. Landon Clark, Ms. Emily Clark, Ms. Grace Clark;
Roseland Organic Farm, Cassopolis, MI
Mr. Ben Kudwa, Exec. Dir., MI Potato Industry Commission
Mr. Philip J. Korson II, Pres., Cherry Marketing Institute, Inc.

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Appendix 3. Questions for Breakout Group Discussions

The following questions and issues provided are for generating breakout group discussions. Please note that this is not an exhaustive list. The breakout group members may add and discuss other issues as they see appropriate.

Cross-cutting issues for all the breakout groups:

- Capacity building
- Socio-economic impacts
- Gender
- Technology Transfer
- Scalability and Sustainability

Breakout Groups 1 and 2: IPM Research

- What are the new trends and emerging research questions/issues in IPM?
- What are the gaps in IPM research?
- What new research is needed to meet the needs of global agriculture?
- What new partnerships and collaborations are needed to make IPM research programs effective?
- Are the current investments in IPM research adequate? Where are the gaps in IPM research investments?
- How can new tools (biotechnology, information technology, etc) be integrated into IPM research?

Breakout Group 3: IPM Extension/Outreach and Technology Transfer to Farmers and End-Users

- What different models of IPM Extension and Outreach to farmers and end-users have been used/implemented (e.g. Government extension, Farmers' Field Schools, NGOs, private extension services, etc)?
- Are these models effective for various groups of farmers (small scale, large scale farmers, etc)?
- What models of technology transfer have worked best for small scale farmers and why?
- What role can Information Communication Technology (ICT) tools (Internet, cell phones, TV, radio, etc) can play for IPM information delivery and technology transfer?
- What are the new extension and outreach models needed to meet the needs of new Global Agriculture (market driven agriculture)?

Breakout Group 4: IPM Academic Education/Instruction

- Is the current higher education curriculum on pest management (at undergraduate and post-graduate levels) adequate to address pest issues in agriculture?
- Are the current education programs in pest management effectively preparing new graduates for the market needs? What role can the private sector play in IPM education?
- What role can Information Communication Technology (ICT) tools play for enhancing pest management educational programs (on-line education, video conference)?
- What new elements and teaching methodologies can be incorporated to enhance pest management education (e.g. experiential learning, internships, etc)?
- What new models and partnerships are needed for IPM education (joint degree programs, public-private sector partnership, etc.)?

Breakout Group 5: IPM Communication

- Why is it necessary to communicate IPM related information to various stakeholders?
- How do you communicate complex technical IPM information in simple, easy-to-understand formats?
- How do we train scientists and administrators to become good communicators?
- What role can Information Communication Technology (ICT) tools play in communicating IPM related information to various stakeholders?
- What are the barriers in communicating IPM related information to various stakeholders, especially in developing countries?

Breakout Group 6: IPM Networking and Partnerships

- What are the current IPM networking platforms? Are they adequate and effective?
- What kind of networks and partnerships are needed to enhance IPM Communication to decision makers, public, and other stakeholders?
- What role can new tools of Information Communication Technology (ICT) play in disseminating IPM related information at different levels (extension, farmers, policy makers, general public etc)?
- What are the barriers to the use of ICT tools in developing countries?
- What role should international associations play in IPM Networking?

Appendix 4. Recognition Awards Write-up for: Mr. John Clark, Dr. Thomas Odhiambo and Dr. Ray Smith

Honored recipient: John Bell Clark
1937-2006
Roseland Organic Farm
Cassopolis, Michigan

John Bell Clark was a native of Illinois. He received a B.S. in Chemistry and Mathematics from the University of Illinois and the Ph.D. in Biochemistry from the University of California-Berkeley. After serving as a faculty member at the University of Notre Dame and working in private industry, John and Merrill, his wife, traveled the country selling handcrafted artwork and home furnishings made from a novel resin John developed for preserving items found in nature.

In 1976, at the age of 39, John and Merrill began farming several hundred acres near Cassopolis, Michigan. John's concern for environmental quality resulted in development of crop rotation, companion planting and tillage systems that encouraged soil health and ecological balance. Over the years, productivity increased and the farm expanded to 2,000 acres. Today, Roseland Organic Farms flourishes and is managed by John and Merrill's sons, Toby and Lincoln; a tribute to John's concern for intergenerational equity.

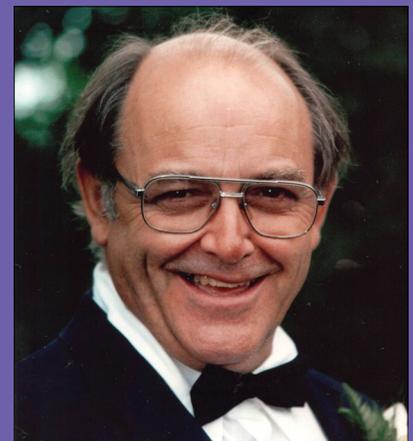
John was widely known as an ardent and vocal advocate of unambiguous and exacting standards. He was active in the Michigan organic community and his positions on organic certification issues were always clear and unequivocal. John was never one to shy away from confrontation, a testament to the strength of his convictions and environmental values. He published a critique of the National Organic Program in a Law Journal and participated in Arthur Harvey's successful litigation against USDA.

John, above all, was a lover of nature. He was a talented artist, architect and musician. He lived his life with exceptional pride and purpose and deserves our deepest respect as the 2008 Global IPM Forum identifies research, academic instruction, Extension, communication and networking priorities, and action plans for the next decade.

It is indeed a privilege for Michigan State University to Honor John Bell Clark at the 2008 Global IPM Forum.



Merrill Clark accepts the award with family.



Honored recipient: Thomas Risley Odhiambo
1931-2003
Professor and Director General
International Centre of Insect Physiology and Ecology (ICIPE) - Kenya

Professor Thomas Risley Odhiambo, an entomologist by training was one of the world's leading scientist and a pioneer in establishing Africa's indigenous scientific capacity. As the founding Director of the Kenya-based International Center of Insect Physiology and Ecology (ICIPE), his research focused on developing sustainable solutions for the pressing need for increased food production and improved health in rural communities in Africa.

He was born in Alego, Nyanza Province, Kenya on 4 February 1931. His early education took place in various places, including Maseno Secondary School, where he was outstanding in academic subjects, and showed leadership and great diversity in his non-academic activities. He completed his BSc degree in Botany and Zoology from the Makerere University College in Uganda in 1953. After graduation, Prof. Odhiambo worked at the Tea Research Institute in Kericho, Kenya, and subsequently became curator of the insect collection of Severe and Kawanda Research Stations in Uganda in 1956. In 1959, he was awarded the Independence Scholarship of Meritorious Studies by the Ugandan government. He spent 6 years (1959–1965) at Cambridge University where he completed both his natural science studies (MA) and PhD. Prof. Odhiambo began his career at the University College in Nairobi in 1965 as a lecturer rising to become the first professor in 1970 and later the head of the department of entomology and then the first dean of the faculty of agriculture at the University of Nairobi.

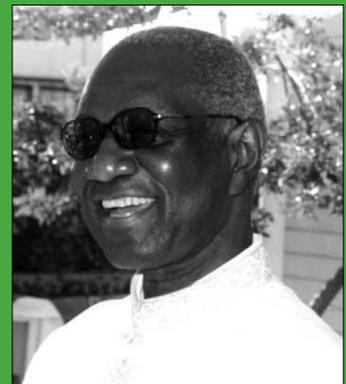
Prof. Odhiambo's aspirations for recruiting science for the development of Africa were not restricted to pest control. He thought of means to increase priority of science in the policies of the African countries. In 1985, Prof. Odhiambo's efforts to develop and promote scientific expertise among Africans led to the establishment of the African Academy of Sciences. As its first president until 1999, he worked to achieve its objectives, which included: identifying outstanding scientific talent within the continent; promoting the utilization of this talent in national development; and advancing the partnership between scientific and political leaders in building Africa's future. In addition, he served as founding vice president of the Third World Academy of Sciences until 1999, founding president of the Association of African Science Editors until 1995 and founding president of the Kenya National Academy of Sciences until 1994.

The author of over 160 refereed publications, Prof. Odhiambo was honored with numerous awards, among them the Albert Einstein Gold Medal (1991), the Gold Mercury International Award (1982), the Gold Medal Award from the International Congress of Plant Protection (1983), the African Prize for Leadership for the Sustainable End of Hunger (shared with President Abdou Diouf of Senegal in 1987), the ISCTRC Silver Jubilee Award of the African Union (2000), and others. He was awarded an honorary PhD from the University of Oslo in 1986, the DSc from the University of Massachusetts (1990), a Doctor of Laws from Notre Dame University (1992), a Doctor of Humane Letters from Johns Hopkins University (1991), and closer to home, the DSc from the University of Eastern Africa at Baraton (2002) and the Jomo Kenyatta University of Agriculture and Technology (2003) in Kenya.

Prof. Odhiambo also recognized that scientific publication is an integral part of scientific research and that African scientists need to be heard. He thus created the infrastructure that includes two journals, *Insect Science and Its Application* (now the *International Journal of Tropical Insect Science*) and *Discovery and Innovation* (the latter covering the complete scientific spectrum) and the publishing facilities of the Academy Publishers (of the AAS) and ICIPE Science Press. He also understood the compelling reasons for exposing children to science at an early age and thus established ChiSci Scientific Publications. Prof. Odhiambo wrote six children's books designed to educate, inspire and entertain the children of Africa.

Prof. Odhiambo was one of that first generation of African academics to rise from a humble background, emerging to struggle through the rigours of early colonial education—often designed to limit expectations—and walk the corridors of some of the world's finest institutions. Hundreds of young African scientists, inspired by Prof. Odhiambo's leadership, scholarship and vision have dedicated themselves to the sustainable solutions of Africa's problems.

Kenyan research scientist Dr. Margaret Mulaa accepted the award on behalf of the late Prof. Odhiambo.



Honored recipient: Ray Smith
1919-1999
Professor of Entomology
University of California-Berkeley

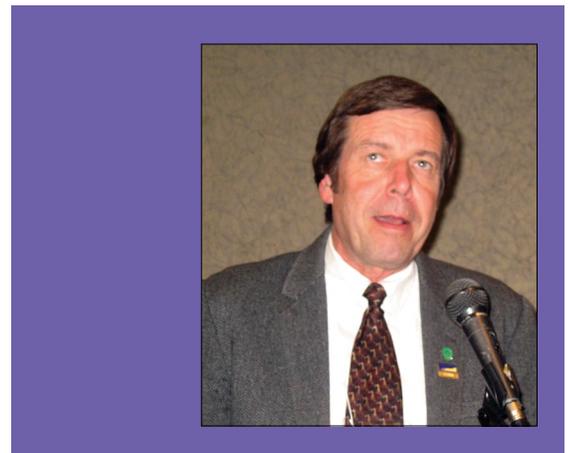
Dr. Ray F. Smith, An IPM Pioneer, was born in Los Angeles, California in 1919, and was raised in Monterey where his father was a pharmacist. He completed his B.S., M.S., and Ph.D. degrees at the University of California, Berkeley. He joined the UC Berkeley faculty in 1946, and served as a Professor of Entomology until his retirement in 1982. He was appointed chair of the Department of Entomology and Parasitology in 1959, and held the position until 1973. During his tenure, the department expanded to 46 faculty members and diversified its programs, becoming the top ranked entomology department in the United States.

During his early years as an entomologist, he worked with California's alfalfa producers to organize pest control associations of farmers, technicians and researchers intended to manage arthropod pests economically by utilizing ecological principles. He developed the concept of "supervised insect control", and for a period of 10 years put it into practice for the management of key alfalfa pests. Under this scheme, insect control was "supervised" by qualified entomologists, and insecticide applications were based on conclusions reached from periodic monitoring of pest and natural-enemy populations. This approach was viewed as an alternative to calendar-based insecticide programs that were widely used after World War II when synthetic insecticides became available. The demonstrated success of supervised control was solidly based on gathering biological, ecological, and economic data, and analyzing projected trends in pest and natural-enemy populations. In 1959, he co-authored a seminal paper entitled "The integration of chemical and biological control of the spotted alfalfa aphid. The integrated control concept" with University of California colleagues Vernon Stern, Robert Van den Bosch and Kenneth Hagen that introduced the notion of economic thresholds based upon biological data gathered through scouting programs used together with chemicals and biological controls in a compatible manner. "Integrated control" would later evolve into the wider model of Integrated Pest Management.

Dr. Smith increasingly began to apply his knowledge and administrative talent to build what was to become a career devoted to establishing IPM at the national and international levels. He was associate project director of the National Science Foundation project entitled "Principles, Strategies and Tactics of Pest Population Regulation and Control in Major Crop Ecosystems," directed by Carl Huffaker, later known as the Huffaker Project, the predecessor of the Consortium for Integrated Pest Management, also known as the Adkisson Project. These projects led to the establishment of USDA Regional IPM Grants programs, state extension IPM coordinators, and a number of state-level IPM programs including the University of California's Statewide IPM Program.

As IPM became more common among American farmers, Dr. Smith continued to push for the exploration of scientific, technical, and educational issues involved in IPM internationally. He took the lead in forming the Food and Agriculture Organization's Panel of Experts on Integrated Pest Control in 1967, and headed this group from its inception until 1982. He also directed the Consortium for International Crop Protection from 1979 to 1982, which grew out of a U.S. Agency for International Development collaboration with the University of California's efforts to investigate the potential of and promote IPM. Under his leadership the two groups jointly worked to publish materials on the philosophy, principles, strategies, and tactics of integrated pest control, guidelines for implementing integrated pest management systems on major food crops and agromedical approaches to pesticide management, and also established several technical assistance programs in many developing countries. A key priority was expanding IPM's philosophy and practice in developing areas and working directly with farmers, experts, and policymakers in Latin America, Asia, and Africa to specially assess the pest-control needs of those regions. He organized the FAO's 1974 Global Project for Integrated Pest Management of Major Crops, lectured and published prolifically overseas, and consulted to USAID and the FAO on food production and pest control issues.

His groundbreaking work in supervised insect control that ultimately grew and evolved to become the Integrated Pest Management concept that we know today led to his 1981 induction into the U. S. National Academy of Sciences and his receipt of the Founders Memorial and C.W. Woolworth awards from the Entomological Society of America. Dr. Smith received the 1997 World Food Prize with his friend and fellow IPM pioneer Dr. Perry Adkisson for their shared achievement in developing and promulgating the practice of Integrated Pest Management for farmers around the world. IPM programs have saved farmers worldwide billions of dollars by reducing reliance on agrochemicals to fight insects, fungi, weeds, nematodes and other pests while improving productivity and reducing the ecological impact of agriculture. Dr. Smith passed away on August 23, 1999, at age 80.



UC Davis' Frank Zalom accepts the award.

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