Integrated Pest Management

for our environment • for our future

9th International IPM Symposium

Improving Health, Environment and Global Sustainability

March 19–22, 2018

Baltimore, MD

welcome

IPM: Improving Health, Environment and Global Sustainability

Welcome to the 9th international IPM Symposium!

Building on a tradition of 30 years, this event brings together a diverse group of IPM professionals from around the world to share their passion, collective wisdom, and success in finding IPM solutions, improving human health, and building environmental and global sustainability.

The field of IPM has never been so exciting, and crucial. Today's hottest research fields include global food security and the impact of climate change on food crops and vector-borne human disease.

The symposium offers us the rare opportunity to share the latest research, showcase our students as the scientists of the future, and learn from professional practitioners who apply science-based solutions and discover real-world emerging issues every day.

Our enthusiastic and energetic planning committees have worked to bring you a premier event including an opening keynote presentation by Dr. Dini M. Miller, Virginia Tech University, an internationally recognized expert in the area of bed bug and German cockroach IPM. There will be more than 40 concurrent sessions designed for practitioners, growers, educators, consultants, researchers, industry professionals, students, and employees of non-governmental organizations, and hot topic sessions including "Integrated Tick Management: Community-Wide Action to Address the Global Tick Problem." For the first time qualified sessions will come with Certified Crop Advisor credits in the IPM and professional development categories. In addition, the 2018 IPM Achievement Award winners will give presentations on their work.

More than 175 poster presentations this year include 45 student posters submitted for the IPM Inspiration Award.

As always attendees will have the opportunity to peruse exhibits from leading IPM suppliers, and enjoy field trips to see IPM in action in downtown Baltimore, and an optional trip to visit policymakers on Capitol Hill to educate them on IPM needs and benefits.

We would like to thank each of you for attending the IPM Symposium. Thanks to our sponsors, organizers, moderators, presenters, and participants for making the 9th International IPM Symposium a reality. You, as IPM leaders, have the vision, the knowledge, and dedication to forge a more sustainable future and a healthier world.

Enjoy!

9th International IPM Symposium Steering Committee Co-chairs
Dawn H. Gouge, University of Arizona
Lynnae Jess, North Central IPM Center
Eric Ritchie, McCain Foods
Thomas Green, IPM Institute of North America, Inc., *Emeritus Co-chair*

Integrated Pest Management

for our environment • for our future

contents

sponsors and exhibitors 2

general information 3

schedule at a glance 5

interest tracks 6

daily schedule 9

poster numbers and titles 12

author index 17

map of meeting space . . . . . **back cover**

ILLINOIS

The 9th International IPM Symposium
is coordinated by the Center for
Innovation in Teaching & Learning.

ipmsymposium.org

sponsors and exhibitors

We thank our contributors and sponsors for their generous support of IPM and this symposium.

Mini-Symposia Sponsors

($7,500)

Biological Products Industry Alliance (BPIA)

North Central IPM Center

Syngenta

Gold

($5,000 and above)

Bayer

McCain Foods

North Central IPM Center

Northeastern IPM Center

Southern IPM Center

Sysco Corporation

Silver

($2,500 to $4,999)

CropLife America

Marrone Bio Innovations

Bronze

($750 to $2,499)

AP&G (Catchmaster)

Azzule-PrimusLabs

ISCA Technologies

Mainely Ticks, Inc.

NC State NSF Center for IPM

Tick Box Technology Corporation

Trécé, Inc.

University of California Statewide IPM Program

US BIOLOGIC

Exhibitors

Exhibits are located in Maryland Ballroom DEF on the 5th level of the Renaissance Baltimore Harborplace Hotel. The continental breakfasts and breaks will be in this room.

Alpha Scents, Inc.

AP&G (Catchmaster)

Biological Products Industry Alliance (BPIA)

CABI/CSIRO (dist. by Stylus Publishing)

Certis USA

CropLife America

Entomological Society of America

Integrated Pest Information Platform for Extension and Education (iPiPE)

The IR-4 Project

Mainely Ticks, Inc.

Marrone Bio Innovations

PESTlogics

Polyguard Barrier Systems

Regional IPM Centers

Thermal Remediation

Tick Box Technology Corporation

University of California Statewide IPM Program

general information

Registration and Information Desk

The Registration Desk will be located outside the Maryland Ballroom, on the 5th floor of the Renaissance Baltimore Harborplace Hotel.

The desk will be open:

Monday, March 19, 10:00 AM–7:00 PM

Tuesday, March 20, 7:30 AM–4:30 PM

Wednesday, March 21, 7:30 AM–4:30 PM

Thursday, March 22, 7:30 AM–12:00 PM

Baltimore visitor information and a small gift shop can be found near the front desk at the ground level of the Renaissance Baltimore Harborplace Hotel.

Wireless Access

There is basic Wi-Fi in all meeting rooms at the Renaissance Baltimore Harborplace Hotel. The network is **Renaissance_Conf,** and the password is **IPM2018**. If you have trouble connecting, please go to to the Registration Desk for assistance.

Poster Sessions

The poster session will be held Wednesday, March 21, 4:30–6:30 PM in the Maryland Ballroom on the 5th floor of the Renaissance Baltimore Harborplace Hotel. While all posters will be displayed throughout the symposium, authors are asked to stand by their posters according to their poster number: odd numbers from 4:30–5:30 PM and even numbers from 5:30–6:30 PM.

Posters can be set up beginning at 10:00 AM on Tuesday. They should be in place by 4:30 PM on Wednesday. They can be removed after the poster session is over at 6:30 PM on Wednesday. They must be removed by 12:00 PM on Thursday.

If you would like to have your poster posted on the 2018 IPM Symposium web site, copy your poster as a .pdf file and send it to Michelle Marquart at mmarqua2@illinois.edu by May 15, 2018.

Poster Session Reception

All registered participants and their registered guests are invited to attend the reception, held during the poster session on Wednesday, March 21 from 4:30–6:30 PM in the Maryland Ballroom on the 5th level of the Renaissance Baltimore Harborplace Hotel. Hors d'oeuvres and a cash bar will be provided during the reception.

IPM Symposium 2018 App

Download the app by searching for "IPM Symposia."

Use the app to:

- Plan your schedule.
- Read presentation and poster abstracts.
- Evaluate sessions.
- Receive meeting alerts.
- Find people.
- Explore sponsors and exhibitors.
- Post photos.
- Search local places and maps.

The mobile app was sponsored by the Southern IPM Center in cooperation with the organizers of the symposium. Both Android and iOS versions are available from the Google Play Store and the Apple iTunes App Store.

Silent Auction

The Silent Auction will be held Wednesday, March 21 from 4:30–6:30 PM. Visit us in Maryland Ballroom DEF at Booth 7, alongside the exhibitors, and bid on auction items to help offset the cost for non-traditional IPM professionals attending the Symposium. At every Symposium, we are limited in our support due to the overall Symposium costs. All proceeds from the Silent Auction will be used to fund registration and travel support at future symposia.

Presenter Practice Room

If presenters need to preview their presentations, come to the Registration Desk during its hours of operation.

Media

The Registration Desk will serve as the media desk, located outside the Maryland Ballroom on the 5th floor of the Renaissance Baltimore Harborplace Hotel. Reporters and other members of the media should register at the Registration Desk.

Session Moderators

If you have technical difficulties during your session, please find the volunteer monitors with ribbons in the hallways or come to the Registration Desk.

Continuing Education Credits

Certified Crop Advisor (CCA) credits and Maryland Department of Agriculture pesticide recertification credits are available. Attendance sign-in sheets will be located at the Registration Desk.

Post-Symposium Evaluation

An online evaluation survey will be conducted after the symposium. An e-mail message will be sent to you with the details; we hope you will take a few minutes to complete the survey. Your feedback has significant impact on the Steering Committee's evaluation for this year's Symposium and planning decisions for the next.

Abstracts, Presentations, and Posters

Complete abstracts can be found at the Web site: ipmsymposium.org.

Presentations and posters will be added to the Web site after the symposium.

Congratulations to the 2018 International IPM Achievement Award recipients

International IPM Awards of Excellence

Dr. Dawn H. Gouge, University of Arizona (Practitioner)

Megacopta Working Group, based in the University of Georgia's College of Agriculture and Environmental Sciences Department (Team)

North Central Soybean Entomology Research and Extension Team (Team)

IPM of Late Blight and FFS Activity Program, piloted by the International Potato Center (Team)

International IPM Lifetime Achievement Awards

Dr. Peter B. Goodell, University of California Statewide IPM Program

Dr. Frank G. Zalom, Department of Entomology and Nematology, University of California, Davis

International IPM Awards of Recognition

Mr. Rachid El Aini, Omnium Agricole du Souss, Morocco (Practitioner)

European Grapevine Moth Team, California (Team)

PRISME Consortium, Quebec, Canada (Team)

Pest Management University, Florida (Team)

International IPM Awards for Graduate Students

Ms. Annie Rich, University of Georgia (Masters Student)

Mr. Zachary DeVries, North Carolina State University (Doctoral Student)

These recipients will be recognized during the Opening Session on Monday, March 19.

schedule at a glance

Monday, March 19

8:00–10:00 AM	National IPM Coordinator Meeting
10:00 AM–5:00 PM	Regional IPM Coordinator Meetings
10:00 AM–7:00 PM	Registration Open
1:00–4:30 PM	Field Trip A: IPM in Professional Sports Facility Management
1:00–4:30 PM	Field Trip B: Urban Growth - The Green Kind
1:00–4:30 PM	Field Trip C: Urban Housing IPM
1:00–5:00 PM	Sysco Supplier Meeting
5:00–7:00 PM	Opening Session with Keynote Dr. Dini Miller and Presentation of IPM Achievement Awards

Tuesday, March 20

Beverages available in Maryland Ballroom DEF from 7:00 AM–5:00 PM

7:30 AM–4:30 PM	Registration Open
7:00–8:30 AM	Continental Breakfast
8:30–10:00 AM	Mini-Symposia & Concurrent Sessions
10:15–11:45 AM	Mini-Symposia & Concurrent Sessions
11:45 AM–1:00 PM	Student Educational Luncheon—Invitation Only
11:45 AM–1:15 PM	Lunch on your own
1:15–2:45 PM	Mini-Symposia & Concurrent Sessions
3:00–4:30 PM	Mini-Symposia & Concurrent Sessions
5:00-6:00 PM	School IPM Meet & Greet

Wednesday, March 21

Beverages available in Maryland Ballroom DEF from 7:00 AM–5:00 PM

7:30 AM–4:30 PM	Registration Open
7:00–8:30 AM	Continental Breakfast
8:30–10:00 AM	Mini-Symposia & Concurrent Sessions
10:15–11:45 AM	Mini-Symposia & Concurrent Sessions
11:45 AM–1:15 PM	Lunch on your own
1:15–2:45 PM	Mini-Symposia & Concurrent Sessions
3:00–4:30 PM	Mini-Symposia & Concurrent Sessions
4:30–6:30 PM	Poster Session, Exhibits & Silent Auction

Thursday, March 22

Beverages available in Maryland Ballroom DEF from 7:00 AM–12:00 PM

7:30 AM–12:00 PM	Registration Open
7:00–8:30 AM	Continental Breakfast
8:30–10:00 AM	Concurrent Sessions
10:15–11:45 AM	Closing Plenary
12:00–8:30 PM	Optional Field Trip: Visit Capitol Hill to Educate Your Policy Makers about IPM!
12:00–5:00 PM	Optional Workshop: Evaluation of IPM Programs
1:00–3:00 PM	Organic and IPM Working Group Meeting

Follow the symposium:

facebook.com/IPM.Symposium

@ipmsymposium #IPMSymp2018

linkedin.com/groupsInternational-IPM-Symposium-4107744

interest tracks

See Daily Schedule for times and locations

Session # Session Name

Mini-Symposia

S1 Resistance Management—Sponsored by North Center IPM Center (organized by Susan Ratcliffe)

S9 Social and Economic Aspects of IPM (organized by George Frisvold) | *1 CCA CEU—Integrated Pest Management*

S21 Biopesticide Technology: Science and Challenges—Sponsored by Biological Products Industry Alliance (BPIA) (organized by Matt Baur) | *1 CCA CEU—Integrated Pest Management*

S32 Protection Pollinators—Sponsored by Syngenta (organized by Judy Wu-Smart) | *1 CCA CEU—Integrated Pest Management*

Communication and New Tools in Pest Management

S6 The Great Challenge: Communicating IPM to a Public Audience (organized by Michael Rozyne) | *1 CCA CEU—Professional Development*

S8 Communicating IPM to Diverse Audiences (organized by Mary Kay Malinoski, David L. Clement) | *1 CCA CEU—Professional Development*

S14 The New IPM: Where Is Crop Protection Taking Us? (organized by Susan Ratcliffe) | *1 CCA CEU—Integrated Pest Management*

S20 Novel Approaches to IPM Extension: Transferring Learning across Contexts (organized by Mary Halbleib) | *1 CCA CEU—Professional Development*

S26 Promoting IPM Techniques in State-sanctioned Study Materials for Pesticide Applicator Licensing: Best Practices from the Top Down (organized by Shannah Whithaus) | *1 CCA CEU—Integrated Pest Management*

S30 Tools and Processes for the Transition towards Lower-risk Pesticide Programs in IPM systems (organized by Paul Jepson, Katie Murray) | 1 CCA CEU—Integrated Pest Management

S37 Building Partnerships to Provide Pesticide Safety Education as Part of an IPM Program (organized by Kerry Richards) | *1 CCA CEU—Integrated Pest Management*

S43 Diagnostics, Biosecurity and IPM—Imagine the Future (organized by Martin Draper, Jim Stack) | *1 CCA CEU—Integrated Pest Management*

Cross-Disciplinary

S7 Weather Driven Epidemiological Forecasts for Efficient IPM Strategies (organized by Yu Takeuchi, Roger Magarey) | *1 CCA CEU—Integrated Pest Management*

S23 Nanotechnology and its Increasing Role in IPM (organized by Wade Elmer, Mathews Paret) | *1 CCA CEU—Integrated Pest Management*

S34 IPM Achievement Award Winners (organized by Janet Hurley) | *1 CCA CEU—Professional Development*

= Sessions applicable to crop consultants; food company field and sustainability leads including retailers, packers, shippers and processors; large national producer representatives; and producers

= Sessions applicable to urban, structural, and landscape IPM practitioners

Fruit, Nut, Specialty, Vegetable Crops

S2 How Can Microbial Control Agents Fit into IPM? Examples from the Field (organized by Stefan Jaronski) | *1 CCA CEU—Integrated Pest Management*

S10 Integrated Pest and Pollinator Management (IPPM): Integrating Pollinator Protection into Fruit and Nut IPM Programs (organized by David Biddinger, Ed Rajotte) | *1 CCA CEU—Integrated Pest Management*

S16 Bee-Friendly Reaches Major Retailers of Ornamentals: The Industry Adapts (organized by Sharon Selvaggio)

S22 *Drosophila suzukii* Management: What Have Researchers Been Spotting? (organized by Dalila Rendon, Cherre Bezerra DaSilva, Vaughn Walton) | *1 CCA CEU—Integrated Pest Management*

S29 Maintaining IPM Integrity with Invasive Insects (organized by David Owens, Norman Leppla) | *1 CCA CEU—Integrated Pest Management*

S33 The Spread and Management of the South American Tomato leafminer, *Tuta absoluta* (organized by Amer Fayad, Rangaswamy Muniappan) | *1 CCA CEU—Integrated Pest Management*

S39 IPM Packages for Tropical Crops: How the IPM Innovation Lab Helps Achieve Food Security in the Developing World (organized by Amer Fayad, Rangaswamy Muniappan) | *1 CCA CEU—Professional Development*

Practitioner

S15 Getting the Most out of Drones in the Field (organized by IPM Institute of North America & Eric Ritchie)

S31 How Growers Can Benefit from Weather Station Networks (organized by IPM Institute of North America) | *1 CCA CEU—Integrated Pest Management*

S38 What Growers and Crop Advisors Need to Know about Managing Brown Marmorated Stink Bug Based on the Latest Research (organized by IPM Institute of North America) | *1 CCA CEU—Integrated Pest Management*

S44 Effective Strategies for Minimizing Losses from Bagrada Bug (organized by IPM Institute of North America) | *1 CCA CEU—Integrated Pest Management*

Rangeland/Livestock/Pastures

S11 IPM on Rangeland: Accomplishments and Challenges (organized by Alexandre Latchininsky) | *1 CCA CEU—Integrated Pest Management*

S17 Biological Control—A Sustainable Approach in the IPM Toolkit (organized by Lisa Tewksbury, Donna Ellis) | *1 CCA CEU—Integrated Pest Management*

Row/Agronomic Crops/Field Crops

S4 Application of Trap and Cover Crops in Integrated Pest Management (organized by Gadi V.P. Reddy, Govinda Shrestha) | *1 CCA CEU—Integrated Pest Management*

S12 Climate Change and Pest Biology (organized by Fernando E. Vega, Lewis H. Ziska) | *1 CCA CEU—Integrated Pest Management*

S18 Managing the Former Allopatric *Helicoverpa zea* and *H. armigera* in the Americas: Experience and Challenges Going Forward (organized by Silvana Paula-Moraes, William D. Hutchison) | *1 CCA CEU—Integrated Pest Management*

S24 Knowledge and Tools to Combat Western Bean Cutworm: An Emergent and Adaptive Pest in North American Maize (organized by Thomas Hunt, Débora G. Montezano, Julie A. Peterson, Fred Springborn, Katharine A. Swoboda Bhattarai) | *1 CCA CEU—Integrated Pest Management*

S35 Organic Agriculture with Bio-intensive Pest Management as a Means to Adapt/Mitigate Climate Change (organized by Othumbamkatt Remadevi, Chandish R. Ballal)

Row/Agronomic Crops/Field Crops, *continued*

S41 Soybean Cyst Nematode Resistance Management (organized by George Bird) | *1 CCA CEU—Integrated Pest Management*

S46 Pesticide Use Determinants and Human Health (organized by Wei Zhang) | *1 CCA CEU—Integrated Pest Management*

Urban/Structural/Landscape etc.

S3 The Added Value of Amendments in Turfgrass IPM (organized by Joseph Roberts)

S5 Assessment-Based Pest Management (APM)—Why We Must Make Monitoring and Pest Assessment the Foundation of All Structural Pest Management! (organized by Dini Miller, Michael E. Scharf)

S13 Improving Health Outcomes Related to Asthma and Indoor Air Quality through Integrated Pest Management (organized by Michael Millican)

S19 Pest Management and Indoor Allergen Reduction in Low Income Housing (organized by Rachel Riley)

S25 School IPM: Sinking Ship or Soaring Success? A Discussion (organized by Shaku Nair)

S28 Integrated Tick Management: Community-Wide Action to Address the Global Tick Problem (organized by Frank Laufenberg, Tom Green)

S36 Moving IPM Indoors: Reaching Audiences Where They Are (organized by Susannah Reese)

S42 IPM in Housing: A Round Table to Discussion on Diversifying the Messenger (organized by Faith Oi, Janet Hurley, Dini Miller, Shanika Preston)

S45 Vector-Borne Diseases (organized by Stanton Cope)

S47 Partnerships to Strengthen the Role of Pest Exclusion in IPM (organized by Jody Gangloff-Kaufmann, Matthew Frye)

= Sessions applicable to crop consultants; food company field and sustainability leads including retailers, packers, shippers and processors; large national producer representatives; and producers

= Sessions applicable to urban, structural, and landscape IPM practitioners

daily schedule

Monday, March 19

6:15–7:45 AM	**Sysco Advisory Council Breakfast** | *Homeland*
8:00–10:00 AM	**National IPM Coordinator Meeting** | *Watertable AB*
10:00 AM–5:00 PM	**SERA-003 Meeting** | *Guilford*
10:00 AM–5:00 PM	**NCERA-222 Meeting** | *Fells Point*
10:00 AM–5:00 PM	**NEERA-1604 Meeting** | *Watertable C*
10:00 AM–5:00 PM	**IPM in the West Meeting** | *Federal Hill*
1:00–5:00 PM	**Sysco Supplier Meeting** | *Watertable AB*
1:00–4:30 PM	**Field Trip A:** "IPM in Professional Sports Facility Management" **Field Trip B:** "Urban Growth—The Green Kind" **Field Trip C:** "Urban Housing IPM" *Meet at registration desk outside Maryland ABC at 12:45 PM*
4:00–5:00 PM	**Beverages and snacks** | *Baltimore Foyer*
5:00–7:00 PM	**Opening Plenary Session** | *Baltimore Ballroom* **Keynote:** "How the Misapplication of "IPM (Integrated Pest Management)" in the Urban Environment Has Impacted German Cockroach Infestations—A Case for Assessment-Based Pest Management (APM)" | Dr. Dini M. Miller **Presentation of IPM Achievement Awards**

Tuesday, March 20

8:30–11:45 AM	**Concurrent Sessions**	
	8:30–11:45 AM	S1. Resistance Management (Mini-Symposium) | *Baltimore A*
	8:30–11:45 AM	S2. How Can Microbial Control Agents Fit into IPM? Examples from the Field | *Baltimore B*
	8:30–10:00 AM	S3. The Added Value of Amendments in Turfgrass IPM | *Guilford*
	8:30–11:45 AM	S4. Application of Trap and Cover Crops in Integrated Pest Management | *Homeland*
	8:30–11:45 AM	S5. Assessment-Based Pest Management (APM)—Why We Must Make Monitoring and Pest Assessment the Foundation of all Structural Pest Management! | *Fells Point*
	8:30–10:00 AM	S6. The Great Challenge: Communicating IPM to a Public Audience | *Federal Hill*
	10:15–11:45 AM	S7. Weather Driven Epidemiological Forecasts for Efficient IPM Strategies | *Guilford*
	10:15–11:45 AM	S8. Communicating IPM to Diverse Audiences | *Federal Hill*
11:45 AM–1:15 PM	**Today's IPM Experts Sharing Knowledge with Tomorrow's IPM Leaders—Student Educational Luncheon** (by invitation) | *Watertable AB*	

11:45 AM–1:15 PM **Lunch on your own**

1:15–4:30 PM **Concurrent Sessions**

1:15–4:30 PM S9. Social and Economic Aspects of IPM (Mini-Symposium) | *Baltimore A*

1:15–2:45 PM S10. Integrated Pest and Pollinator Management (IPPM): Integrating Pollinator Protection into Fruit and Nut IPM Programs | *Baltimore B*

1:15–2:45 PM S11. IPM on Rangeland: Accomplishments and Challenges | *Guilford*

1:15–2:45 PM S12. Climate Change and Pest Biology | *Homeland*

1:15–2:45 PM S13. Improving Health Outcomes Related to Asthma and Indoor Air Quality through Integrated Pest Management | *Fells Point*

1:15–2:45 PM S14. The New IPM: Where Is Crop Protection Taking Us? | *Federal Hill*

1:15–2:45 PM S15. Getting the Most out of Drones in the Field | *Watertable C*

3:00–4:30 PM S16. Bee-Friendly Reaches Major Retailers of Ornamentals: The Industry Adapts | *Baltimore B*

3:00–4:30 PM S17. Biological Control—A Sustainable Approach in the IPM Toolkit | *Guilford*

3:00–4:30 PM S18. Managing the Former Allopatric *Helicoverpa zea* and *H. armigera* in the Americas; Experience and Challenges Going Forward | *Homeland*

3:00–4:30 PM S19. Pest Management and Indoor Allergen Reduction in Low Income Housing | *Fells Point*

3:00–4:30 PM S20. Novel Approaches to IPM Extension: Transferring Learning Across Contexts | *Federal Hill*

5:00–6:00 PM **School IPM Meet & Greet** | *Watertable AB*

Everyone is invited to discuss school IPM.

Wednesday, March 21

8:30–11:45 AM **Concurrent Sessions**

8:30–11:45 AM S21. Biopesticide Technology: Science and Challenges (Mini-Symposium) | *Baltimore A*

8:30–10:00 AM S22. *Drosophila suzukii* Management: What Have Researchers Been Spotting? | *Baltimore B*

8:30–11:45 AM S23. Nanotechnology and its Increasing role in IPM | *Guilford*

8:30–11:45 AM S24. Knowledge and Tools to Combat Western Bean Cutworm: An Emergent and Adaptive Pest in North American Maize | *Homeland*

8:30–11:45 AM S25. School IPM: Sinking Ship or Soaring Success? A Discussion | *Fells Point*

8:30–10:00 AM S26. Promoting IPM Techniques in State-sanctioned Study Materials for Pesticide Applicator Licensing: Best Practices from the Top Down | *Federal Hill*

8:30–11:45 AM S28. Integrated Tick Management: Community-Wide Action to Address the Global Tick Problem | *Watertable AB*

10:15–11:45 AM S29. Maintaining IPM Integrity with Invasive Insects | *Baltimore B*

10:15-11:45 AM S30. Tools and Processes for the Transition towards Lower-risk Pesticide Programs in IPM Systems | *Federal Hill*

10:15-11:45 AM S31. How Growers Can Benefit from Weather Station Networks | *Watertable C*

11:45 AM–1:15 PM **Lunch on your own**

1:15–4:30 PM **Concurrent Sessions**

- 1:15–4:30 PM S32. Protecting Pollinators (Mini-Symposium) | *Baltimore A*
- 1:15–2:45 PM S33. The Spread and Management of the South American Tomato Leafminer, *Tuta absoluta* | *Baltimore B*
- 1:15–2:45 PM S34. IPM Achievement Award Winner Presentations | *Homeland*
- 1:15–2:45 PM S35. Organic Agriculture with Bio-intensive Pest Management as a Means to Adapt/Mitigate Climate Change | *Guilford*
- 1:15–2:45 PM S36. Moving IPM Indoors: Reaching Audiences Where They Are | *Fells Point*
- 1:15–2:45 PM S37. Building Partnerships to Provide Pesticide Safety Education as part of an IPM Program | *Federal Hill*
- 1:15–2:45 PM S38. What Growers and Crop Advisors Need to Know about Managing Brown Marmorated Stink Bug based on the Latest Research | *Watertable C*
- 1:15–4:30 PM S28. Integrated Tick Management: Community-Wide Action to Address the Global Tick Problem | *Watertable AB*
- 3:00–4:30 PM S39. IPM Packages for Tropical Crops: How the IPM Innovation Lab Helps Achieve Food Security in the Developing World | *Baltimore B*
- 3:00–4:30 PM S41. Soybean Cyst Nematode Resistance Management Coalition | *Homeland*
- 3:00–4:30 PM S42. IPM in Housing: A Round Table to Discussion on Diversifying the Messenger | *Fells Point*
- 3:00–4:30 PM S43. Diagnostics, Biosecurity and IPM—Imagine the Future | *Federal Hill*
- 3:00–4:30 PM S44. Effective Strategies for Minimizing Losses from Bagrada Bug | *Watertable C*

4:30–6:30 PM **Poster Session, Exhibits and Silent Auction** | *Maryland Ballroom*

Odd numbers present 4:30–5:30 PM

Even numbers present 5:30–6:30 PM

Thursday, March 22

8:30–10:00 AM **Concurrent Sessions**

- 8:30–10:00 AM S45. Vector-Borne Diseases | *Watertable Ballroom*
- 8:30–10:00 AM S46. Pesticide Use Determinants and Human Health | *Federal Hill*
- 8:30–10:00 AM S47. Partnerships to Strengthen the Role of Pest Exclusion in IPM | *Homeland*

10:15–11:45 AM **Closing Plenary Session** | *Baltimore Ballroom*

"Why IPM Makes a Difference: Lessons from a Lifetime" | Dr. George W. Norton

"The 'I' in IPM: Reflections on the International IPM Symposium and Evolution of the IPM Paradigm" | Dr. Frank G. Zalom

"Integrated Pest Management: Revitalizing and Reinvesting in a Proven Paradigm" | Dr. Peter B. Goodell

12:00–8:30 PM **Field Trip:** Visit Capitol Hill to Educate Your Policy Makers about IPM! | *Meet at registration desk outside Maryland ABC at 11:45 AM*

12:00–5:00 PM **Optional Workshop:** "Evaluation of IPM Programs" | *Fells Point*

1:00–3:00 PM **Organic and IPM Working Group Meeting** | *Guilford*

poster numbers and titles

The poster session is on Wednesday, March 21, 4:30–6:30 pm in the hotel. While all posters will be displayed throughout the symposium, authors are asked to stand by their posters according to their poster number: odd numbers from 4:30–5:30 pm and even numbers from 5:30–6:30 pm.

P1 Be part of the buzz! A live conversation about biocontrol at the 9th International IPM Symposium

P2 Hedgerow benefits align with food production and sustainability goals

P3 Soil solarization for integrated pest management in the Pacific Northwest (USA)

P4 Weather and climate driven models for IPM and invasive species management

P5 Grower valuation of the Network for Environment and Weather Applications

P6 The effects of mulching leaves in place on tick populations in lawns and parks

P7 Occurrence of egg parasitism in the exotic pest brown marmorated stink bug and the native beneficial spined soldier bug in three Maryland habitats

P8 Insights into winter survival strategies of North American hover flies (Syrphidae) and the implications for pollination and conservation biological control

P9 The impact of organic crop rotations and ecological weed management strategies on soil quality

P10 Evaluation of anaerobic soil disinfestation for ecofriendly weed management

P11 Reaching out to the big sky

P12 Make a difference? Make an IPM impact graphic!

P13 Regional IPM and IR-4 collaboration: Assessing pesticide compatibility in an IPM program

P14 DPH: Optimizing IPM for maximal impact

P15 Success of interdisciplinary professional doctoral programs

P16 Organic and IPM Working Group

P17 Vermont's Extension IPM program addresses diverse stakeholder needs

P18 Nebraska Extension Team: Protect beneficial insect ecosystems including pollinators

P19 Nebraska extension resistant/invasive issue team #IRPESTS

P20 Lessons learned and best practices for developing IPM online trainings

P21 Arkansas mini-grants—A county based ipm program

P22 North Dakota State University Extension pest management app

P23 Virtual plant clinics cultivate new ideas and collaborations

P24 Maryland invasive training and outreach programs

P25 Not being presented

P26 Worker Protection Standard for organic and small farms

P27 Pesticide Risk Tool: Reducing and reporting pesticide risks in IPM and sustainability initiatives

P28 Green Shield Certified and IPM STAR pest management certification programs

P29 The Sustainable Food Group introduces the Sustainability Standard

P30 Adoption of proactive resistance management practices to control *Bemisia tabaci* in Arizona and California

P31 Minimum risk pesticide active ingredient profiles

P32 Repeated temporal rotation from nontoxic bait to a cholecalciferol rodenticide enhances control of a wild house mouse population

P33 Entomotoxicant potential of *Croton penduliflorous* extract in the control of subterranean termites *Macrotermes subhyalinus*

P34 Protecting water resources with on-farm pesticide rinsate biobeds: A Canadian perspective

P35 The Prairie Pest Monitoring Network: A coordinated monitoring of field crop pests of the Canadian Prairies

P36 Illustrating the benefits of a strategic approach to reduced risk pest management: The case of foliar insect pests of prairie field crops in Canada

P37 Cereal Aphid Manager: A dynamic action threshold smartphone application for scouting cereal aphids

P38 Integrated management of wheat midge infestations in wheat crops of Western Canada

P39 Baseline regulation of key genes in the phenylpropanoid pathway and their role in defense against biotic stresses in Maize

P40 Antixenotic potential in pulses against the pea aphid *Acyrthosiphon pisum* (Harris)

P41 Susceptibility of small-seeded legumes to infestation by pea aphid *Acyrthosiphon pisum* (Harris)

P42 Integrated management of glyphosate-resistant horseweed [*Conyza canadensis* (L.) Cronq.] with tillage and herbicides in Nebraska soybean (*Glycine max* (L.) Merr.)

P43 Tools are available for integrated management of glyphosate-resistant common ragweed *(Ambrosia artemisiifolia* L.) in Nebraska soybean

P44 Diagnosis of diseases caused by *Diaporthe (Phomopsis)* species on soybean in the United States

P45 Comparison of a putative novel species of *Phytopythium* to other *Phytopythium* spp. for pathogenicity on soybean seed

P46 Not being presented

P47 Cropping intensity driven microclimate is influencing abundance of ground foraging predators in coffee farmlands

P48 Biology-based strategies for integrated management of *Rhizoctonia solani* in soybean fields

P49 The effect of fungicide application methods on foliar diseases, seed quality, and yield protection in soybean

P50 A meta-analysis and economic evaluation of soil and seed applied insecticide use in Indiana maize

P51 Soil insecticide and insecticidal seed treatment impacts on timing of northern corn rootworm beetle emergence from *Bt* corn

P52 Co-inoculation of *Burkholderia ambifara* C628 and *Bacillus simplex* R180 reduced Fusarium root rot disease in corn

P53 Developing a sequential sampling protocol for scouting sugarcane aphid, *Melanaphis sacchari* Zehntner, in sorghum

P54 Development of a prediction model to improve disease management in sunflower (*Helianthus annuus*)

P55 Dispersal of wheat curl mite from virus infected winter wheat

P56 Overwintering potential of *Puccina striiformis* f.sp. *tritici* in North Dakota, USA

P57 Detecting sugarcane aphid (*Melanaphis sacchari*) infestation in grain sorghum (Sorghum bicolor) using leaf spectral response

P58 Risk assessment of *pea seed-borne mosaic virus* (PSbMV) infecting field pea

P59 Fungicide treatments and wheat cultivar resistance: Two key strategies to effectively manage Fusarium Head Blight and Deoxynivalenol in southeastern Nebraska

P60 Rolled rye for weed suppression in black bean and soybean

P61 Adapting established IPM strategies to emerging pests: A tale of two stem borers in sugarcane

P62 Predators associated with sugarcane aphids and their impact on aphid suppression in sorghum in High Plains

P63 Comparing patterns of injury associated with potato leafhopper (Family: Cicadellidae) feeding across different alfalfa (*Medicago sativa*) cropping systems

P64 The status of western bean cutworm, *Striacosta Albicosta* (Smith), in New York State

P65 *Trichogramma ostriniae* takes on a new challenge: Western bean cutworm, an invasive pest in New York

P66 Automated monitoring traps for detection of western bean cutworm (*Striacosta albicosta*)

P67 Improving degree-day models for the flight phenology of western bean cutworm (Lepidoptera: Noctuidae)

P68 What is going on with the western bean cutworm on corn in Mexico?

P69 Integrated pest management and the role of spiders within Nebraska agroecosystems

P70 Screening of entomopathogenic fungi from West Central Nebraska against key pests of corn

P71 Nebraska growers' and crop consultants' knowledge and implementation of IPM of western bean cutworm

P72 Dispersal and avoidance behavior of western bean cutworm when exposed to *Bt* maize

P73 Characterizing larval movement of western bean cutworm in field maize

P74 Western bean cutworm feeding damage on *Bt* hybrids and implications for economic injury levels

P75 Flight of the western bean cutworm: population patterns of a noctuid pest over the past 30 years

P76 Differences in midgut gene expression between *Bt* exposed and unexposed Western bean cutworm

P77 Landscape-level effects among western bean cutworm developing on Cry1Fa & Vip3A corn in block and blended refuge plants

P78 Survey of bees and syrphid flies associated with flowering soybean in the midwestern United States

P79 Economics of *Lygus hesperus* management in Texas High Plains cotton

P80 Evaluation of efficacy of PB ropes in different ecological zones of Punjab, Pakistan

P81 Multi-crop analysis to study the impact of weather parameters on population of beneficial insects in district Sahiwal in Pakistan

P82 The efficacy of field-collected fungal pathogen against green stinkbug in the Maryland

P83 The use of native entomopathogens in integrated management of granary weevil *Sitophilus granarius* (L.) (Coleoptera: Curculionidae)

P84 Adding risk associated with weed management to a decision support system for peanut

P85 Extension of information to farmers from research in Ghana designed to mitigate aflatoxin contamination in peanut

P86 Parasitism of the invasive brown marmorated stink bug by a native tachinid fly

P87 Estimating the trapping area of the brown marmorated stink bug pheromone

P88 An IPM answer to grape rootworm, a reemerging vineyard pest

P89 The tale of two nepoviruses in Washington state vineyards

P90 Field-level fungicide exposure to honey bees (*Apis mellifera*) during orchard bloom in Michigan

P91 Straw mulching enhances productivity of virus-infected passion fruit in Uganda

P92 Right to the core: How Eco Apple® successfully reduced pesticide risk in northeast apple production

P93 Improving integrated pest management of leaffooted bug on almond and pistachio in the San Joaquin Valley

P94 Susceptibility of peaches, plums and cherries to spotted wing Drosophila in western New York

P95 Effect of plant extract *Ruta graveolens* against the date scale, *Parlatoria blanchardi* Targ., (Homoptera, Diaspididae) at Biskra oasis, Algeria

P96 Horizontal transfer of reduced-risk pesticides between oriental fruit fly *Bactrocera dorsalis* (Hendal)

P97 Management of *Tetranychus urticae* on strawberries using UV-C irradiation

P98 Invasive honeysuckle increases populations of the invasive vinegar fly, spotted wing Drosophila

P99 Seasonal activity of *Drosophila suzukii* Matsumura (Diptera: Drosophilidae), in North Dakota fruits

P100 Pest management on new cranberry plantings: Horticultural, regulatory, and economic drivers

P101 Monitoring spotted wing Drosophila through a statewide network in Ohio

P102 Testing novel attractants for *Drosophila suzukii*

P103 Integrated Pest and Pollinator Management: Investigating impacts of different pesticide programs on pollinator communities in commercial orchards

P104 Current distribution of the samurai wasp, *Trissolcus japonicus*, in North America

P105 Integrating cultural, behavioral, and chemical strategies to improve organic management of spotted wing drosophila

P106 Not being presented

P107 Integrated pest management of longan in Vietnam

P108 Ukiah High School Cockroach Project: IPM is a community effort

P109 Site specific management of nuisance geese on school properties: A case study from New York State

P110 Recognizing excellence in school integrated pest management

P111 Stop School Pests online integrated pest management training courses for school employees

P112 The effect of IPM outreach to schools via webinars

P113 Engaging school nurses to promote IPM

P114 City-wide invasive formosan termite monitoring project in Jacksonville, Florida

P115 Evaluation and modeling of TickBot: A tick-killing robot

P116 The Public Tick IPM Working Group enhances tick-borne disease stakeholder collaboration

P117 New tools in the vector management IPM toolbox

P118 Integrated pest management of mosquitoes: A case study of West Nile virus in California

P119 Cost-benefit analysis of total release foggers (TRFs)

P120 Impacts of promoting Integrated Pest Management (IPM) in home gardens and landscapes through the Vermont Extension Master Gardener Helpline

P121 Integrated pest management programming for community gardeners

P122 IPM education and outreach to urban and community audiences in California

P123 Urban gardens as a platform for experiential learning: Pollinator conservation, citizen science, and sustainability

P124 An IPM approach for the control of the common bed bug, *Cimex lectularius* L.

P125 Making the connection: IPM, in-home childcare, and asthma in Chicago's most at risk neighborhoods

P126 Entireleaf morningglory in paddy field's levee invades paddy field

P127 An innovative IPM solution for management of the invasive aquatic weed hydrilla

P128 Interactivity among fungi, select *Pinus*-associated insects and the Pinewood nematode in Louisiana

P129 An integrated management approach to controlling invasive sea lamprey in the Great Lakes

P130 Weeds as source of inoculum of *Diaporthe gulyae*, the causal agent of Phomopsis stem canker of sunflower

P131 Understanding the population dynamics of arthropod pollinators and their host preferences at the UMES campus

P132 Connecticut Integrated Pest Management Program

P133 Ecological IPM: Master Gardeners learning sustainable ways to manage insects in landscapes and gardens

P134 Recently established invasive pests on California ficus trees: Identification, impact, and management

P135 Novel SAR biopesticide LifeGard® bolsters resistance management toolbox

P136 Feed 'em and weep? Fertilizer effects on aphid population growth and biocontrol in greenhouse crops

P137 Control of *Phytophthora* root rot disease of hydrangea using biorational products and fungicides

P138 Management of Cercospora leaf spot of hydrangea using biorational products and fungicides

P139 Augmentative biological control of twospotted spider mite on hops in the midwest

P140 Creating a buzz for IPM in turf care using innovative community engagement

P141 Partnering with industry to deliver IPM continuing education to Florida's turfgrass professionals

P142 Detection of *Pythium* spp. in golf course irrigation systems

P143 Incorporating organic amendments to enhance control of dollar spot on bentgrass fairways

P144 Fungal communities infecting creeping bentgrass continuously change during the first six months

P145 Use of unmanned drones in Maryland nurseries as part of our IPM outreach

P146 Field trials to evaluate low risk pesticides for Japanese Beetles, *Popillia Japonica*, in nurseries

P147 New resources on thrips IPM in greenhouse production

P148 Optimizing irrigation management can reduce pesticide loss in nursery production

P149 Developing and implementing effective integrated pest management strategies for specialty crop growers in north Florida

P150 Use of multiple natural enemies to manage whiteflies on poinsettias

P151 Population dynamics and control of the crapemyrtle bark scale

P152 Control effect based on yellow-sticky-board against *Bemisia tabaci*

P153 Repetitive overseeding of athletic fields for organic weed management

P154 Managing virus diseases in vegetable and legume crops in Bangladesh, Cambodia, and Nepal

P155 Using multiple plant biostimulants in vegetable systems can increase yields and fruit quality, but not consistently

P156 Antagonistic potential of *Bacillus amyloliquefaciens* against major tropical vegetable pathogens

P157 Potato Sustainability Initiative: Continuous improvement in sustainable potato production

P158 An IPM approach to reduce wireworm damage in potatoes

P159 Buffering of soil microclimate through soil amendments and mulching has potential in management of insect-vectored virus diseases of tomato

P160 Genome sequencing and development of SNP genotyping assay for identification of *Tuta absoluta*

P161 Sweet corn pest population trends over 10 years in Maine

P162 Sweet Corn Scout—A new mobile application to help growers identify and scout for sweet corn pests

P163 Evaluation of alternative weed control methods for horticultural crops

P164 Not being presented

P165 Successful adoption of action threshold-based insecticide programs for thrips management in onion

P166 Making rational pest management decisions for organic production of *amaranthus* in North Carolina

P167 Aphid tower trapping results in Maine

P168 Promoting sustainable, biologically-based pest management systems for improved vegetable production in high tunnels

P169 Developing an attract and kill approach for harlequin bug, *Murgantia histrionica* (Hemiptera: Pentatomidae)

P170 Capacity building in small farm IPM at Alcorn State University

P171 Living mulch as a tool for integrated weed management in organic vegetables

P172 Evaluation of host preference of brown marmorated stink bug, *Halyomorpha halys*, on bell peppers

P173 Effect of *trichoderma* species on emergence indices, infection incidence and growth performance of sweet pepper

P174 Resistance of genetically-diverse soybean varieties to insect pests in the eastern shore of Maryland

P175 Pests: An unwanted side effect of tropical storms

P176 Alternative avoidance method of insecticide resistance using egg parasitoid to block rotation, periphery zone treatment

author index

Note—*Numbers preceded by a "P" indicate a poster; other numbers refer to oral sessions.*

Abdi, Damon—P148

Acebes-Doria, Angelita—P87

Adama, Ibrahim—P85

Adams, Christopher G.—P87

Adeniyi, Adedayo Francis—P33

Adesemoye, Anthony O.—P48, P52, P70, P83

Adiga, Abhijin—33.4

Adriaansen, Chris—11.5

Aeschliman, Chad—P66

Agnello, Art—P94, P104

Ahmed, Alhadi—P174

Akhtar, Yasmin—P124

Akinbade, Segun—P89

Albert, Jacquelyn—P90

Aldridge, Heather—7.2

Alford, Adam M.—P50

Allen, Joan—P132

Allen, Tom—P44

Alwang, Jeffrey—9.4

Alyohkin, Andrei—P167

Anderson, Marcia L.—P112, P117

Anderson, Ryan—P140

Andreazza, Felipe—22.2

Anwar, Habib—P81

Arakelian, Gevork—P134

Archibald, Westen R.—P71, P74

Aristizabal, Luis—2.6

Atukunda, Robinah—P91

Augustine, Agyekum—P85

Ba, Malick—39.2

Baenziger, P. Stephen—P59

Baker, Brian P.—P16, P31

Ballal, Chandish R.—35, 35.1

Balusu, Rammohan—P82

Banwarie, Neera—P156

Barnes, Ethann R.—P43

Barrett, Eric—P121

Bartholomew, Candace—P132

Baur, Matthew E.—21, P13, P118

Baysal-Gurel, Fulya—P137, P138

Beauzay, Patrick—14.1, P22, P78

Beck, Amanda L.—P58

Beckley, Cody J.—P143

Beers, Elizabeth—P104

Bembenek, Alicia F.—P133

Berger, Lori—6.2

Bergh, Chris—P104

Bergstrom, Gary—P44

Bernard, Thomas—P92

Biddinger, David J.—10, 10.3, P86, P103

Bird, George W.—41, 41.3

Bissonnette, Kaitlyn—1

Blanco, Humberto—P9

Block, Charlie—P44

Boetel, Mark A.—P51

Bolanos-Carriel, Carlos—P59

Bon, Marie-Claude—P104

Bonabana-Wabbi, Jackline—P47

Bonhotal, Jean—P6

Bonkowski, John—P44

Bowling, Robert—P53

Bowman, Dennis—15.2

Bowman, John—39.1

Boyer, Cheryl—P12

Boyle, Natasha—P158

Braband, Lynn—P109

Bradley, Bethany A.—12.2

Bradley, Carl—P44

Bradshaw, Jeffrey D.—P18, P71

Bradshaw, Terence—P17

Brandenburg, Rick L.—P84, P85

Braul, Larry—P34

Braun, Nathan—P54

Breiland, Matt—P56

Bridges, William C.—P32

Brown, Bryan—P60

Brown, Lydia—P30

Brown, Sebe—P53

Brownbridge, Michael—2.1, P147

Bruhn, Morgan—P56

Brust, Gerald—P155

Buck, James—P44

Buitenhuis, Rose—P147

Buol, S. Greg—P84

Burrack, Hannah—P102, P105

Burrows, Mary E.—P11

Buzza, Aaron—P167

Byamukama, Emmanuel—P44

Cain, Alexander B.—P160

Calles-Torrez, Veronica—P51

Cardina, John—P10

Carley, Danesha Seth—P123

Carrière, Yves—P30

Carroll, Juliet E.—P5, P94

Carroll, Mark—3.1

Castle, Steven J.—P30

Castlebury, Lisa—P44

Chabaani, H.—P95

Chahal, Parminder S.—P42

Chandran, Rakesh—1

Chen, Li-Lin—4.4

Chen, Yan—P151

Cherukut, Scola—P47

Chilvers, Martin—P44

Chiu, Joanna C.—P160

Chou, M.Y.—P96

Chuang, Y.Y.—P96

Clem, Carl Scott—P8

Clement, David L.—8, 8.2, P24, P145

Cloonan, Kevin R.—P102

Cloyd, Raymond—P12

Coates, Brad S.—24.5, P76, P77

Coleman, Bruce—16.5

Collins, Daniel J.—P170

Colombo da Luz, Priscila M.—P72, P75

Concklin, Mary—P132

Conlon, Joseph—45.3

Connally, Neeta—28.3

Coop, Leonard—P3, P4

Cooper, Rick—5.4

Cope, Stanton—45, 45.2

Corrigan, Robert M.—47.1

Craigie, Grace—P57

Crider, Nancy—36.1

Criger, Lori A.—P129

Crissman, Jonathan—P119

Crossman, S.—P175

Crouch, Jo Anne—P144

Crump, Amanda—1, 9.5, 21, P13, P118

Cuda, James—P127

Da Silva, Karen—P39

Daniel, Samantha R.—P69

Dankyi, Awere—P85

Dara, Surendra K.—2.2, 44.1

Darby, Heather—P17

DaSilva, Cherre—22

Davis, O.—P175

DeKryger, Todd—1

Dennis, Brooke—P78

DeVries, Zachary—P119

Dhakal, Chandra K.—P79

Dill, James F.—P161, P167

Dill, Shannon—P23

Dimock, Michael B.—2.3, 21.4, P135

Dingha, Beatrice N.—P166, P172

Dixon, Tommy J.—15.1

Dixon, Wayne—P30

Dobridina, Marina—P44, P54

Doherty, Joseph—P144
Domptail, Stephanie—P47
Dorrance, Anne—P44, P45
Dorschner, Keith—P13
Dragila, Maria—P3
Draper, Martin A.—43, 43.4
Dreves, A.J.—P175
Drijber, Rhae A.—P9
Drummond, Frank—P102
Du, Rui—P152
Dufault, Nicholas—P44
Dunn, Amara R.—P1
Dwyer, James—P161, P167
Dwyer, Marc—P167
Dwyer, Marsha—P166
Eckler, Jim—P109
Eilers, Sarah E.—P11
El Aini, Rachid—34.8
Elliott, Bob—P38
Elliott, Norman C.—P53
Elliott, Steve—P118
Ellis, Donna—17, 17.2, P132
Ellsworth, Peter C.—20.3, P13, P30
Elmehdawi, Abubaker S.—P32
Elmer, Wade H.—23, 23.4
Erbaugh, John M.—P91, P159
Ercan, Gülçin—P83
Eshenaur, Brian—17.3, P136
Everhardt, Sarah—P26
Fanela, Thiago L.M.—P73
Farmer, Leslie—P36
Farrar, James J.—P13, P118
Fayad, Amer—33, 39, P154
Felipe-Victoriano, Moisés—P68
Fernandez, Thomas—P148
Fetzer, Jody—8.4
Finke, Deborah—P78
Fishel, Fred—P141
Flores, Daniel—35.2
Forbes, V.—P175
Fournier, Alfred J.—20.2, P13, P30, P110
Fox, Alan—P4
Freeman, Ashley—P108
Friskop, Andrew—P56
Frisvold, George B.—9
Fritz, Bradley J.—P135
Frye, Matthew J.—47
Funahashi, Fumiaki—P3
Funnell-Harris, Deanna—P59
Futrell, Sue—6.3
Gabryś, Beata—P40, P41
Gaff, Holly D.—P115
Gangloff-Kaufmann, Jody—47, 47.4
Gannett, Maria—P153
Garbach, Kelly—P2
Gardner, Wayne A.—34.1
Gardner, Jeffrey—P65
Garrett, Karen A.—12.4
Gates, Cary—P147
Gavloski, John—P35
Geiger, Chris—47.6
Ghantous, Katherine M.—P100
Ghimire, Krishna—P54, P130
Giesler, Loren—P44
Giles, Kris L.—P53
Gill, Stanton A.—P145, P146
Gillett-Kaufman, Jennifer—P127
Gilley, Michelle—P54
Gillis, Jim—10.5
Giordano, Gerald G.—P6
Godfrey, Kristine E.—P160
Golick, Douglas A.—P71
Gomes-Solecki, Maria—28.4
Gomme, Steve—41.1
Goodell, Peter B.—PS2.3
Gordon, Laurie—26.1
Gordon, Tavia L.—P149
Gouge, Dawn H.—34.7, P110, P111
Grafton-Cardwell, Elizabeth E.—29.3
Grant, Jennifer A.—P5, P31, P153
Green, Thomas A.—28, P16, P27, P28, P92, P110, P111, P116, P157
Grieshop, Matt—P105
Grillo, Renato—23.2
Grose, Julianne—21.5
Gu, Mengmeng—P151
Guedot, Christelle—P105
Gut, Larry—P87, P102
Gyawaly, Sudan—P166
Hadi, Buyung—39.3
Hagler, James—P98
Hakeem, Abdul—P79
Halbleib, Mary L.—20, 20.5
Hallen-Adams, Heather—P59
Halverson, Beret—P120
Halvorson, Jessica—P22, P56
Hamby, Kelly—22.3, P105
Handley, David T.—P161
Hanson, Anthony A.—P67
Hare, Andrew T.—P84
Harlow, Erin—P114
Harmon, Carrie L.—43.1
Harmon, Dasia S.—P149
Harmon-Threatt, Alexandra—P8
Hartley, Scott—P35
Harveson, Bob—P54
Haseeb, Muhammad—P149
Hashem, Fawzy—P174
Hatterman-Valenti, Harlene—P99
Hazelrigg, Ann—P17, P120
Hedstrom, Chris—P104
Hein, Gary L.—P14, P15, P55
Heinz, Kevin—P150
Herlihy, Megan V.—P7, P104
Herr, Joshua R.—P39
Herzfeld, Dean—26.2, 37.1
Highland, H. Brett—P135
Hill, Brian—P3
Hillier, Christina—P161
Hinz, Francisca—P148
Hodges, Amanda C.—29.2, P15
Hoeher, Matthias—P47
Hoelmer, Kim A.—P104
Hoepting, Christine—P165
Hogg, David—P78
Hokkanen, Heikki M.T.—4.1
Hooks, Cerruti R.R.—4.7, P171
Horak, Michael J.—21, P13
Hossain, Shahadath—33.3, P154
Howatt, Kirk—P22
Hoyer, Mark V.—P127
Hoyle, Jared—P12
Huesing, Joe—30.4
Hunt, Thomas E.—24, P67, P72, P73, P75, P76, P77
Hurley, Janet A.—9.3, 34, 42, 42.3
Hurley, Terrance M.—9.1
Hussain, Syed Ismat—P81
Hutchison, William D.—18, 18.2, P67
Ichinose, Katsuya—4.6
Ihara, Nozomi—P126
Ijala, Anthony R.—P47
Isaacs, Rufus—P98, P102, P105
Isard, Scott—P54
Isman, Murray B.—P124
Jackai, Louis EN—P166, P172
Jackson, Mark A.—P127
Nagesh, Mandadi—35.5
James, Terri—P19
Jandricic, Sarah—P147
Janisiewicz, Wojciech—P97
Jaronski, Stefan—2, 11.1
Jasinski, James—P101
Jayaprakas, C.A.—35.3
Jenkins, Ebony—P82, P131
Jensen, Bryan—P78
Jentsch, Roger—38.2
Jentsch, Peter—P104
Jepson, Paul C.—1, 20.1, 30, 30.1, 46.4, P4
Jeske, Elizabeth Sue—P9
Jesse Iles, Laura J.—43.2
Jhala, Amit J.—P43
Jin, Virginia L.—P9
Johnson, Donn—P105
Johnson, James—P170
Johnson, Reed M.—32.5
Johnson, Wendy—P12
Jones, Douglas B.—P74
Jordan, David L.—P84, P85
Joshi, Neelendra K.—10.2, P86, P103

Jussaume, Raymond A.—9.2
Kabir, Md Niamul—PI37, PI38
Kandelous, Maziar—P3
Kanga, Lambert H.B.—PI49
Kao-Kniffin, Jenny—PI53
Karungi, Jeninah—P47, P91, PI59
Keay, Justin H.—PI63
Kells, Stephen—47.5
Kelly, Heather—P44
Kennelly, Megan—PI2
Kerzee, Ruth G.—PI25, PI40
Khachatryan, Hayk—16.3
Khadka, Ram B.—PI0
Kingsley-Richards, Sarah—PI7
Kleczewski, Nathan—P44
Klick, Suzanne—PI45, PI46
Kness, Andrew—P23
Knezevic, Stevan Z.—P43
Knodel, Janet—17.1, P22, P51, P78, P99
Knutson, Allen E.—P53
Kobayashi, Hiroyuki—PI26
Kodati, Srikanth—P48
Kontz, Brian—PI30
Kooyman, Christiaan—11.6
Kopec, Dave—PI10
Kora, Cezarina—P34, P35, P36, P37, P38, PI47
Kordan, Bożena—P40, P41
Kosina, Petr—P20
Kowalski, Jacqueline—PI21
Krawczyk, Greg—P86, PI04
Krischik, Vera—16.2
Krueger, Caitlin—P99
Krupke, Christian H.—P50, P78
Kuhar, Thomas P.—PI69
Kunkel, Brian—PI46
Kyamanywa, Samuel—P91, PI59
Lam, Vu H.—PI60
Lamb, Elizabeth—PI36
Lame, Marc—47.3
Lamp, William O.—P63
Lampman, Joellen—P6, PI09, PI53
Larsen, Ashley E.—46.1
Latchininsky, Alexandre V.—11
Laufenberg, Frank—28, PI16
Le Gall, Marion—11.4
Leach, Ashley—PI65
Leach, Heather—P98
Lee, Jana—PI05
Legrand, Ana—PI32
Leppla, Norman C.—14.2, 29
Lerman, Dion—36.2
Leskey, Tracy C.—29.4, P87, P97, PI04, PI05
Leslie, Alan W.—PI71
Leslie, Timothy W.—P86, PI03
Levi, Clarissa—26.3
Lewald, Kyle M.—PI60
Li, Andrew—28.2
Li, Shengchen—PI52
Li, Shujuan—PI10
Liburd, Oscar—PI05, PI49
Lindenmayer, Jessica C.—P53
Lindquist, John L.—P9, P43
Little, Brian—PI05
Little, Neith—P26
Loeb, Gregory—P88, PI02
Loker, Ali—PI6
Long, Elizabeth—PI01
Long, Rachael—P2
Long, Zhang—11.7
Louis, Joe—P39
Louws, Frank—7.4
Lowenstein, Josh—PI04
Macdonald, Michael—45.1
MacNeil, Carol—P64
Maertens, Ricardo—46.3
Magarey, Roger—7, 7.3, P54
Mahmood, Khalid—P80, P81
Maia, Gabriella—PI20
Majumdar, Ayanava—4.3
Malinoski, Mary K.—8, 8.1, P24
Mallory-Smith, Carol—P3
Malvick, Dean—P44
Mandyam, Keerthi—PI70
Manker, Denise—21.2
Markell, Sam—41.4, P22, P44, P54, P56, PI30
Martin, Tunyalee A.—P20
Mata, Marisol—PI23
Mather, Thomas—PI16
Mathew, Febina—P44, P54, PI30
Mattson, Neil—PI36
Maurais, Bob—28.5
McCarthy, Rachel L.—8.3
McCornack, Brian—PI2, P53, P57
McCoy, Teresa—P23
McGawley, Edward C.—PI28
McGinnis, Esther—P99
McRoberts, Neil—20.4
McSwain, Karen—PI6
Meers, Scott—P35
Meinke, Lance J.—P70
Mendoza, Luis del Río—P58
Mensah-Bonsu, Melvin—PI72
Merchant, Mike—PI51
Merga, Miju—PI74
Messenger-Sikes, Belinda J.—PI22
Mick, Russell—PI19
Miller, Dini M.—PS1, 5, 5.5, 42.1
Miller, Frannie L.—PI2
Miller, Gerald L.—PI42
Miller, James R.—P87
Miller, Joshua J.—PI5
Miller, Sally A.—21.6, PI0
Millican, Michael—13, 13.1
Milnes, Josh—PI04
Mochiah, Brandford—P85
Montezano, Débora G.—24, 24.4, P72, P73, P75
Moon, Roger D.—P67
Morandin, Lora—P2
Morin, Hillary—PI04
Morrison, Rob—PI04
Mueller, Daren—P44, P49
Mulka, Stacey—PI25
Muniappan, Rangaswamy—29.1, 33, 33.1, 39, PI07
Murphy, Graeme—PI47
Murray, Kathy D.—PI13, PI53
Murray, M. Katie—30, 30.3, PI3
Muwanika, Chris—PI59
My, Hanh Tran Thi—PI07
Nackley, Lloyd—P3
Nair, Shaku—25, 34, PI10
Natra, Naga Teja—P89
Nault, Brian—PI65
Ndiaye, Susan—PI39
Nielsen, Anne L.—4.2, 38.1, PI04
Nielsen, Kathleen—P54
Nolan, Sean P.—P32
Noronha, Christine—PI58
Norton, George W.—PS2.1
Nowierski, Bob—30.2
Nuppenau, Ernst-August—P47
O'Neal, Matthew—P78
Ochwo-Ssemakula, Mildred K.N.—P91, PI59
Ockey, Scott C.—PI35
Oi, Faith—5.2, 34.6, 42, 42.4
Olfert, Owen—P35, P38
Oliveira-Hofman, Camila—P70
Olmstead, Daniel L.—31.1, P5, P64
Oni, Ayodeji—PI73
Ortiz, Oscar—34.3
Ostfeld, Richard—28.1
Otani, Jennifer—P35
Otte, Annette—P47
Overmyer, Lindsay—P55
Owens, David—29
Owusu-Akyaw, Michael—P85
Palumbo, John—P30
Parajulee, Megha N.—34, P79
Paret, Mathews—23, 23.1
Parikh, Lipi—P52
Park, Johnny—P66
Parke, Jennifer—P3
Parker, Ryan—P64
Parkins, Albertha J.—PI49
Pasche, Julie S.—P58
Paula-Moraes, Silvana V.—18, 18.1, 24.3
Peng, H.C.—P96
Penney, Andrew—1, P49
Peoples, Timothy—PI70

Peters, Thomas—P22
Peterson, Julie A.—1, 24, 24.6, P18, P69, P70, P71, P72, P73, P74, P75, P76, P77, P83
Pethybridge, Sarah—P60
Petrovic, Kristina—P44
Petrovic, Marty—P153
Petzoldt, Curt—P5
Pier, Naomi—P30
Piñero, Jaime C.—P163, P168
Pollack, Richard—47.7
Porter, Pat—P77
Potter, Bruce—P78
Prabhaker, Nilima—P30
Preston, Shanika—42, 42.2
Price III, Paul P.—P44
Pundt, Leanne—P132
Purcell-Miramontes, Mary—10.6
Qi, Lingzi—P152
Quinn, Nichole—P104
Rajotte, Edwin G.—10, P103
Ramirez II, Salvador—P9
Rane, Karen—P24
Rao, Sujaya—35.7
Rashid, Tahir—P170
Ratcliffe, Susan—1, 14
Raudenbush, Amy—P78
Raupp, Michael J.—P133
Rayapati, Naidu—P89, P154
Reddy, Gadi V.P.—4
Reedyk, Sharon—P34
Reese, Susannah K.—36, 36.3
Reichert, Ronald L.—32.3
Reisig, Dominic—18.4
Remadevi, O. K.—35, 35.6
Rendon, Dalila—22, 22.1
Reynolds, Cheryl—P20
Rice, Kevin B.—P87
Richards, Kerry—37, 37.2
Riley, Rachel M.—5.7, 19
Ristvey, Andrew—P145
Ritchie, Eric—P157
Roberge, Linda—34.4
Roberts, Dan—21.1
Roberts, Joseph A.—3, 3.3, P143, P144
Rodgers, Gilliann—16.4
Rodriguez-Saona, Cesar—P102
Rogers, Greg—P135
Rogers, Mary—P105
Rosenkranz, Ginny—P146
Rossi, Frank—P153
Roubos, Craig—P105
Royer, Tom A.—P53
Rozyne, Michael A.—6, 6.1
Rushford, Clayton A.—P142
Russo, Heather—P141
Ryan, Matthew R.—P60
Sah, Lalit— 33.2, P154
Salami, Abiodun Olusola—P173
Sanchez-Peña, Sergio R.—P68
Sandell, Lowell D.—P43
Sanderson, John—P136
Sandler, Hilary A.—P100
Santangelo, Richard G.—P119
Santra, Swadeshmukul—23.5
Saravanakumar, Duraisamy—P156
Sargent, Chris—P133
Sartini, Cady E.—P32
Sasidharan, T.O.—35.4
Savinelli, Caydee—32.4
Schaafsma, Arthur W.—32.2
Schal, Coby—19.1, P119
Scharf, Michael—5, 5.1, 19.2
Schell, Scott P.—11.2
Schellman, Anne E.—P122
Schmitt, Cole—P27
Schnable, James—P39
Schroeder, Jill—14.3
Schuch, Ursula—P110
Schultz, Andrew—P89
Schwarz, Mary—P6
Seaman, Abby J.—P65
Sedivy, Aaron M.—P14
Seiter, Nick J.—P53
Selvaggio, Sharon—16, 16.1
Seng, Kim Hian—P154
Shahid, Muahammad Iqbal—P81
Shapiro-Ilan, David—2.4
Sharma, Anamika—4.8
Sheedy, Claudia—P34
Sherman, Gabe—P108
Shew, Barbara B.—P84
Short, Brent D.—P87, P97
Shrestha, Govinda—4
Shrewsbury, Paula—P104
Sial, Ashfaq—P105
Sidhu, Jaspreet—P107
Sikkema, Peter H.—P43
Sikora, Edward—P44
Simmons, Jocelyn—P82, P131
Simmons, Terri—P137, P138
Simons, Kristin J.—P58
Sisco, Rebecca—21, P13
Skewes, Peter A.—P32
Skinner, Margaret—P17
Skolnik, Daniel—P27
Słomiński, Paweł—P40, P41
Smith, Damon—P44
Smith, Hugh—4.5
Smith, Jocelyn—24.2
Smith, Tom—37.4
Sosa-Gomez, Daniel R.—18.3
Spafford, Anne—P123
Springborn, Fred—24, 24.1
Spurlock, Terry—P44
Sseruwagi, Peter—P91
St. Clair, Ashley—P78
Stack, James P.—43, 43.3
Stec, Katarzyna—P40, P41
Steinkraus, Donald—2.5
Stengle, Jennifer—P153
Steponitis, Christian—15, 31, 38, 44, P29
Stine, Emily M.—P14, P15
Strong, Ken—5.8
Studebaker, Glenn—P21
Suazo, Alonso—P119
Sutherland, Andrew—P108
Svendsen, Erl—P37
Swoboda Bhattarai, Katharine A.—24, P74, P75
Szczepaniec, Ada—P62
Tabuloc, Christine A.—P160
Takeda, Fumi—P97
Takeuchi, Yu—7, 7.1
Talamas, Elijah—P104
Tang, Siew Bee—22.4
Tarai, N.—P95
Tarutani, Cathy—P13
Teeter, Allison—P12
Tefera, Tadele—39.4
Tewksbury, Lisa—17, 17.4
Thi, Duyen Luong—P107
Thomas, Augustus—P156
Thompson, Grant—P153
Thompson, Morgan N.—P63
Tilmon, Kelley—34.2, P78
Timmerman, Amy—P19
Tollerup, Kristen E.—P93
Torres-Acosta, Ivonne—P68
Troyano, Nancy—5.6
Trudeau, Leandra—P140
Tumuhairwe, J.B.—P47
Turner, Thomas—3.2
Tylka, Gregory—41.2
Umeda, Kai—P110
Vafaie, Erfan—P150, P151
Van, Hoa Nguyen—P107
Vankosky, Meghan A.—P35
Varela, Lucia G.—34.5
Varenhorst, Adam—P78
Vargas, Amilcar—P45
Vaughan, Mace—10.1
Vega, Fernando E.—12, 12.5
Viggers, Joshua—P49
Villegas-Luján, Renato—P68
Vorsah, Roger V.—P166
Vroom, Jay—14.4
Wada, Nami—P3
Waldhardt, Rainer—P47
Waldron, Keith—P64
Wallace, Rebekah—12.3
Wallace, Victoria—P132, P153
Wallingford, Anna K.—22.5, P169

Walton, Vaughn—22, PI02, PI05
Wang, Changlu—19.3, 47.2
Waterworth, Rebeccah—PI04
Weber, Donald C.—P7, PI04, PI69
Weeks, Emma N.I.—PI27
Wegulo, Stephen N.—P59
Weidman, Clara—P3
Weigle, Timothy—P5, P88
Welty, Celeste—PI01, PI39
Werle, Rodrigo—P43
Werts, Peter—P92
Wheatcraft, Suzanne—PI09
White, Alexis L.—PI15
White, Gene D.—5.3
White, Jason C.—23.6
White, Liza—PI36
Whithaus, Shannah M.—26
Wickings, Kyle—P6, PI53
Wiederholt, Kathy—P99
Wierda, Michael R.—26.4
Wilen, Cheryl—21.3
Wilkerson, Gail G.—P84
Williams, Scott B.—P66
Wilson, Blake E.—P61
Wilson, Chris—PI48
Wilson, Julianna K.—10.4, 32.6, P90
Wiman, Nik—PI02, PI04
Windbiel-Rojas, Karey C.—PI22
Winters, Gerald—PI70
Wise, Ken—P64
Wise, Kiersten—P44
Wist, Tyler J.—P37
Woller, Derek A.—11.3
Wright, Robert J.—PI8, PI9, P67, P69, P71, P74, P75, P78
Wu-Smart, Judy—32, 32.1, PI8
Yarrow, Greg K.—P32
Yeh, Tamson—PI53
Yu, Guangwei—PI52
Yu, Ida—P27, PI57
Zalom, Frank G.—PS2.2, PI05, PI60
Zarrabi, Ali A.—P53
Zastrow, Madeline—P28, PI11
Zatechka, Steve—28.6
Zebelo, Simon—P82, 131, PI74
Zhang, Chunquan—PI70
Zhang, Wei—46, 46.2
Zhu, Kun Yan—23.3
Zindash, Heather—PI46
Ziska, Lewis H.—12, 12.1
Zollinger, Richard—P22
Zuefle, Marion—P64, PI62
Zukoff, Sarah N.—PI2, P76, P77

map of meeting space

FIFTH FLOOR