NORTH CENTRAL BRANCH
Entomological Society of America

57th Annual Meeting

March 24-27, 2002

President Jon J. Tollefson

Kellogg Hotel and Conference Center
Michigan State University
South Harrison Road
East Lansing, Michigan 48824-1022
Welcome to Michigan!

2001-2002 Officers & Committees North Central Branch, ESA

Special Events

2002 North Central Branch Award Recipients

Program

Sunday, March 24, 2002

Monday, March 25, 2002

Tuesday, March 26, 2002

Wednesday, March 27, 2002

Author Index

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Taxonomic Index

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Kellogg Hotel and Conference Center Map

Welcome to East Lansing, Home of Michigan State University

On behalf of the Michigan State University Department of Entomology, we are pleased to welcome you to the 57th Annual North Central Branch meeting of the Entomological Society of America in East Lansing. As usual, our meeting covers significant research and extension activities in major cropping systems, featuring symposia on Bt corn, extension entomology, and the recently released GAO report on integrated pest management. But we also highlight the many important minor crops grown in Michigan and the North Central region, with symposia on organic fruit production, beetle problems in small fruit, and biological control in the urban landscape.
Another focus of our meeting is entomology education of both children and adults. On Sunday, speakers — including public school teachers — share their experiences using insects in the classroom. The ‘Get-Bugged’ program on Tuesday morning brings 120 local elementary students into our main meeting room, where they will display entomology science projects. The graduate student symposium on Wednesday features a hands-on ‘Tubenrope’ workshop, designed to increase research efficiency of adult scientists.

The Program Committee would like to thank the speakers, donors, and volunteers who gave their time and energy to make this meeting possible. We hope you enjoy the 57th Annual Meeting, and have a productive visit to East Lansing and the Michigan State University Campus.

Michigan State University

MSU was founded in 1855 as the nation’s first land-grant university. It was the first institution of higher learning in the nation to teach ‘scientific agriculture’, and became the prototype for the land-grant institutions established under the Morrill Act in 1862. Current enrollment on the MSU campus is 43,400 students — 34,342 undergraduates, 7,657 graduate students, and 1,367 professional students.

The MSU campus is located east of Michigan’s capital city, Lansing, in the aptly named city of East Lansing. The Campus has 5,200 acres of land, split between a 2,100-acre main campus to the north and 3,100 acres of research farms and natural areas to the south. The Red Cedar River flows through the center of the main campus. North of the river are older, more traditional buildings housing administration, the MSU Union, the library, museum, ten older residence halls, and several academic departments (including Entomology, in the Natural Science Building). South of the river are modern residence halls, sports arenas, the medical complex, the Wharton Center for Performing Arts, the Agricultural Pavilion, the Detroit College of Law, and sophisticated scientific research laboratories (including most of the departments in the College of Agriculture and Natural Sciences).
A few fast factoids about MSU:

- MSU has several important collections of plantings, most famous the W. J. Beal Botanical Garden, the oldest continuously operated (128 years) university botanical garden in the country.
- Michigan State University operates the largest residence hall system in the U.S, housing over 17,000 students in 24 buildings.
- The world’s largest non-military cafeteria is in the Brody Residence Hall Complex, across the street from the Kellogg Center.
- MSU has one of the largest study abroad programs in the country. Over a quarter of MSU students travel abroad during their degree program.
- MSU is the only university with three on-campus medical schools, graduating medical doctors, osteopathic physicians, and veterinarians.
- MSU is home to four national research facilities — The National Superconducting Cyclotron Laboratory (home of the world’s highest energy continuous-wave accelerator), the Department of Energy Plant Research Laboratory, the Center for Microbial Ecology, and the National Center for Food Safety and Toxicology.

Registration

Registration badges are required for admission to all functions. The registration desk is in the Big Ten Room A and will be open for check-in for those who pre-registered and for on-site registration during the following times:

- Sunday 10:00 AM - 6:00 PM
- Monday 7:30 AM - 5:00 PM
- Tuesday 7:30 AM - 5:00 PM
- Wednesday 7:30 AM - Noon

Messages, Program Changes, Lost & Found

A message board and tacks will be available in the registration area for posting announcements. Changes in the scheduled program and other meeting news will also be posted here. Notices concerning changes in the scheduled program should be submitted to the meeting registration desk. Lost
and found articles may be turned in and retrieved at the registration desk.

**For Spouses and Guests**

Please check at the registration desk for spouse/guest information.

**Employment Opportunity Center**

The Employment Opportunity Center is located in the Heritage Room. Employers are invited to advertise available positions and job seekers are encouraged to distribute their vitae in the folders provided in the room.

**Audio-Visual Equipment**

All rooms will be equipped with 35-mm slide projectors designed to use standard 80-slide carousels, an overhead transparency projector, an IBM compatible laptop (notebook) computer, and a LCD video projector. Each speaker MUST provide slides in a carousel, marked with his/her own name and paper number, to the projectionist a minimum of 10 minutes BEFORE the beginning of the session. Extra slide carousels will NOT be available in the meeting rooms. As for electronic presentations (95, 97, or 2000 PowerPoint, Windows ONLY), because of compatibility issues, we will NOT permit “hot-synch” swapping of laptops during the paper sessions. For presenters who did not successfully upload his/her presentation via the NCB-ESA website as requested, ALL presentations MUST be loaded onto a respective laptop the preceding day, with the exception of the opening day (Sunday); NO EXCEPTIONS! The Heritage Room in the Kellogg Hotel and Conference Center will serve as the Audio/Visual Room. This A/V room will be available between 5:00 - 6:30 p.m. each day, and from 11:00-12:30 p.m. on Sunday prior to the commencement of the first presentations. Your presentation MUST be on removable media such as ZIP (100 or 250 MB), 3.5" floppy disks, or CD (700 MB/80 MIN). We can NOT directly cable (link) two laptops for file transfer using software such as LapLink, because of software security and compatibility issues.
Poster Presentations

Poster presentations (Student Competition & Submitted) will be set up throughout the meeting in the Big Ten Room A. Posters should be set up on Sunday, 4:00-8:00 PM and must be removed Tuesday afternoon between 4:30-6:00 PM. Authors (Student Competition and Submitted) are requested to be at their poster(s) to answer questions between 4:00-5:00 PM on Monday and 3:30-4:30 PM on Tuesday.

Guidelines for Speakers and Moderators

Speakers and moderators will follow standard practices for ESA meetings. Moderators are responsible for maintaining the printed schedule, by not starting any presentation before the scheduled time and by not allowing any speaker to exceed the allotted time for his/her presentation. Speakers that exceed their allotted presentation time will be requested by the moderator to conclude their presentation immediately. Please be considerate of others. Moderators in each room should obtain a pointer and timer from the Audio-Visual Room (Heritage) prior to their session. Pointers and timers should be returned to the Audio-Visual Room immediately after the session concludes. The ESA guidelines state that no smoking is allowed in any meeting room.
2001-2002
Officers & Committees
North Central Branch, ESA

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Jon Tollefson

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Mike Gray

Past President
Dave Hogg

Secretary-Treasurer
Ric Bessin

Governing Board Representative
Scott Hutchins

Executive Committee Members-at-Large
Randy Higgins  Bob Wright  Fred Baxendale

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Fred Baxendale and Chris Williamson, Co-Chairs

Ric Bessin  Chris DiFonzo  Mike Gray
Dave Hogg  Rufus Isaacs  Dave Smitley
Jon Tollefson  Rob Wiedenmann  Bob Wright

Local Arrangements Committee
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Nominating Committee
Larry Chandler, Chair
David Isenhour  Ed Grafius
Auditing Committee  
Ken Holscher, Chair  
Robert Behle Denise Olsen

Resolutions Committee  
Steve Yaninek, Chair  
Ted Radcliffe

Location and Time Committee  
Mark Hartlein, Chair  
Mark Ascerno Sonny Ramaswamy

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Billy Fuller Elaine Backus  
Tiffany Heng-Moss Mark Boetel  
Erin Hodgson

C.V. Riley Award Committee  
Leon Higley, Chair  
Mike Chippendale Sonny Ramaswamy  
Daniel Young Gerald Wilde  
Lowell “Skip” Nault

NCB Award of Merit Committee  
C. Michael Smith, Chair  
Shripat Kamble John Sedlacek Jeffrey Wyman

National ESA Awards Committee  
Dan Mahr, Chair  
David Onstad David Isenhour  
Jim Nechols Tom Baker  
Randy Higgins

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Chris DiFonzo, Chair  
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Membership Committee
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Larry Charlet (ESA) Rich Hellmich
Joe Reed Tom Hunt

Photo Salon Committee
Tom Myers, Chair
Frank Peairs Jerry DeWitt
Phil Sloderbeck Jim Mertins
David Voegtlin Ric Bessin

Student Affairs Committee
Matt O’Neal, Chair
Matt Carrol Patricia Anderson
Ryda Krell Michael Roberts

Archivist
Ken Holscher

Linnaean Games
Marlin Rice, Chair and Gamesmaster
Barbara Nead-Nylander Mike Gray
Jeremy Heath J.R. Stewart

NCB-ESA Website (http://esa.ent.iastate.edu)
John VanDyk, Webmaster

Special Event Sponsors
Aventis CropScience
BASF Corporation
FMC Agricultural Products Group
Syngenta Crop Protection
SPECIAL EVENTS

“Get Bugged” Insect Exposition
Tuesday, 10:00 - Noon
Big Ten Room A

Local grade school students will present their entomological projects to the ESA members during this 2-hour session. The “Get Bugged” Mentor Program was developed to take Michigan State University entomology students off campus and into community classrooms. Beginning in the fall of 1999, the Outreach office worked in concert with the Lansing School District to design a program that runs during the academic school year. The fall term was dedicated to providing teacher training workshops. In the spring term, participating classrooms were paired with a graduate student mentor. This partnership culminates with a “Get Bugged” Insect Exposition, where the mentor and students share their classroom projects and experiments. Those interested in this program and its outcomes are welcomed to visit this mini meeting within a meeting. To learn more visit http://www.ent.msu.edu/dept/docs/mentorpro.html.

Student Mixer
Monday, 8:30-10:30 PM
Big Ten Room B

As usual, the Student Affairs Committee will sponsor an evening mixer (snacks and beverages provided). Potential employers and professors in search of graduate students will be invited to attend in an effort to facilitate meetings with interested students. The mixer will start immediately following the Linnaean games.
The “Tubenrope” workshop is a hands-on exercise developed to increase the research efficiency of scientists regardless of their field or discipline of study. The workshop uses a unique physical puzzle to help burgeoning researchers use and communicate the “Strong Inference” approach to hypothesis testing. This workshop was developed and will be facilitated by Dr. Jim Miller, Professor of Entomology at Michigan State University. Dr. Miller leads the students in formalizing logical approaches to puzzle solving, focusing on how to move from observations, descriptions and eventually to the underlying mechanisms of any system; the value of constructing multiple conceptual models with distinct and explicit predictions; how to decide which experiments are most powerful in testing those models; and increasing research efficiency with logical research structures. For several years, Dr. Miller has taught this exercise as part of his course, “The Nature and Practice of Science”, that introduces these topics and more to graduate students interested in a career in the sciences.

MSU Bug House Tour
Wednesday, 10:00 - Noon

MSU students will conduct a tour of the Bug House. A shuttle service will transport NCB-ESA members to visit this mini museum of live and pinned insects with an accompanying gift shop. Please indicate your interest in visiting the Bug House and using the shuttle service when you first sign-in at the Kellogg Center. For more info and pictures visit http://www.ent.msu.edu/bughouse/index.html
C. V. Riley Achievement Award
John E. Foster
University of Nebraska

Dr. Foster is an outstanding scientist, whose record of over 100 research publications, book chapters, about $3 million in grant support, and many, many speaking invitations all point to the strength of his academic record. He has made substantial contributions in small grain breeding, particularly wheat resistance to insects. His work on the genetics of Hessian fly resistance has proven a major contribution to the protection of wheat from this potentially devastating pest. In his many publications on these various crops, Dr. Foster has not only made important theoretical and practical contributions to our understanding of plant resistance to insects, but also he has developed and contributed to interdisciplinary teams working on multiple pest problems. Consequently, much of Dr. Foster’s scientific background speaks to issues involving plant disease and agronomic issues in the development of new crop cultivars. To date Dr. Foster has either led or been part of the teams that have released 9 germplasm lines and 8 cultivars. Beyond his work as an individual scientist, Dr. Foster has served in many cooperative and administrative roles. Through his international work, Dr. Foster has had a significant impact on the plant resistance efforts of many research programs throughout the globe.
Andrew B. T. Smith earned a B.Sc. with honors in biology (1994) from Carleton University (Ottawa, Canada), a M.Sc. in zoology (1997) from the University of Toronto (Canada). He is currently finishing a Ph.D. in entomology from the University of Nebraska-Lincoln (UNL) as a member of “Team Scarab” at the State Museum. His research involves the systematics, biogeography, and evolution of scarab beetles with emphasis on Neotropical Rutelinae. He has already produced over 10 scientific papers in the field of scarab systematics. During the course of his Ph.D., he has enhanced his research through field and museum work in Ecuador, Venezuela, Honduras, Nicaragua, El Salvador, and Brazil and museum work in France, Germany, and the United Kingdom. Andrew received the Keith Kevan Scholarship in recognition of high scholastic achievement and excellence in graduate studies in entomological systematics from the Entomological Society of Canada in 1999. He was elected as a counselor for the Coleopterists Society for the 2001-2002 term. He has also received four fellowships and scholarships and numerous grants to conduct research and attend meetings during his time at UNL. Andrew has provided many services to the scarab research community, including the development of the SCARABS-L listserv (with almost 100 subscribers worldwide), organizing the SOLA Scarab Workers Conference at the ESA annual meeting (2001, 2002), and co-organizing the “Systematics Studies in Scarabaeoidea” symposium at the International Congress of Entomology in Brazil (2000).
NSC Graduate Scholarship Award
Jason P. Harmon
University of Minnesota

Jason P. Harmon is currently completing his Ph.D. thesis, “Indirect interactions among a generalist predator and its multiple foods” at the University of Minnesota under Dr. David Andow. Jason’s skills and interests are centered in the study of community and population biology of natural enemies and their prey in agroecosystems. His thesis has focused on the direct and indirect effects that occur when a generalist predator has access to multiple prey items and how those interactions ultimately can affect predation of a target pest. Jason’s work has been funded primarily by an EPA Science to Achieve Results Fellowship as well as through two fellowships from the University of Minnesota Graduate School. His research experiences at Minnesota and as an undergraduate student at the University of Wisconsin have thus far resulted in six publications, four additional publications in review, and ten presentations at national and branch meetings. Jason has a strong interest in teaching, having co-developed and taught three new graduate level courses and given guest lectures in others. He has been active professionally and has served as Chair of the NCB Student Affairs Committee and has been a member of the Long Range Planning Committee.
PROGRAM

Sunday, March 24, 2002

Registration
10:00 AM - 6:00 PM
Big Ten Room A

NCB Executive Committee
Business Meeting
8:00 - Noon
Room 107

Symposium: Using Insects in Science Based Inquiry
Organizers: Tiffany Heng-Moss and Marion Ellis
1:00 - 5:00 PM
John Willy Room

BCE Symposium: Future Trends in Cutting Edge Research in Entomology
Organizer: Shripat T. Kamble
1:00 - 5:30 PM
Room 103AB

Insect Photo Salon
6:30 - 7:45 PM
Host: Phil Sloderbeck
Room 103AB

Linnaean Games
8:00 - 10:00 PM
Gamesmaster: Marlin Rice
Big Ten Room A

Poster Set Up
All Posters (Student Competition & Submitted)
4:00 - 8:00 PM
Big Ten Room A
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<thead>
<tr>
<th>Time</th>
<th>Sunday, 24 March</th>
<th>Monday, 25 March</th>
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<td><strong>NCB Executive Committee</strong></td>
<td><strong>Opening Session, Awards &amp; Preliminary Business Meeting</strong></td>
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<td><strong>Business Meeting (8:00-noon)</strong></td>
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<td><strong>Opening Session, Awards &amp; Preliminary Business Meeting</strong></td>
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<td><strong>Student Competition Papers</strong></td>
<td><strong>(Four Sections: 10:45-12:30)</strong></td>
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<td><strong>(8:00-noon)</strong></td>
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<td><strong>2) Lincoln Room</strong></td>
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<td><strong>Insects for Scientific Inquiry (1:00-5:00)</strong></td>
<td><strong>U.S. GAO Report on IPM (President’s Symposium)</strong></td>
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<td><strong>John Willy Room</strong></td>
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<td><strong>Future Trends in Entomology (1:00-5:30)</strong></td>
<td><strong>Systematics and Biodiversity (1:30-5:00)</strong></td>
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<td><strong>Submitted Papers (Sections A, B &amp; C: 1:30-4:45)</strong></td>
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<td><strong>Insect Photo Salon (6:30-7:45)</strong></td>
<td><strong>Linnaean Games (6:30-8:30)</strong></td>
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<td><strong>Linnaean Games (8:00-10:00)</strong></td>
<td><strong>Student Recruitment &amp; Employment Mixer (8:30-10:30)</strong></td>
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<td>Big Ten Room A</td>
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<td>Insect Photo Salon</td>
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<td>Get Bugged</td>
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<td>(Sections E &amp; F: 9:00-noon)</td>
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<td>Big Ten Room A</td>
<td>Auditorium</td>
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<td>Coleopteran Fruit Pests</td>
<td>SAC Bug House Tour</td>
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<td>Student Award Presentations</td>
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<td>Branch Mixer</td>
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<td>Big Ten Room BC</td>
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<td>Poster Session</td>
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<td>Posters down 4:30-6:00</td>
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March 24, 2002  
Sunday Afternoon

Symposium  
Using Insects in Science Based Inquiry  
1:00 - 5:00 PM  
John Willy Room

Organizers and Moderators  
Tiffany Heng-Moss and Marion Ellis  
Department of Entomology  
University of Nebraska  
Lincoln, NE 68583-0816

1:00 001 Introduction and opening remarks.  
Tiffany M. Heng-Moss, Department of  
Entomology, University of Nebraska, Lincoln,  
NE, 68583

1:05 002 Insects and science inquiry at the college level.  
Daniel K. Young, 445 Russell Laboratories,  
University of Wisconsin, Madison, WI, 53706

1:35 003 Our Zoo to You: Using insects in inquiry-based  
instruction with K-12 students.  
Tiffany M. Heng-Moss, 202 Plant Industry,  
University of Nebraska, Lincoln, NE, 68583,  
Mimi Wickless, 1222 South 27th Street,  
Folsom Children’s Zoo and Botanical Gardens,  
Lincoln, NE, 68502, Lois Mayo, Lincoln Public  
Schools, Lincoln, NE

2:05 004 WOWBUGS - A model for inquiry - based  
instruction.  
Robert Matthews, Department of Entomology,  
University of Georgia, Athens, GA, 30602

2:35 005 Paying it Forward: Teaching teachers teaching  
kids.  
Cathy Bristow, 332 Natural Science, Michigan  
State University, East Lansing, MI, 48824,  
Connie Eisenhart, East Lansing, MI

3:05-3:20 Break
March 24, 2002
Sunday Afternoon

BCE Symposium
Future Trends in Cutting Edge Research in Entomology
1:00 - 5:30 PM
Room 103AB

Organizer and Moderator
Shripat T. Kamble
Department of Entomology
University of Nebraska
Lincoln, NE 68583-0816

1:00 010 Introduction: Future trends in cutting edge research in entomology.
Shripat T. Kamble, 201A PI, Department of Entomology, University of Nebraska, Lincoln, NE, 68583-0816

1:05 011 Cutting edge research in insect genetics.
Jeff Stuart, Department of Entomology, Purdue University, West Lafayette, IN, 47907
1:35  012 Future trends in insect toxicology research. **Ke Dong**, Department of Entomology, Michigan State University, East Lansing, MI, 48824


2:35  014 New research trends in corn rootworm management. **Lance Meinke**, Department of Entomology, University of Nebraska, Lincoln, NE, 68583-0816

3:05-3:20 **Break**

3:20  015 Future trends in application of molecular techniques in urban entomology. **Michael Scharf**, Department of Entomology, Purdue University, West Lafayette, IN, 47907-1915

3:50  016 Future trends in cutting edge research in turf insect control. **Timothy Gibb**, Department of Entomology, Purdue University, West Lafayette, IN, 47907

4:20  017 Future trends in cutting edge research in transgenic entomology. **Ty Vaughn**, Agricultural Sector-Insect Control, Monsanto Inc, Chesterfield, MO, 63198

4:50  018 Cutting edge research in insect-host plant interaction. **Gary Felton**, Department of Entomology, The Pennsylvania State University, University Park, PA, 16802
March 25, 2002
Monday Morning

Registration
7:30 AM - 5:00 PM
Big Ten Room A

Opening Session, Awards Session and Preliminary Business Meeting
8:00 - 10:30 AM
Big Ten Room BC

Welcome

Call to Order
Jon J. Tollefson, President
North Central Branch
Entomological Society of America

Local Arrangements Update
Chris D. DiFonzo
Chair, Local Arrangements Committee

Opening Remarks
J. E. McPherson, President
Entomological Society of America

ESA Governing Board Report
Scott Hutchins
NCB Representative to the Governing Board

Entomological Foundation - Comments
Paul Borth

Award Presentations

C. V. Riley Achievement Award
John E. Foster
University of Nebraska
Presented by: Sonny Ramaswamy
National ESA Awards  
*Presented by:* Dan Mahr

**ESA Distinguished Achievement Award in Extension**  
**Gary Hein**  
University of Nebraska

**ESA Distinguished Achievement Award in Teaching**  
**Walter Goodman**  
University of Wisconsin

**Award For Excellence in Integrated Pest Management**  
(sponsored by Entomological Foundation and Syngenta Crop Protection)  
**Mike Gray**  
University of Illinois

**John Henry Comstock Graduate Student Award**  
**Andrew B. T. Smith**  
University of Nebraska-Lincoln  
*Presented by:* Ian MacRae

**NCB Graduate Scholarship Award**  
**Jason P. Harmon**  
University of Minnesota  
*Presented by:* Ian MacRae

**Entomology Educational Project Awards**  
Sponsored by The Board Certified Entomologists of Mid-America  
*Presented by:* Phil Sloderbeck

**WWW-Site**  
**Marine Insects**  
(http://www.unk.edu/marineinsects)

**W. Wyatt Hoback,** Department of Biology, University of Nebraska-Kearney  
**Leon G. Higley,** Department of Entomology, University of Nebraska-Lincoln  
**Lanna Cheng,** Scripps Oceanographic Institute, San Diego, California
Exploring Urban Integrated Pest Management: Activities and Resources for Teaching K-6
Erica Jenkins
Michigan State University

Insect Photo Salon Winners
Presented by: Phil Sloderbeck

President’s Address
Jon Tollefson

Preliminary Business Meeting

March 25, 2002
Monday Morning

Submitted Papers
Student Competition
Ph. D.
Sections A, B & Cb-f
10:45 AM - 12:30 PM
Room 106

Moderator: Tiffany Heng-Moss
Department of Entomology
University of Nebraska
Lincoln, NE 68583

10:45 019 Host race formation in a species of gall wasp (Hymenoptera: Cynipidae: Antistrophus rufus) feeding on native prairie forbs (Asteraceae: Silphium).
John F. Tooker and Lawrence M. Hanks, 320 Morrill Hall, 505 S. Goodwin Ave., University of Illinois at Urbana-Champaign, Urbana, IL, 61801
10:57 020 Evaluation of a management tactic for bean pod mottle virus.  
Rayda K. Krell, Larry P. Pedigo, John H. Hill and Marlin E. Rice, Department of Entomology, 103 Insectary, Iowa State University, Ames, IA, 50011

11:09 021 Site-specific management of green peach aphids in seed potato—Windows of opportunity for targeted application.  
Matthew W. Carroll, Ian V. MacRae, Robert A. Suranyi, Edward B. Radcliffe and David Ragsdale, 1980 Folwell Ave, 219 Hodson Hall, University of Minnesota, St. Paul, MN, 55108

11:21 022 Temporal and spatial variation in the relative abundance of the grape berry moth (Endopiza viteana).  
Natalia Botero-Garces and Rufus Isaacs, 243 Natural Science Building, Michigan State University, East Lansing, MI, 48824

11:33 023 Frequency and distribution of anthers on milkweed plants in cornfields.  
Patricia L. Anderson, 103 Genetics Lab, Iowa State University, Ames, IA, 50010, Richard L. Hellmich and Leslie C. Lewis, Iowa State University, 102 Genetics Lab, USDA-ARS Corn Insects and Crop Genetics Unit, Ames, IA, 50011

11:45 024 Cuticular hydrocarbons as contact pheromones of longhorned beetles.  
Matthew D. Ginzel and Lawrence M. Hanks, 505 S. Goodwin Avenue, 320 Morrill Hall, University of Illinois at Urbana-Champaign, Urbana, IL, 61801

11:57 025 Climatic suitability for the gypsy moth pathogen Entomophaga maimaiga in the North Central region.  
Nathan W. Siegert, Deborah G. McCullough and Jeff A. Andresen, Department of Geography, 417 Natural Science Building, Michigan State University, East Lansing, MI, 48824, Robert C. Venette, Department of Entomology, 219 Hodson Hall, University of Minnesota, St. Paul, MN, 55108
12:09 026  Sex-linked pupal size, weight, and emergence timing in the sugarbeet root maggot (Diptera: Otitidae) and observations on oviposition behavior.

Ayanava Majumdar, Mark A. Boetel and Robert J. Dregseth, Department of Entomology, 202 Hultz Hall, North Dakota State University, Fargo, ND, 58105


Yong-Lak Park and Jon J. Tollefson, Department of Entomology, Iowa State University, Ames, IA, 50010

March 25, 2002
Monday Morning

Submitted Papers
Student Competition
Ph. D.
Sections Ca & F
10:45 AM - 12:30 PM
Lincoln Room

Moderator: Mark Boetel
Department of Entomology
North Dakota State University
Fargo, ND 58105

10:45 028  Alfalfa blotch leafminer in Illinois.
Jonathan G. Lundgren, 320 Morrill Hall; 505 S. Goodwin Avenue, University of Illinois, Urbana, IL, 61802, Robert N. Wiedenmann, 607 E. Peabody Drive, Illinois Natural History Survey, Champaign, IL, 61820


Jodie A. Ellis and Lawrence M. Hanks, 320 Morrill Hall, 505 S. Goodwin Avenue, University of Illinois, Urbana, IL, 61801
Development of phenological models for *Aphthona* spp. introduced to control leafy spurge. **Luke C. Skinner** and David W. Ragsdale, Department of Entomology, 1980 Folwell Ave, University of Minnesota, St. Paul, MN, 55108, Monika Chandler, 90 West Plato Blvd, Minnesota Department of Agriculture, St. Paul, MN, 55107

Resistance to methamidophos of the green peach aphid (Homoptera: Aphididae) from potato seed production and commercial potato areas in the Pacific Northwest. **David Mota-Sanchez**, 243 Natural Science Building, Department of Entomology and CIPS, Michigan State University, East Lansing, MI, MI, 48824, Mark E. Whalon, B-11 Center for Integrated Plant Systems, Department of Entomology and CIPS, Michigan State University East Lansing, MI, 48824, Keith S. Pike and George Graf, 24106 N. Bunn Road, Washington State University, Prosser, WA, 99350-9687

Movement of southwestern and European corn borer (Lepidoptera: Crambidae) moths from refuge fields into large Bt-corn fields. **Jawwad A. Qureshi**, Lawrent L. Buschman, Randall A. Higgins, Phillip E. Sloderbeck, James E. Throne and Sonny B. Ramaswamy, 123 West Waters Hall, Department of Entomology, Kansas State University, Manhattan, KS, 66506

Sublethal effects of transgenic corn on the dispersal and fecundity of western corn rootworms. **Ted A. Wilson** and Jon J. Tollefson, 17 Insectary, Iowa State University, Ames, IA, 50011

Control of potato tuber moth in field and storage in Egypt with Bt-transgenic potato lines. **Francisco Santos-Gonzalez**, Edward J. Grafius, Walter L. Pett and Dave S. Douches, Department of Crop and Soil Science, Michigan State University, East Lansing, MI, 48823, Madgi A. Madkour and Taymour El-Nasr, 9 Gamaa Street, Agricultural Genetic Engineering Research Institute, Giza, Giza, Egypt, 12619
12:09  035  Is popcorn a suitable refuge plant for resistance management of *Ostrinia nubilalis* (Hübner) and the *Diabrotica* complex?  
**Colothdian D. Tate,** 103 Genetics Lab, Iowa State University, Ames, IA, 50014, Richard L. Hellmich and Leslie C. Lewis, Iowa State University, 106 Genetics Lab, USDA-ARS Corn Insects and Crop Genetics Research Unit, Ames, IA, 50011

12:21  036  A GIS study of the influence of landuse on Japanese beetle trap catches.  
Randy M. Hamilton, R. M. Foster, Timothy J. Gibb and Cliff S. Sadof, 1158 Smith Hall, Purdue University, West Lafayette, IN, 47907

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**March 25, 2002**  
**Monday Morning**  

**Submitted Papers**  
**Student Competition**  
**Undergraduate and M. S.**  
Sections Ca-c & Ce-f  
10:45 AM - 12:30 PM  
Room 103AB  

**Moderator:** Ian MacRae  
Department of Entomology  
University of Minnesota  
Crookston, MN 56716

10:45  037  Effect of six insecticides on survival of *Macrocentrus linearis* (Nees.) (Hymenoptera: Braconidae) a parasitoid of the obliquebanded leafroller, *Choristoneura rosaceana* (Harris) (Lepidoptera: Tortricidae).  
**Tammy K. Wilkinson** and Larry J. Gut, 204 Center for Integrated Plant Systems, Michigan State University, East Lansing, MI, 48824, William C. Kauffman, 2534 South 11th St., USDA APHIS Niles, Plant Protection Center, Niles, MI, 49120, Douglas A. Landis, 204 Center for Integrated Plant Systems, Michigan State University, East Lansing, MI, 48824
Host density and agricultural landscape complexity: impacts on parasitoid community responses to *Pseudaletia unipuncta* Haworth in Michigan.

**Alejandro C. Costamagna**, 204 Center of Integrated Plant Systems, Department of Entomology, Michigan State University, East Lansing, MI, 48824, Fabián M. Menalled, 308 National Tilth Laboratory, Department of Agronomy, Iowa State University, Ames, IA, 50011, Paul C. Marino, Department of Biology, University of Charleston, Charleston, SC, 29424, Doug A. Landis, 204 Center of Integrated Plant Systems, Department of Entomology, Michigan State University, East Lansing, MI, 48824

Mark, release and recapture of *Harmonia axyridis* (Pallas) (Coleoptera: Coccinellidae) in Wisconsin soybeans.

**Bob A. Ellingson** and David B. Hogg, 437 Russell Labs, 1630 Linden Dr., Department of Entomology, University of Wisconsin-Madison, Madison, WI, 53706

Mid-season foliar and ground-dwelling natural enemies: impact on soybean aphid, *Aphis glycines* Matsumura, populations.

**Tyler Fox** and Douglas A. Landis, 204 Center for Integrated Plant Systems, Michigan State University, East Lansing, MI, 48824

The effect of bean pod mottle virus inoculation at various growth stages on soybean seed discoloration and yield.

**David L. Dorhout**, Rayda K. Krell, Larry P. Pedigo and John H. Hill, Department of Plant Pathology, 403B Bessey Hall, Iowa State University, Ames, IA, 50011
11:45 042 Soybean aphid host range and virus transmission efficiency.
Robbie J. Alleman, Room 237 1630 Linden Drive, University of Wisconsin, Madison, WI, 53706, Craig R. Grau, 1630 Linden Drive, University of Wisconsin-Madison, Madison, WI, 53706, David B. Hogg, Room 237, 1630 Linden Drive, University of Wisconsin, Madison, WI, 53706

11:57 043 Ground beetle species differ in their use of wet meadow-cottonwood forest ecotone along the Platte River in south central Nebraska.
Justin R. Krahulik and W. Wyatt Hoback, Department of Biology, Bruner Hall of Science, 905 West 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849

12:09 044 Lignin-based formulations to encapsulate Beauveria bassiana for protection against simulated solar energy.
Katherine M. Girsch and Robert W. Behle, 1815 N. University St., USDA-ARS, Peoria, IL, 61604-3999

12:21 045 Development of bioinsecticide methodology for sugarbeet root maggot (Diptera: Otitidae) management.
Nyle B. Jonason and Mark A. Boetel, Department of Entomology, 202 Hultz Hall, North Dakota State University, Fargo, ND, 58105, Larry G. Campbell, Northern Crop Science Laboratory, USDA-ARS, Fargo, ND, 58105, Larry J. Smith, Northwest Research and Outreach Center, University of Minnesota, Crookston, MN, 56716, Stefan T. Jaronski, Northern Plains Agricultural Research Center, USDA-ARS, Sidney, MT, 59270
March 25, 2002
Monday Morning

Submitted Papers
Student Competition
Undergraduate and M.S.
Sections Cd & F
10:45 AM - 12:30 PM
Room 105AB

Moderator: Billy Fuller
Department of Plant Science
South Dakota State University
Brookings, SD 57007

10:45  046  Flies in the soup and maggots in the marmalade: A laboratory exercise to investigate food contamination by insects.  
Megan Jehorek and W. Wyatt Hoback, 905 W. 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849

10:57  047  New records of carrion beetles in Nebraska reveal increased range of American burying beetle.  
Daniel G. Snethen, Little Wound High School, Colome, SD, 57528, Andrew A. Bishop and W. Wyatt Hoback, 905 W. 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849

11:09  048  The effect of corn phenology on establishment success of western corn rootworm larvae.  
Yvonne M. Schweikert, 204 Curtis Hall, University of Missouri, Columbia, MO, 65211-7020, Bruce E. Hibbard, 204 Curtis Hall, University of Missouri, USDA-ARS, Columbia, MO, 65211

11:21  049  Potential tritrophic interactions in a decomposition food chain.  
Erin E. Hladilek and David A. Andow, 1980 Folwell Ave., 219 Hodson Hall, University of Minnesota, St. Paul, MN, 55108

PROGRAM
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<th>Time</th>
<th>Code</th>
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<th>Authors</th>
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<tr>
<td>11:33</td>
<td>050</td>
<td>Adult habitat utilization by four <em>Diabrotica</em> species at prairie-corn interfaces.</td>
<td><strong>Laura A. Campbell</strong> and Lance J. Meinke, 202 Plant Industry, University of Nebraska-Lincoln, Lincoln, NE, 68583-0816</td>
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<td>11:45</td>
<td>051</td>
<td>Second generation European corn borer damage reduces potato yield of some varieties in south central Nebraska.</td>
<td><strong>Jesse R. Ziems</strong> and W. Wyatt Hoback, 905 W. 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849, Thomas E. Hunt, Haskell Agricultural Laboratory, 57905 866 Road, University of Nebraska at Lincoln, Concord, NE, 68728</td>
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<tr>
<td>11:57</td>
<td>052</td>
<td>Sand chafer phenology in south central Nebraska may reveal control options.</td>
<td><strong>Ben J. Zechmann</strong>, Jesse Ziems and W. Wyatt Hoback, Department of Biology, 905 W. 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849</td>
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<td>12:09</td>
<td>053</td>
<td>Relationships among potato leafhoppers, glandular-haired alfalfa, and timing of insecticide application.</td>
<td><strong>Reid B. Durtschi</strong>, David B. Hogg and John L. Wedberg, 237 Russell Labs, 1630 Linden Dr., University of Wisconsin-Madison, Madison, WI, 53706</td>
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<td>12:21</td>
<td>054</td>
<td>Host plant phenology effects on seasonal abundance and activity of tarnished plant bugs (Heteroptera: Miridae) in the Red River Valley.</td>
<td><strong>Justin O. Knott</strong>, Phillip A. Glogoza and Mark A. Boetel, Department of Entomology, 202 Hultz Hall, North Dakota State University, Fargo, ND, 58105</td>
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March 25, 2002
Monday Afternoon

President’s Symposium
U.S. GAO Report on IPM: A North Central Response
1:30 - 4:30 PM
Auditorium

Organizers and Moderators
Susan T. Ratcliffe and Michael E. Gray
University of Illinois
Department of Crop Sciences
1102 S. Goodwin Avenue
S-316 Turner Hall
Urbana, IL 61801

1:30 055 Introduction and opening remarks.
Susan T. Ratcliffe and Michael E. Gray,
Department of Crop Sciences, University of Illinois, Urbana, IL, 61801

1:45 056 The GAO report on IPM: Successes and failures.
Chuck Barchok, 441 G. Street N.W., Room 2078, U.S. GAO Office, Washington, D.C., 20548

2:15 057 Vegetable IPM: Implementation without documentation?
Rick Weinzierl, 1102 S. Goodwin Avenue, University of Illinois, Urbana, IL, 61801

2:30 058 Regional IPM: The center approach.
Larry Olsen, B18 National Food Safety & Toxicology Building, Michigan State University, East Lansing, MI, 48824

2:45 059 Fruit IPM: Alive and well in the North Central region.
David Epstein, B18 National Food Safety & Toxicology Building, Michigan State University, East Lansing, MI, 48824

3:00-3:15 Break
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<tr>
<td>3:15</td>
<td>060 Urban IPM: Progress and challenges. Clifford S. Sadof, Department of Entomology, 1158 Smith Hall, Purdue University, West Lafayette, IN, 47906-1158</td>
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<tr>
<td>3:30</td>
<td>061 Field Crop IPM: The GMO debate. Kevin Steffey, 1102 S. Goodwin Avenue, University of Illinois, Urbana, IL, 61801</td>
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<td>3:45</td>
<td>062 Weed IPM: Herbicide use or abuse? Michael Owen, 2104 L Agronomy, Iowa State University, Ames, IA, 50011</td>
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<td>4:00</td>
<td>063 Questions and panel discussion. Michael E. Gray and Susan T. Ratcliffe, Department of Crop Science, University of Illinois, Urbana, IL, 61801</td>
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March 25, 2002

Monday Afternoon

Symposium
Systematics and Biodiversity Research in the Northcentral Region
1:30 - 5:00 PM
Lincoln Room

Organizer and Moderator
Daniel K. Young
Department of Entomology
445 Russell Laboratories
University of Wisconsin
Madison, WI 53706

1:30 064 Symposium overview. Daniel K. Young, Department of Entomology, University of Wisconsin, Madison, WI, 53706

1:35 065 The ground beetles (Coleoptera: Carabidae) of northeastern Iowa: Habitat utilization patterns. Kirk J. Larsen, 700 College Drive, Luther College, Decorah, IA, 52101
1:55  066  The Scarabaeoidea (Coleoptera) of Wisconsin: Species inventory, taxonomic keys, distributions, and natural histories.  
Nadine L. Kriska, 445 Russell Labs, 1630 Linden Drive, University of Wisconsin-Madison, Madison, WI, 53706

2:15  067  A generic level revision of the Macrodactylini (Coleoptera: Scarabaeidae, Melolonthinae).  
Kerry Katovich, 445 Russell Labs, 1630 Linden Drive, University of Wisconsin-Madison, Madison, WI, 53706

2:35  068  The sap and short-winged flower beetles (Coleoptera: Nitidulidae and Kateretidae) of Wisconsin.  
Michele B. Price, Rm. 445, Russell Labs, 1630 Linden Dr., University of Wisconsin - Madison, Madison, WI, 53706

2:55-3:15  Break

3:15  069  The tumbling flower beetles (Coleoptera: Mordellidae) of Wisconsin: A faunistic survey in progress.  
Anneke E. Lisberg, 445 Russell Labs, 1630 Linden Dr., University of Wisconsin, Madison, WI, 53706

3:35  070  The Lamiinae (Coleoptera: Cerambycidae) of Wisconsin: Survey approach and current status.  
Krista L. Lambrecht, 538 W est Main St. #206, University of Wisconsin-Madison, Madison, WI, 53703

3:55  071  Partitioning species diversity across scales: Insights into local and regional patterns of forest insect biodiversity.  
Thomas O. Crist, Department of Zoology, Miami University, Oxford, OH, 45056

Craig M. Brabant, 445 Russell Labs, 1630 Linden Drive, University of Wisconsin-Madison, Madison, WI, 53706
4:35 073 Airplanes, sand dunes, and moths (Insecta: Lepidoptera).
Eric Metzler, 1241 Kildale Square North, Columbus, OH, 43229

4:55 074 An introduction to the milkweed fauna of Wisconsin.
Andrew H. Williams, 445 Russell Labs, 1630 Linden Dr., Department of Entomology, University of Wisconsin, Madison, WI, 53706

March 25, 2002
Monday Afternoon

Submitted Papers
Sections A, B & C
1:30 - 4:45 PM
Room 106

Moderator: W. Wyatt Hoback
Department of Biology
University of Nebraska-Kearney
Kearney, NE 68849

1:30 075 Systematics of Eastern Hemisphere Micronectinae (Heteroptera: Corixidae): A progress report on studies in the Indomalysian and Oceania realms.
Paul P. Tinerella and David A. Rider, 202 Hultz Hall, University Station, North Dakota State University, Fargo, ND, 58105

1:42 076 Differential counts within novel-association host-parasitoid combinations.
Marianne Alleyne, 607 E. Peabody Drive, Illinois Natural History Survey, Champaign, IL, 61820, James B. Nardi, Department of Entomology, 320 Morrill Hall, University of Illinois at Urbana-Champaign, Urbana, IL, 61801, Robert N. Wiedenmann, 607 E. Peabody Drive, Illinois Natural History Survey, Champaign, IL, 61820
A general, bottom-up model for predicting outcomes in classical biological control of insect pests. 
Paul Gross, 2840 Sheridan Road, National-Louis University, Evanston, IL, 60201, Bradford A. Hawkins, Department of Ecology and Evolutionary Biology, University of California-Irvine, Irvine, CA, 92697, Howard V. Cornell, Department of Biological Sciences, University of Delaware, Newark, DE, 19716, Balakrishna Hosmane, Department of Statistics, Northern Illinois University, DeKalb, IL, 60115

Conservation biological control of pine needle scale (Homoptera: Diaspididae) in Christmas tree plantations. 
Peter F. Reagel and Lawrence M. Hanks, 320 Morrill Hall 505, South Goodwin Ave., University of Illinois at Urbana-Champaign, Urbana, IL, 61801

Biological control of purple loosestrife (Lythrum salicaria L.) in Michigan. 
Douglas A. Landis, Donald C. Sebolt and Michael Klepinger, 334 Natural Resources Building, Michigan State University, East Lansing, MI, 48824

Cost-effective crop oil can reduce PVY spread in seed potatoes. 
Robert A. Suranyi, Matthew W. Carroll, David W. Ragsdale, Edward B. Radcliffe and Ian V. MacRae, 219 Hodson Hall, 1980 Folwell Ave., University of Minnesota, St. Paul, MN, 55108

Advances in factors responsible for host plant resistance in elms (Ulmus spp.) for defoliating insect pests. 
Fredric D. Miller, 1215 Houbolt Road, Joliet Junior College, Joliet, IL, 60431, George Ware, 4100 Illinois Route 53, The Morton Arboretum, Lisle, IL, 60532
Distribution and behavior of the multicolored Asian lady beetle, *Harmonia axyridis* (Pallas).

**Mark E. Headings**, 1328 Dover Road, The Ohio State University, Agric. Tech. Institute, Wooster, OH, 44691

Remotely sensing potential overwintering habitat of the soybean aphid, *Aphis glycines* (Homoptera: Aphididae).

**Ian V. MacRae**, Robert Venette and Matthew Carroll, Dept. of Entomology, 219 Hodson Hall, 1980 Folwell Ave., University of Minnesota, St. Paul, MN, 55108

Visual and chemical factors influencing oviposition by *Anopheles gambiae*.


A laboratory exercise to teach students about microbial pesticides and nontarget effects.

**Julie J. Shaffer** and W. Wyatt Hoback, 905 W. 25th, University of Nebraska at Kearney, Kearney, NE, 68849

Effects of elevated CO2 across three trophic levels.

**David N. Karowe**, 3155 Wood Hall, Western Michigan University, Kalamazoo, MI, 49008

Patterns in the magnitude of stream insect drift: A meta-analysis.

**Steven L. Kohler**, 3938 Wood Hall, Western Michigan University, Kalamazoo, MI, 49008
Venereal transmission of mites influences mating behavior in a hunting wasp.

David P. Cowan, Department of Biological Sciences, Western Michigan University, Kalamazoo, MI, 49008

Single-locus complementary sex determination in the solitary wasp, Euodynerus foraminatus.

Julie K. Stahlhut and David P. Cowan, Biological Sciences, Wood Hall, 1903 W. Michigan Ave., Western Michigan University, Kalamazoo, MI, 49008

Effects of Wolbachia on host evolutionary genetics.

David D. Shoemaker and Caroline Militzer, 3149 Wood Hall, Department of Biological Sciences, Western Michigan University, Kalamazoo, MI, 49008, John Jaenike, Department of Biology, University of Rochester, Rochester, NY, 14627

Effect of plant chemical defense on gregarious larvae of the milkweed specialist Euchetes egle.

Stephen B. Malcolm and Betsy Goodrich, 3151 Wood Hall, Dept. Biological Sciences, Western Michigan University, Kalamazoo, MI, 49008, David Ruff II, Dept. Biological Sciences, Oakwood College, Huntsville, AL, 35896
March 25, 2002
Monday Afternoon

Submitted Posters
Student Competition
Ph.D., M.S. and Undergraduate
All Sections
1:30 PM - 9:00 PM
(Authors present 4:00 - 5:00 PM)
Big Ten Room A

D092  Genetic variation in native and introduced populations of soybean aphid.  
Erin Hodgson, Carrie Casmey, Alex Helm, Susan Weller and David Ragsdale, 219 Hodson, 1980 Folwell Ave., University of Minnesota, St. Paul, MN, 55108  

D093  The aquatic and semiaquatic true bugs (Heteroptera: Gerromorpha, Nepomorpha, and Leptopodomorpha) of North Dakota. 
Paul P. Tinerella, 202 Hultz Hall, University Station, North Dakota State University, Fargo, ND, 58105

D094  Changes in midgut proteinase activity of European corn borer (Lepidoptera: Crambidae) resistant to Bacillus thuringiensis toxin. 
Hua Rong Li, Department of Entomology, Kansas State University, Manhattan, KS, 66506, Brenda Oppert, 1515 College Avenue, Grain Marketing and Production Research Center, USDA-ARS, Manhattan, KS, 66502, Randall A. Higgins, Fangneng Huang and Lawrent L. Buschman, Department of Entomology, Kansas State University, Manhattan, KS, 66506

D095  Corn pollen expressing the coleopteran-specific Cry3Bb toxin does not affect the fitness of Coleomegilla maculata. 
Jonathan G. Lundgren, 320 Morrill Hall, 505 S. Goodwin Avenue, University of Illinois, Urbana, IL, 61802, Robert N. Wiedenmann, 607 East Peabody Drive, Illinois Natural History Survey, Champaign, IL, 61820
D096 Potential North American range for an invasive exotic coccinellid.  

D097 Spatial variation in species diversity and composition of forest Lepidoptera: Patterns and implications for conservation.  
**Keith S. Summerville,** Department of Zoology, Miami University, Oxford, OH, 45056, Michael J. Boulware, 2101 East River Terrace, Minneapolis, MN, 55414, Joseph A. Veech and Thomas O. Crist, Department of Zoology, Miami University, Oxford, OH, 45056

D098 What role does the phenological asynchrony of corn and soybean development play in the egg-laying behavior of the western corn rootworm variant in east central Illinois?  
**Christopher M. Pierce** and Michael E. Gray, Department of Crop Sciences, S-318 Turner Hall, MC-046; 1102 S. Goodwin Avenue, University of Illinois, Urbana, IL, 61801

D099 Biodiversity of nocturnal Cerambycidae in a hardwood forest.  
**Jeffrey D. Bradshaw** and Marlin E. Rice, 110 Insectary, Iowa State University, Ames, IA, 50010

D100 Impact of weeds and crop residues on black cutworm damage in Ontario no-till corn fields.  
**Sigrun A. Kullik,** Arthur W. Schaafsmma and Mark K. Sears, Bovey Building, University of Guelph, Guelph, ON, N1G 2W1

D101 Effect of transgenic corn for corn rootworm control on nontarget microarthropods and nematodes.  
**Mohammad A. Al-Deeb** and Gerald E. Wilde, 123 Waters Hall, Kansas State University, Manhattan, KS, 66506
D102 Comparison of chlorophyll and carotenoid contents in ‘Betta’ wheat isolines.  
**Tulio B. Macedo** and Tiffany M. Heng-Moss, 202 Plant Industry Building, Department of Entomology, University of Nebraska-Lincoln, Lincoln, NE, 68583, Xinzi Ni, Department of Entomology, Montana State University, Bozeman, MT, 59717, John P. Markwell and Frederick P. Baxendale, 202 Plant Industry Building, Department of Entomology, University of Nebraska-Lincoln, Lincoln, NE, 68583, Sharron S. Quisenberry, Department of Entomology, Montana State University, Bozeman, MT, 59717

D103 Effect of cultural practices on Japanese beetle in Michigan blueberries.  
**Zsofia Szendrei**, Nikhil Mallampalli and Rufus Isaacs, 201 CIPS, Michigan State University, East Lansing, MI, 48824

D104 Seasonal variation of nepetalactone isomers found in catnip, *Nepeta cataria*.  
**Gretchen E. Schultz**, Department of Entomology, 115 Insectary, Iowa State University, Ames, IL, 50010, Chris Peterson, 101 Forestry Sciences Lab, 201 Lincoln Green, USDA Forest Service, Starkville, MS, 39759, Jason B. Belden and Joel Coats, Department of Entomology, 116 Insectary, Iowa State University, Ames, IA, 50011

D105 Characterization of Bt resistance inheritance in *Ostrinia nubilalis*.  
**Analiza P. Alves**, Blair D. Siegfried and Terence Spencer, 202 Plant Industry, Department of Entomology, University of Nebraska-Lincoln, Lincoln, NE, 68583-0816

D106 Detection and quantification of fluvalinate resistance in *Varroa* mites in Nebraska.  
**Paula A. Macedo**, Marion D. Ellis and Blair D. Siegfried, 202 Plant Industry Bldg, University of Nebraska-Lincoln, Lincoln, NE, 68583
D107 White-lined sphinx (*Hyles lineata*) host range tests reveal specificity to purple loosestrife (*Lythrum salicaria*) compared to crops and native hosts.

**Brian C. Peterson** and Harold Nagel, 905 W. 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849

D108 New host plant and vector relationships for BPMV.

**Brent J. Werner**, Rayda K. Krell and Larry P. Pedigo, 117 Insectary, Iowa State University, Ames, IA, 50011

D109 Comparative toxicities of three insecticides to the soybean stem borer, *Dectes texanus texanus* (Coleoptera, Cerambycidae) adults.

**Michelle Kaczmarek**, Kun Yan Zhu, Randy Higgins and Phil Sloderbeck, 1415 Normandy Pl, Apt 118, Kansas State University, Manhattan, KS, 66502

D110 The effects of artificial light on carrion beetles, Coleoptera: Silphidae.

**Jonathan Doyle**, P.O. Box 500, University of Nebraska at Kearney, Kyle, SD, 57752, Daniel G. Snethen, RR 3, Box 67, University of Nebraska-Lincoln, Colome, SD, 57528, W. Wyatt Hoback, 905 W. 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849

D111 Dark feeding by *Cicindela fulgida* (Coleoptera: Cicindelidae) reveals use of alternative senses by a visual predator.

**John J. Riggins** and W. Wyatt Hoback, 905 W 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849
D112 Improved method for assaying transgenic pollen effects on *Ostrinia nubilalis* larvae. **Kate T. Kronback**, Genetics Laboratory c/o Insectary, Iowa State University, USDA, ARS Corn Insects and Crop Genetics Research Unit, Ames, IA, 50011, Patricia L. Anderson, Iowa State University, Department of Entomology, 118 Genetics Laboratory, Ames, IA, 50011, Richard L. Hellmich, Jeanette M. Dyer and Leslie C. Lewis, Genetics Laboratory c/o Insectary, Iowa State University, USDA, ARS Corn Insects and Crop Genetics Research Unit, Ames, IA, 50011

D113 Microhabitat preference of the dominant members of the coccinellid complex in an agricultural landscape. **Charles H. McKeown**, Manuel Colunga-Garcia and Stuart Gage, 235 Natural Science, Michigan State University, E. Lansing, MI, 48824

D114 Temporal niche separation in two exotic coccinellids. **Charles H. McKeown**, Manuel Colunga-Garcia and Stuart Gage, 931 Horton, Michigan State University, E. Lansing, MI, 48824

D115 Bacterial inhibition by carrion beetle secretions track phylogenic relationships. **Randall L. Goldfish**, W. Wyatt Hoback and Julie J. Shaffer, 905 W. 25th, University of Nebraska at Kearney, Kearney, NE, 68849

D116 Evaluation of some surface-active agents for their synergistic/additive effects on the efficacy of *Beauveria bassiana* against *Tribolium castaneum*. **Waseem Akbar**, 1605 Roof Dr. 31, Kansas State University, Manhattan, KS, 66502, Jeff Lord, 1515 College Avenue, USGMPRC, Manhattan, KS, 66502, James Nechols, Dept. of Entomology, Kansas State University, Manhattan, KS, 66502
D117 A comparison of sampling methods for integrated pest management of insects associated with potato. **Kurt Olmer**, Jesse R. Ziems and W. Wyatt Hoback, 905 W. 25th Street, University of Nebraska at Kearney, Kearney, NE, 68849

D118 Tolerance of Croatian commercial corn hybrids to larval feeding and damage by corn rootworm (Coleoptera: Chrysomelidae). **Stephanie N. Miller**, SPO 1571, Luther College, 700 College Dr., Luther College, Decorah, IA, 52101

D119 Growth and yield for conventional and added-value soybeans experiencing multiple defoliation. **Rodney A. Madsen**, Thomas E. Hunt and Leon G. Higley, Dept. of Entomology, University of Nebraska-Lincoln, Lincoln, NE, 68583-0816

D120 Soybean aphid (*Aphis glycines*) survival and fecundity when feeding on dry bean. **Kaci J. Agle** and Chris Difonzo, B18 National Food Safety & Toxicology Building, Michigan State University, East Lansing, MI, 48823

D121 Tarnished plant bug management in June-bearing strawberries. **Suzanne J. Wold**, William D. Hutchison and Eric C. Burkness, Department of Entomology, 219 Hodson Hall, 1980 Folwell Avenue, University of Minnesota, St. Paul, MN, 55108

D122 Grass hosts of the chinch bug, *Blissus occiduus*. **Thomas E. Eickhoff**, Frederick P. Baxendale and Terrance P. Riordan, 202 Plant Industry Building, University of Nebraska-Lincoln, Lincoln, NE, 68583

D123 Influence of buffalograss management practices on the chinch bug, *Blissus occiduus* (Barber), and its natural enemies. **Jeffrey D. Carstens**, Frederick P. Baxendale and Tiffany M. Heng-Moss, 202 Plant Industry Building, University of Nebraska-Lincoln, Lincoln, NE, 68583
D124 Extended repellency of catnip and osage orange fruit to the American cockroach.
**Erica J. Simbro** and Joel R. Coats, 112 Insectary, Iowa State University, Ames, IA, 50014

D125 Invasion of Lyme disease into southwest Michigan: A regional risk assessment.
**Erik S. Foster**, Edward D. Walker and William T. Morgan, Department of Entomology, Michigan State University, East Lansing, MI, 48824, Marta A. Guerra, Special Pathogens Branch, Centers for Disease Control and Prevention, Atlanta, GA, Uriel Kitron, College of Veterinary Medicine, Department of Veterinary Pathobiology, University of Illinois, Urbana, IL, 61801

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**March 25, 2002**
**Monday Afternoon**

**Submitted Posters**
All Sections
1:30 - 9:00 PM
(Authors present 4:00 - 5:00 PM)
Big Ten Room A

D126 Effects of salinity and pH on life-history parameters of larval *Aedes* mosquitoes (Insecta: Diptera).
**Thomas M. Clark** and Benjamin J. Flis, 1700 Mishawaka Ave., Indiana University, South Bend, IN, 46634, Susanna K. Remold, Michigan State University, E. Lansing, MI, 48824

D127 Physiological aspects of the broad pH tolerance of larval *Aedes aegypti* (Insecta: Diptera).
**Thomas M. Clark** and Benjamin J. Flis, 1700 Mishawaka Ave., Indiana University, South Bend, IN, 46634
Alternative splicing of the para gene generates functionally and pharmacologically distinct sodium channels. 

Jianguo Tan, Zhiqi Liu and Yoshiko Nomura, 106 CIPS, Department of Entomology, Michigan State University, East Lansing, MI, 48824, Alan M. Goldin, Department of Microbiology and Molecular Genetics, University of California, Irvine, CA, 92697, Ke Dong, 106 CIPS, Department of Entomology, Michigan State University, East Lansing, MI, 48824

Sodium channel mutations and pyrethroid resistance. 

Jianguo Tan and Zhiqi Liu, Department of Entomology, 106 CIPS, Michigan State University, East Lansing, MI, 48824, Steven M. Valles, Center for Medical, Agricultural and Veterinary Entomology, 1600 SW 23rd Dr., USDA-ARS, Gainesville, FL, 32608, Alan L. Goldin, Department of Microbiology and Molecular Genetics, 240 Medical Science Building B, University of California, Irvine, CA, 92697, Ke Dong, Department of Entomology, 106 CIPS, Michigan State University, East Lansing, MI, 48824

Survey of Asian longhorned beetle natural enemies in China and North America. 


Soybean aphid in Indiana. 

Claire E. Rutledge and Robert J. O’Neil, 102 Smith Hall, Purdue University, Lafayette, IN, 47907
Kelly A. Cook, Jerald K. Pataky and Richard A. Weinzierl, Turner Hall, 1102 S. Goodwin Avenue, University of Illinois, Urbana, IL, 61801

D133 Comparison of community structure of arboreal caterpillars (Lepidoptera) in four tree species of the eastern deciduous forest.
Jonathan K. Kahn, Keith S. Summerville and Thomas O. Crist, Department of Zoology, Miami University, Oxford, OH, 45056, Jon C. Gering, Division of Sciences, Truman State University, Kirksville, MO, 63501

D134 Chemical ecology of *Oryzaephilus surinamensis* (L). (Coleoptera: Silvanidae) mating behavior and response to food.
Gurunanth M. Suryavanshi and Damon J. Crook, 123 Waters Hall, Kansas State University, Manhattan, KS, 66506, James F. Campbell, 1515 College Ave., USDA ARS, Grain Marketing and Production Research Center, Manhattan, KS, 66502, Sonny B. Ramaswamy, 123 Waters Hall, Kansas State University, Manhattan, KS, 66506

D135 Using a GIS to illustrate the spatial and temporal dynamics of adult corn rootworms in the South Dakota areawide management site.
Bryan W. French, 2923 Medary Ave., USDA, ARS, NGIRL, Brookings, SD, 57006, Laurence D. Chandler, 1307 N. 18th Street, USDA, ARS, RRVARC, Fargo, ND, 58105, Amber A. Beckler and Dave A. Beck, 2923 Medary Ave., USDA, ARS, NGIRL, Brookings, SD, 57006

D136 Dispersal of northern and western corn rootworms in relation to sex, size, and reproductive status in the South Dakota areawide management site.
Bryan W. French, 2923 Medary Ave., USDA, ARS, NGIRL, Brookings, SD, 57006, Laurence D. Chandler, 1307 N. 18th Street, USDA, ARS, RRVARC, Fargo, ND, 58105, Leslie Hammack and Dave A. Beck, 2923 Medary Ave., USDA, ARS, NGIRL, Brookings, SD, 57006
D137 Use of transgenic plants to measure insect herbivore movement.  
**Joseph L. Spencer**, Center for Economic Entomology, Natural Resources Bldg, 607 E. Peabody Drive, Champaign, IL, 61820-6917,  
Timothy R. Mabry, University of Illinois, Department of Crop Sciences, Urbana, IL, 61801, Ty T. Vaughn, 700 Chesterfield Parkway North, Monsanto Company, St. Louis, MO, 63198

D138 Ground beetle occurrence in rotated fields of Bt corn and soybean in the South Dakota corn rootworm areawide management site.  
**Bryan W. French**, 2923 Medary Ave., USDA, ARS, NGIRL, Brookings, SD, 57006, Laurence D. Chandler, 1307 N. 18th Street, USDA, ARS, RRVARC, Fargo, ND, 58105, Dave A. Beck and Michael M. Ellsbury, 2923 Medary Ave., USDA, ARS, NGIRL, Brookings, SD, 57006

D139 Community structure of soil microarthropods on decomposing Bt- and non-Bt corn residues.  
**Edmond R. Zaborski**, 607 E. Peabody Drive, Illinois Natural History Survey, Champaign, IL, 61821

D140 Insect ecology and evolution at Western Michigan University.  
**David N. Karowe**, 3155 Wood Hall, Western Michigan University, Kalamazoo, MI, 49008

D141 Modeling insect dispersal in the landscape.  
**Liyang Zhou**, Beth Bishop, Walter Pett and Edward Grafius, 243 Natural Science Building, Dept. of Entomology, Michigan State University, E. Lansing, MI, 48824

D142 Pesticides from the past: Using old pesticide containers in teaching and extension.  
**Chris D. DiFonzo**, B18 FSTB, Pesticide Education Program Office, Michigan State University, East Lansing, MI, 48824
D143 Children learn about pesticide safety in the classroom and at an airport. **Rebecca Thompson**, B18 Food Safety and Tox., Michigan State University, East Lansing, MI, 48824, Bruce MacKellar, Michigan State University Extension, Paw Paw, MI, Erica Jenkins, Michigan State University, East Lansing, MI, Rich Hodupp, Michigan State University Extension, Ithaca, MI, Chris DiFonzo, Michigan State University, East Lansing, MI

D144 Farmer’s concerns and perceptions of biotechnology for the corn rootworm. **Ted A. Wilson**, Marlin E. Rice and Jon J. Tollefson, 17 Insectary, Iowa State University, Ames, IA, 50011

D145 The soybean aphid in Iowa: Observations from 2001. **Brian Lang**, 911 S. Mill St., Iowa State University Extension, Decorah, IA, 52101, Marlin E. Rice, 103 Insectary, Iowa State University, Ames, IA, 50011

D146 The effects of high intensity winter grazing of corn residue on the European corn borer. **Mark W. Hoard**, 4112 North Water Tower Place, University of Illinois, Mt. Vernon, IL, 62864

D147 Using synchronous and asynchronous distance learning to teach entomology. **Barbara A. Nead-Nylander**, William M. Hendrix and Larry L. Larson, 9330 Zionsville Road, Indianapolis, IN, 46268

D148 The multicolored Asian lady beetle (*Harmonia axyridis*) as a nuisance pest in households throughout Ohio. **Bruce Eisley**, Margaret F. Huelsman, Joe Kovach, Jim Jasinski and Curtis E. Young, 1219 W. Main Cross St., Suite 202, The Ohio State University, Findlay, OH, 45840
D149 Management of late-season bean leaf beetles in Iowa soybean.  
**Ken Pecinovsky** and Marlin E. Rice, 103 Insectary, Iowa State University, Ames, IA, 50011

D150 Soybean aphid control and predator preservation.  
**John R. Hinz**, William W. DeWeese, John A. Francis and John D. Wollam, 8400 Corporate Dr., Bayer Corporation, Kansas City, Mo, 64120

D151 Influence of western corn rootworm larval injury on corn yield.  
**Robert J. Wright** and Terry A. DeVries, P.O. Box 66, University of Nebraska, Clay Center, NE, 68933

D152 Seasonal emergence of western corn rootworms (Coleoptera: Chrysomelidae) in rotated and continuous cornfields.  
**Matthew E. O’Neal**, 204 CIPS, Michigan State University, East Lansing, MI, 48824, David Meek, 1200 Academy St., Kalamazoo College, Kalamazoo, MI, 49006, Christina DiFonzo and Douglas Landis, 204 CIPS, Michigan State University, East Lansing, MI, 48824

D153 In-field labeling of western corn rootworm adults with Rubidium.  
**Bradley T. Niimi**, Timothy M. Nowatzki, Blair D. Siegfried, Lance J. Meinke, Thomas E. Hunt and David C. Gosselin, 202 Plant Industry Bldg, University of Nebraska, Lincoln, NE, 68583-0816, Edwin F. Harvey, 113 Nebraska Hall, University of Nebraska-Lincoln, School of Natural Resources, Lincoln, NE, 68583-0517, Kelli Warren, 113 Nebraska Hall, University of Nebraska-Lincoln, School of Natural Resources, Lincoln, NE, 68583-0517
D154  Evaluating the impact of transgenic corn hybrids developed for insect control on non-target organisms.
Laura S. Higgins and Deanne L. Wright, 7250 NW 62nd Ave., Pioneer Hi-Bred International, Inc., Johnston, IA, 50131

D155  Assessment of western corn rootworm survival, biology, and emergence when presented a leading transgenic event alone and in combination with selected grassy cornfield weeds.
Thomas L. Clark and Bruce E. Hibbard, Department of Entomology, 1-87 Agriculture Building, University of Missouri, Columbia, MO, 65211

D156  Development and validation of models predicting the occurrence and spread of organophosphate resistance in Nebraska western corn rootworm populations.
Michael A. Caprio, Department of Entomology, PO Box 9775, Mississippi State University, Starkville, MS, 39762-9775, Timothy M. Nowatzki, Blair D. Siegfried, Lance J. Meinke and Robert J. Wright, 202 Plant Industry Building, University of Nebraska-Lincoln, Lincoln, NE, 68583-0816, Laurence D. Chandler, PO Box 5677, University Station, USDA ARS RRVARC, Fargo, ND, 58105-5677

D157  Development of western corn rootworm resistance to Penncap-M and effects on management: Survey of crop consultants from the Phelps County, Nebraska area.
Timothy M. Nowatzki, Robert J. Wright, Blair D. Siegfried and Lance J. Meinke, 202 Plant Industry Building, Dept. of Entomology, University of Nebraska-Lincoln, Lincoln, NE, 68583-0816, Michael A. Caprio, PO Box 9775, Dept. of Entomology, Mississippi State University, Starkville, MS, 39762-9775, Laurence D. Chandler, PO Box 5677, University Station, USDA ARS RRVARC, Fargo, ND, 58105-5677
D158 Development and maintenance of European corn borer (Lepidoptera: Crambidae) resistance to *Bacillus thuringiensis* Cry9C protein in the lab.

*Mitch Meehan* and Von Kaster, 2369 330th Street, Garst Seed Company, Slater, IA, 50244, Jon Fischer, 5315 Indigo Way, Aventis Crop Science, Middleton, WI, 53562

D159 Effect of mulch and chemical treatments on population densities of striped cucumber beetle (Coleoptera: Chrysomelidae), percentages of bacterial wilt, and yield in early-planted muskmelons.

*Wai-Ki F. Lam*, Rick E. Foster and Sara L. Barber, 4369 North Purdue Road, Southwest Purdue Agricultural Program, Purdue University, Vincennes, IN, 47591

D160 pH and its effects on key new insecticide formulations: Potential guidelines for the field.

*Larry L. Larson*, Margaret S. Kempe, Bill H. Hendrix and Barb A. Nead-Nylander, 9330 Zionsville Rd., Dow AgroSciences, Indianapolis, IN, 46268

D161 INTREPID* 2F: A Registration and performance update.

*Gary D. Thompson*, Larry G. Thompson and Jon M. Babcock, 9330 Zionsville Rd, Dow AgroSciences, Indianapolis, IN, 46268

D162 Proposed changes in the agricultural uses of Lorsban: A North Central perspective.

*William H. Hendrix, III* and Barb A. Nead-Nylander, 9330 Zionsville Road, Dow AgroSciences, Indianapolis, IN, 46268

D163 Use of Lorsban 4-E to control the soybean aphid, *Aphis glycines*: A global perspective.

*William H. Hendrix, III* and Scott C. Ditmarsen, 9330 Zionsville Road, Dow AgroSciences, Indianapolis, IN, 46268, Zhen Wei Yao, Oriental Plaza, No. 1, East Chang An Avenue, Dow AgroSciences China Ltd., Beijing, China, 100738
D164 Comparison of tebufenozide and methoxyfenozide with broad spectrum insecticides for control of grape berry moth, *Endopiza viteana* (Lepidoptera: Totoricidae).

**Keith S. Mason**, Rufus Isaacs and Elly Maxwell, 201 Center for Integrated Plant Systems, Michigan State University, East Lansing, MI, 48824

D165 Evaluation of systemic insecticides for control of the Asian longhorned beetle.

**Therese M. Poland**, Robert A. Haack and Toby R. Petrice, 1407 S. Harrison Rd. Rm. 220, USDA Forest Service, E. Lansing, MI, 48823, RuiTong Gao, Wan Shou Shan, Chinese Academy of Forestry, Beijing, PRC, 100091

D166 Characterization of protein changes in sorghum challenged by greenbug feeding.

**Dana Novak**, Tiffany Heng-Moss, Shauna Bose, Gautam Sarath, Frederick Baxendale and Z B Mayo, 202 Plant Industry, University of Nebraska, Lincoln, NE, 68583

D167 Insect pest response to glucosinolate-rich varieties of broccoli and cabbage in Illinois.

**Catherine E. Eastman**, 172 Natural Resources, 607 E. Peabody, Illinois Natural History Survey, Champaign, IL, 61820, John B. Masiunas, Mosbah M. Kushad and Elizabeth A. Wahle, 260 E.R. Madigan Laboratory, 1201 West Gregory Drive, University of Illinois at Urbana-Champaign, Dept. of Natural Resources and Environmental Sciences, Urbana, IL, 61801
March 25, 2002  
Monday Evening

Linnaean Games  
6:30 - 8:30 PM  
*Gamesmaster:* Marlin Rice  
Big Ten Room A

Student Affairs Committee  
Student Recruitment and Employment Mixer  
8:30 - 10:30 PM  
Big Ten Room B

March 26, 2002  
Tuesday Morning

Registration  
7:30 AM - 5:00 PM  
Big Ten Room A

Insect Photo Salon  
6:45 - 8:00 AM  
*Host:* Phil Sloderbeck  
Room 106

Poster Session  
8:00 AM - 4:30 PM  
(Authors present 3:30 - 4:30 PM)  
Big Ten Room A
March 26, 2002  
Tuesday Morning  

Symposium  
Organic Fruit Production  
8:00 - Noon  
Auditorium  

Organizers and Moderators  
Mark Whalon and Rufus Isaacs  
Department of Entomology  
Michigan State University  
East Lansing, MI 48824  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s) and Affiliation</th>
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<tbody>
<tr>
<td>8:00</td>
<td>168 Introduction and opening remarks.</td>
<td>Mark Whalon, Department of Entomology, Michigan State University, East Lansing, MI, 48824</td>
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<tr>
<td>8:10</td>
<td>169 Evaluation of organic pest management tools.</td>
<td>Rick E. Foster, 1158 Smith Hall, Purdue University, W. Lafayette, IN, 47907</td>
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<tr>
<td>8:30</td>
<td>170 Organic insect management practices in Iowa.</td>
<td>Kathleen Delate and Heather Friedrich, Depts. of Horticulture &amp; Agronomy, 106 Horticulture Hall, Iowa State University, Ames, IA, 50011</td>
</tr>
<tr>
<td>8:50</td>
<td>171 Organic tea project at Michigan State University.</td>
<td>Mark Whalon, Department of Entomology, Michigan State University, East Lansing, MI, 48824</td>
</tr>
<tr>
<td>9:10</td>
<td>172 Pheromone disruption and organic tree fruit production in the Midwest.</td>
<td>Larry Gut, Department of Entomology, Michigan State University, East Lansing, MI, 48824</td>
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<tr>
<td>9:30</td>
<td>173 Use of particle film technology for fruit insect pest management in Michigan.</td>
<td>John C. Wise, 205 CIPS, Michigan State University, East Lansing, MI, 48824</td>
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<tr>
<td>9:50-10:20</td>
<td>Break</td>
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March 26, 2002
Tuesday Morning

Symposium
Bt Corn and Corn Insects: Current Issues
8:30 - Noon
Lincoln Room

Organizers and Moderators
Thomas Hunt
University of Nebraska
Haskell Agricultural Lab
Concord, NE 68728

and

Rick Hellmich
USDA, ARS Corn Insects &
Crop Genetics Research Unit
Genetics Lab c/o Insectary
Department of Entomology
Iowa State University
Ames, Iowa 50011
8:30 178 Introduction: Past, current, and emerging issues associated with Bt corn.  
**Thomas E. Hunt**, Haskell Agricultural Laboratory, 57905 866 Road, University of Nebraska, Concord, NE, 68728

8:45 179 Summary of Bt corn and monarch butterfly research: Where do we go from here?  
**Richard L. Hellmich**, Genetics Laboratory, Insectary, USDA ARS Corn Insects and Crop Genetics Research Unit, Department of Entomology, Ames, IA, 50011

9:10 180 IRM in areas of frequent insecticide use.  
**Thomas E. Hunt**, 57905 866 Road, University of Nebraska, Concord, NE, 68728, Randall Higgins, Lawrent Buschman and Phillip Sloderbeck, 4000 E. Mary St., Kansas State University, Garden City, KS, 67846

**Blair D. Siegfried**, Department of Entomology, 202 Plant Industry Bldg., University of Nebraska, Lincoln, NE, 68583

10:00 182 Combining ECB and CRW resistance: A challenge for IRM.  
**Kenneth R. Ostlie**, Department of Entomology, 219 Hodson Hall, 1980 Folwell Ave., University of Minnesota, St. Paul, MN, 55108

10:25-10:45 Break

10:45 183 Corn rootworm transgenics and non-targets.  
**Graham P. Head**, Monsanto Company, GG3A, 700 Chesterfield Parkway, St. Louis, MO, 63198

11:10 184 Bt corn after 5 years of commercial use: A grower’s perspective.  
**Jeff King**, 1728 E. 3rd St., Fremont, NE, 68025

11:35 185 What have we learned and what is next: An industry perspective.  
**Eric S. Sachs**, Monsanto Company, 700 Chesterfield Parkway, Monsanto Company, St. Louis, MO, 63198
March 26, 2002
Tuesday Morning

“Get Bugged” Insect Exposition
10:00 - Noon
Big Ten Room A

March 26, 2002
Tuesday Afternoon

Symposium
Biology and Management of Beetles in Fruit Crops
1:00 - 4:45 PM
Auditorium

Organizers and Moderators
Rufus Isaacs and Mark Whalon
Department of Entomology
Michigan State University
East Lansing, MI 48824

1:00 186 Beetles as fruit pests - a global perspective. Michael G. Klein, 1680 Madison Ave., OARDC, USDA/ARS, Wooster, OH, 44691

1:30 187 Using electrophysiology to explore beetle olfaction. Allard A. Cossé, 1815 N. University Street, USDA/ARS/NCAUR, Peoria, IL, 61604

1:50 188 Managing the rose chafer with an attractant. Roger N. Williams, 1680 Madison Ave., The Ohio State University, Wooster, OH, 44691
2:10  189  Novel approaches to managing plum curculio.  
**Mark Whalon**, Department of Entomology, 
Michigan State University, East Lansing, MI, 48824

2:30  190  Nematodes for weevil control in strawberries.  
**Richard S. Cowles**, P. O. Box 248, 153 Cook 
Hill Rd., Connecticut Agricultural Experiment 
Station, Windsor, CT, 06095

**2:50-3:15**  **Break**

3:15  191  Gregarine pathogens of scarab pests: a new 
class of natural enemy?  
**David L. Cappaert** and David R. Smitley, 
Dept. of Entomology, Natural Science Bldg, 
Michigan State University, East Lansing, MI, 48824

3:35  192  Establishing grub predators and parasites in 
Michigan.  
**Dave Smitley**, Department of Entomology, 
Michigan State University, East Lansing, MI, 48824

3:55  193  Reduced-risk approaches to Japanese beetle 
control in small fruit crops.  
**Rufus Isaacs** and Zsofia Szendrei, 201 CIPS, 
Michigan State University, East Lansing, MI, 
MI 48824

4:15  194  Evaluating performance of new beetle 
insecticides.  
**John Wise**, Department of Entomology, 
Michigan State University, East Lansing, MI, 
48824

4:35  195  Closing remarks.  
**Rufus Isaacs**, Department of Entomology, 
Michigan State University, East Lansing, MI, 
48824
March 26, 2002  
Tuesday Afternoon  

Symposium  
Extension Entomology: Current Issues in  
Technology, Graduate Education and Partnerships  
1:30 - 4:35 PM  
Lincoln Room  

Organizers and Moderators  
Robert J. Wright  
University of Nebraska  
South Central Research & Extension Center  
Clay Center, NE 68933-0066  

and  

Phil Sloderbeck  
Kansas State University  
Southwest Area Extension Office  
4000 E. Mary St.  
Garden City, KS 67846  

1:30  196  Introduction and overview.  
Robert J. Wright, South Central Research &  
Extension Center, University of Nebraska, Clay  
Center, NE, 68933  

1:35  197  Use of the internet in extension program delivery.  
Phillip E. Sloderbeck and Randall A. Higgins,  
Department of Entomology, 239 Waters Hall,  
Kansas State University, Manhattan, KS,  
66506-4027  

1:55  198  Use of the internet in distance diagnosis of pest  
problems.  
Randall A. Higgins, Phillip Sloderbeck, and  
Bobby Brown, Department of Entomology, 239  
Waters Hall, Kansas State University, Manhattan,  
KS, 66506-4027; Will Baldwin, Judy O’Mara,  
Joy Pierzynski, Doug Jardine, C. Marr,  
W. Upham, D. Buchholz, and R. Terry,  
Departments of Communications, Plant  
Pathology, Horticulture, Forestry, and Recreation  
Resources, and Administration.  

----------------------------------------
2:15 199 The Soybean Aphid Watch: A regional response. 
Susan T. Ratcliffe, 1102 S. Goodwin Avenue, 
University of Illinois, Urbana, IL, 61801

2:35 200 Graduate training in extension entomology at Purdue University. 
Rick E. Foster, 1158 Smith Hall, Purdue University, W. Lafayette, IN, 47907

2:55 201 Graduate training in extension entomology: View from a county office. 
Barbara P. Ogg, 444 Cherrycreek Rd; Suite A, 
University of Nebraska, Lincoln, NE, 68528-1507

3:15-3:35 Break

Clifford S. Sadof and Robert J. O’Neil, 
Department of Entomology, 1158 Smith Hall, 
Purdue University, West Lafayette, IN, 47906-1158, 
Robert N. Wiedenmann, 607 E. Peabody Drive, 
Illinois Natural History Survey, Center for Economic Entomology, Champaign, IL, 61820-6917

3:55 203 Developing public-private partnerships to promote biological control of purple loosestrife. 
Robert N. Wiedenmann and Susan L. Post, 
607 E. Peabody, Illinois Natural History Survey, Champaign, IL, 61820

4:05 204 Collaborative on-farm research...Return to the extension model. 
Andrew P. Christiansen, Chuck A. Burr, 
Roger W. Elmore, Terrence A. Hejny and Gary L. Zoubek, University of Nebraska, P.O. Box 308, Aurora, NE, 68818
March 26, 2002
Tuesday Evening

Student Award Presentations
Presented by: Ian MacRae
6:00 - 6:45 PM
Big Ten Room A

Linnaean Games
6:45 - 7:15 PM
Gamesmaster: Marlin Rice
2002 NCB Champions vs. the “Old Timers”
Big Ten Room A

NCB-ESA Mixer
7:15 - 10:00 PM
Big Ten Room BC

March 27, 2002
Wednesday Morning

Registration
7:30 AM - Noon
Auditorium/Lobby

Continental Breakfast
6:30 - 8:00 AM
Auditorium/Lobby

Final Business Meeting
8:00 - 9:00 AM
Auditorium
March 27, 2002
Wednesday Morning

Student Affairs Committee Symposium
Tubenrope Workshop: An Exercise in Hypothesis Testing
9:00 - Noon
Room 106

Organizers
James R. Miller and Matthew E. O’Neal
Department of Entomology
Michigan State University
East Lansing, MI 48824

March 27, 2002
Wednesday Morning

NCR-125 Symposium
Biological Control in Urban Environments and Interior Plantscapes
9:00 - Noon
Lincoln Room

Organizer and Moderator
Raymond Cloyd
384 National Soybean Research Laboratory
1101 West Peabody Drive
University of Illinois
Urbana, IL 61801

9:00  205  Introduction and opening remarks.
       Raymond Cloyd, University of Illinois, Urbana, IL, 61801

9:10  206  Conservation biological control in urban landscapes.
       Lawrence Hanks, 505 South Goodwin Ave.,
       University of Illinois, Urbana, IL, 61801

9:40  207  Opportunities for implementing biological control in conservatories.
       Steve Stauffer, 2400 North Stockton Drive,
       Lincoln Park Conservatory, Chicago, IL, 60614
Challenges related to using biological control in greenhouses. **Raymond Cloyd**, 384 National Soybean Research Laboratory, 1101 West Peabody Drive, University of Illinois, Urbana, IL, 61801

**10:40-11:00 Break**

Biological control of the Asian longhorned beetle, *Anoplophora glabripennis*. **Leellen Solter**, 140 National Soybean Research Laboratory, 1101 West Peabody Drive, Illinois Natural History Survey, Urbana, IL, 61801

Effects of imidacloprid treated plants on beneficial organisms. **Vera Krischik**, Department of Entomology, 219 Hodson Hall, 1980 Folwell Avenue, University of Minnesota, St. Paul, MN, 55108

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**March 27, 2002**

**Wednesday Morning**

**Submitted Papers**

Sections E & F

9:00 - Noon

Auditorium

**Moderator: Mark Boetel**

Department of Entomology
North Dakota State University
Fargo, ND 58105

Evaluation of four insecticide impregnated ear tags for control of horn flies on Nebraska cattle. **John B. Campbell**, David J. Boxler and Don C. Adams, 461 West University Dr., University of Nebraska, West Central Research & Extension Center, North Platte, NE, 69101, Terry J. Klopfenstein, Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, 68583
9:12 212 Efficacy of spinosad (Tracer 4SC) for the control of European and southwestern corn borer in field corn.

Larry G. Thompson, Jon M. Babcock and Gary D. Thompson, 9330 Zionsville Road, Dow AgroSciences, Indianapolis, IN, 46268


Kathy A. Leiferman, Keith Evans, Howard Guscar, Robert Hooten, Terry Mize, Brent Neuberger, Robert Perry, Joseph Reed, Gail Stratman and Samuel Tutt, 1735 Market Street, FMC Corporation, Philadelphia, PA, 19103

9:36 214 Insecticide use strategies for European corn borer and southwestern corn borer Bt-corn refugia.

Joseph P. Reed, Robert S. Hooten, Howard L. Guscar, Samuel F. Tutt, Gail G. Stratman, Brent A. Neuberger, Galen B. Wilson and Terry W. Mize, POB 214, Seymour, IL, 61875

9:48 215 Utilizing sprinkler irrigation to apply bifenthrin for control of western corn rootworm larvae in corn.

Gail G. Stratman, Robert S. Hooten and Terry W. Mize, 7502 Dreyfuss, FMC Ag Products, Amarillo, TX, 79121

10:00 216 Consistency of corn rootworm (*Diabrotica* spp.) control using clothianidin seed treatments under a variety of pest pressures.

Michael R. Schwarz, William B. Rose and Christopher K. Niebrugge, 8400 Hawthorn Rd., Bayer Corporation, Kansas City, MO, 64120-0013

10:12 217 Control of non-rootworm pests of field corn with clothianidin seed applied insecticide.

Ray P. Knake, 8309 Hammontree, Gustafson LLC, Urbandale, IA, 50322, Bill Hairston, P.O. Box 660065, Dallas, TX, 75266

10:24-10:40 Break
Does Cry3Bb transgenic corn play a role in western corn rootworm larval movement?  
Bruce E. Hibbard, 109 Curtis Hall, University of Missouri, USDA-ARS, Columbia, MO, 65211-7020, Ty T. Vaughn, 700 Chesterfield Parkway N., Mail Zone GG3E, Monsanto Corporation, Chesterfield, MO, 63198, Thomas L. Clark, 187 Agriculture Bldg, Department of Entomology, University of Missouri, Columbia, MO, 65211

Cuphea, a new crop for rotation to control corn rootworm beetles  
Robert W. Behle, Terry A. Isbell and Bliss S. Phillips, 1815 N. University St., USDA-ARS, Peoria, IL, 61604-3902

Organism resistance to xenobiotics: What do we learn from each other’s science  
John E. Kaufmann, Philip J. Boeve and Rod Stevenson, 6511 West B Avenue, Monsanto Company, Plainwell, MI, 49080

A toolbox for studying mating disruption: Use of aging chambers and gas chromatography to answer specific questions about pheromone longevity and movement  
Piera Y. Giroux and James R. Miller, 203 Center for Integrated Plant Systems, Michigan State University, East Lansing, MI, 48824

Southwestern corn borer cannibalism and corn stalk girdling: Expressions of competition for the best winter site to survive the winter  
Lawrent L. Buschman, Jose G. Guzman, Phillip E. Sloderbeck and Sonny B. Ramaswamy, 123 Waters Hall, Kansas State University, Manhattan, KS, 66506

Potatoes in south central Nebraska tolerate high levels of artificial mid-season defoliation  
W. Wyatt Hoback and Jesse R. Ziems, Department of Biology, 905 W. 25th Street, University of Nebraska-Kearney, Kearney, NE, 68849, Leon G. Higley, Department of Entomology, 202 Plant Industry Building, University of Nebraska-Lincoln, Lincoln, NE, 68583
Damage by and control of European chafer infesting field-grown rhododendrons. Michael E. Reding, Michael G. Klein and Ross D. Brazee, 1680 Madison Avenue, USDA-ARS, Wooster, OH, 44691

March 27, 2002
Wednesday Morning

MSU Bug House Tour
10:00 - Noon

Organizers
MSU students

March 27, 2002
Wednesday Afternoon

NCB Executive Committee
1:00 - 5:00 PM
Room 106

HAVE A SAFE TRIP HOME!
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Monday, March 25, 2002

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Tuesday, March 26, 2002

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Wednesday, March 27, 2002

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