

University of Arizona
Arizona Pest Management Center Summit
Meeting Proceedings
Maricopa Agricultural Center
June 6, 2006
cals.arizona.edu/apmc/Summit

The Arizona Pest Management Center

The mission of the University of Arizona's Arizona Pest Management Center (APMC) is to support College of Agriculture and Life Sciences (CALs) faculty in their efforts to develop and deliver outstanding Integrated Pest Management (IPM) programs that address the needs of Arizona's citizens. This includes IPM programs serving agriculture, urban communities and natural areas.

The APMC engages with faculty, partner organizations, clientele and other interested stakeholders to:

- Research, develop, and help implement innovative IPM systems in Arizona
- Solicit and document input on pest management needs in Arizona
- Secure external funding to support pest management research and outreach programs
- Evaluate & improve pest management programs, and assess their impact on end-users
- Improve communication among all IPM stakeholders, including UA faculty, state partners, clientele groups, the Western IPM Center and federal IPM program

All IPM programs at UA are part of the APMC. A steering committee, the IPM Coordinating Committee, guides the activities and resources of the APMC, and is made up of faculty and stakeholders with expertise in entomology, plant pathology and weed science. The APMC maintains five program foci: Detection & Diagnostics, Agricultural IPM, Community IPM, IPM Assessment, and Pesticide Education. Within each focus, program teams actively develop, manage, support and implement IPM programs. The IPM Program Manager, who also serves as Associate Director of the APMC, is dedicated to maintaining the APMC infrastructure and provides leadership and manages daily activities and communications. With the IPM Coordinator and co-Director of the APMC, the IPM Program Manager reports and responds to federal interests and inquires about our state's IPM programs.

Our IPM programs are staffed by an energetic but limited number of faculty and staff from multiple departments, agricultural centers and counties. The APMC helps keep our programs strategically focused, relevant, and well positioned to compete for IPM funding both regionally and nationally. *Our goal is to create a working environment in which the science and implementation of IPM can thrive in Arizona.*

Purpose of the Workshop

Purpose

The purpose of this workshop was to assemble University of Arizona faculty members involved in pest management related research and outreach, along with key stakeholders from urban, agricultural and natural resource sectors, in a forum to identify program needs and priorities, and to discuss the role of the Arizona Pest Management Center (APMC) and Extension in addressing these challenges.

Format

The general format for this one-day workshop was a morning plenary session with broad presentations related to the APMC and integrated pest management and afternoon focus sessions during which participants identified IPM priorities in four areas:

- Agricultural and Cross-commodity IPM
- Community and School IPM
- Noxious and Invasive Weeds
- Urban Horticulture IPM

Desired Outcomes

1. Identify pest management priorities to inform and help focus Extension efforts.
2. Synergize partnerships between UA Extension and sister agencies and stakeholder organizations.
3. Communicate the goals and structure of the APMC as a resource for faculty and partner organizations.
4. Increase awareness of funding resources for pest management and related programs.
5. Create dialog for stakeholder input into all our pest management programs.
6. Increase faculty expertise on stakeholder interaction and program evaluation.

Morning Plenary Session Summary

The complete Powerpoint files for all plenary presentations are available online at cals.arizona.edu/apmc/Summit.html. What follows are brief abstracts for each presentation.

The Arizona Pest Management Center

Dr. Al Fournier, IPM Program Manager & Assoc. Director APMC, University of Arizona

The Arizona Pest Management Center is the result of a strategic reorganization of IPM resources at the UA to enhance pest management research and education. This virtual center brings faculty

and diverse stakeholders together to identify pest management needs, secure resources, and implement effective IPM activities in urban, natural, and agricultural sectors. This organizational structure helps us prioritize, partner, and secure competitive resources by taking advantage of current trends in federal grant programs. Prioritization of IPM activities is a critical function that allows us to make the best use of limited resources. To be successful, we need to connect with clientele and partner to develop and deliver outstanding research and education programs attuned to their needs. This approach leverages our limited resources and also attracts external funding to help us achieve more with less.

IPM: What Does the “I” Stand for?

Dr. Peter Ellsworth, IPM Specialist / State IPM Coordinator & Co-Director APMC, Dept. of Entomology, University of Arizona

While IPM is accepted worldwide as the best way to protect crops, there are many definitions of IPM and ambiguous interpretations. The key to IPM is that it represents an *integrated* approach to pest management, using many types of control strategies in a synergistic way. There are many levels and scales of IPM implementation (Kogan 1998, 2001). The highest level of IPM, what we should strive for, deals with multiple pests and control methods within the context of a whole cropping system or ecosystem. The federal IPM Roadmap identifies strategic directions for IPM research, implementation, and measurement for all pests in all settings, and focuses on reducing risk from pests and pest management strategies. Federally funded IPM programs must be evaluated to determine if they are meeting these goals. IPM activities at UA are connected to the federal IPM program through the Western IPM Center and the Arizona Pest Management Center.

What’s Most Important in IPM?

Rick Melnicoe, Director, The Western IPM Center

What’s most important in IPM depends on a person’s perspective. IPM is broader than insect pest management and includes pest interactions in daily life in agriculture, natural and urban areas. Because public funds for IPM are limited, priorities must be established. The Western IPM Center (WIPMC) is one of four regional IPM Centers in the U.S. One role of the WIPMC is to work with stakeholders to identify and document priorities. These priorities become integrated into calls for proposals for federal IPM grant programs that the WIPMC oversees and/or administers. Funds are available to develop Pest Management Strategic Plans (PMSPs). These are commodity- or issue-based documents developed by stakeholders that prioritize research and education needs. Through PMSPs and similar processes, the WIPMC solicits public input into regional IPM funding priorities.

Diagnostics & Identification: A Key to Pest Management

Carl Olson, Assoc. Curator, Dept of Entomology, University of Arizona

The University of Arizona has personnel and resources dedicated to diagnostics of insect pests, plant diseases and weeds. (Links to diagnostic contacts are available through Olson’s presentation.) The Arizona Plant Diagnostics Network (AZ-PDN) has recently been established as part of a regional (Western Plant Diagnostics Network) and national (National Plant

Diagnostics Network) response to new threats and emerging pest problems. Accurate identification is the first step in any IPM process. Misidentification can lead to improper and ineffective pesticide applications and ongoing pest problems. Because IPM is ecologically based, the emphasis should be on integrated *population* management to achieve long-term solutions. Education is critical to any IPM program. Media exaggeration often plays on people's fears of insects or pest problems, and may encourage an emotional response rather than sound science .

The Greening of the Marketplace: Increasing Demand for IPM & BMP
Dr. Tom Green, President, The IPM Institute of North America

The IPM Institute of North America is an independent non-profit organization that fosters recognition and rewards in the marketplace for goods and service providers who practice Integrated Pest Management, or IPM. The Government Accounting Office has criticized federally funded IPM efforts as poorly coordinated, with little emphasis on measuring outcomes. Various studies have indicated the presence of pesticides and other synthetic chemicals in streams, drinking water, household dust, and the human body. There are uncertainties about long-term health impacts of these pesticides and exposure to untested combinations of pesticides and other chemicals. Still, there are many success stories and evidence of improvement by public agencies, industry and consumers. The federal IPM Roadmap now sets broad, measurable health, economic and environmental goals for IPM. The majority of new pesticide registrations qualify as “reduced-risk” or biopesticides, according to U.S. EPA. Wholesale buyer demand for IPM, and eco-labeling have become strong trends, marketing products to the public that meet a set of environmental standards. Certified organic is the oldest and largest of the eco-labels. These programs promote a sustainable approach to pest management, reward good management practices and reduce liability. The IPM Institute assists companies and non-profit organizations to develop, operate and succeed with market-based incentives for IPM and other practices. The Institute also runs the IPM Star Program, evaluating and certifying school and childcare IPM programs. The Mesa Public School District received an IPM Star Award at today's meeting.

Focus Sessions: Integrated Pest Management Priority Setting

Introduction

APMC Summit participants engaged in afternoon “Focus Sessions” to identify IPM priorities in four different areas:

- Agricultural and Cross-commodity IPM
- Community and School (urban/structural) IPM
- Noxious and Invasive Weeds
- Urban Horticulture IPM

Participants in each session were led by a facilitator, who coordinated a 3-step activity: (1) individual brainstorming; (2) small group discussions; (3) listing and voting on priorities as a group. (Full instructions for the priority setting activity are included in Appendix C.) Participants were instructed to use the National IPM Program goals (as described in the IPM Roadmap) and a short list of other considerations as the criteria for ranking identified needs (Appendix D).

Participants were asked to vote for their top three priorities, casting three votes for their #1 choice, 2 votes for #2, and a single vote for #3. Votes were then tallied and priorities ranked accordingly. In addition to identifying needs and ranking priorities, each focus group was encouraged to develop “creative solutions,” or ways of addressing the priorities effectively.

Organization of Priorities

In each of the following sections, the finalized list of priorities is presented, followed by a discussion of “creative solutions” to address these needs and a discussion of the discourse that took place.

Agricultural and Cross-commodity IPM

The Agricultural & cross-commodity focus session participants broke into smaller groups based on their commodity interests:

- Alfalfa (4 participants)
- Citrus (6 participants)
- Cotton (8 participants)
- Vegetables and melons (12 participants)

Major Priorities (no. of votes)

1. Multi-pest IPM Research & Education [Level II & III IPM, sensu Kogan (1999)] (24)
2. Veggie/Melon: better herbicides & insecticides for thrips & aphids (24)
3. Prevention and management of herbicide resistant weeds (13)
4. Educational needs - intercrop pest interactions, resistance, and labor (13)
5. Prevent, detect, and mitigate exotic pest introductions (7)
6. Improved lygus control in multiple crops and their interactions (7)

Creative Solutions

- Enhance public (e.g., federal) funding
- Explore tax credits
- Develop industry support for grants
- Provide more IPM training for field workers
- Facilitate and participate in the Pest Management Strategic Plan (PMSP) process (w/ additional funding & human resources)
- Develop and implement urban / youth education (about pest management / agriculture)
- Genetic improvement of crops (breeding and engineering for pest resistance)
- Get the attention of University of Arizona and College of Agriculture and Life Sciences administration
- Streamline interagency funding and create incentives for these partnerships
- Facilitate and reward interdisciplinary IPM research and education

- Fund multi-tactical projects
- Expand involvement in exotic pest survey work including industry and university

Community and School (urban/structural) IPM

Major Priorities (no. of votes)

1. Education (70)
 - a. General public awareness
 - b. Commercial professionals
 - c. School and community administrators
2. Develop industry standard for IPM (35)
3. Leverage funds for change agents to initiate implementation projects in communities (25)

Creative Solutions (by priority)

1. Education Solutions
 - a. Focus on educating school staff to adopt and implement IPM
 - b. Educate the general public to increase awareness and understanding of IPM
 - c. Use innovative methods to educate (e.g., “reality” TV show about IPM)
 - d. Educate people to recognize IPM as a health benefit
 - e. Access key school district administrators and educate them about IPM
 - f. Work to get increased buy-in for IPM by initiating pilot implementation projects
 - g. Incorporate the study of invertebrates into school curriculum
2. Develop industry standard for IPM in structural environments
 - a. Encourage movement toward “standardized IPM services”
 - b. Develop systems of accountability
 - c. Provide recognition for good IPM practitioners
 - d. Promote RFP approach (vs. bid process) for purchasing agents to promote adoption of quality IPM services
3. Leverage funds
 - a. Engage stakeholders to identify needs and support efforts
 - b. Compete for national level funds, e.g., USDA grants
 - c. Explore creative funding sources
 - d. Promote legislation for funding for IPM

Discussion

Participants in this focus session included pest management professionals, school district operations personnel, city employees, tribal representatives, state and federal agency representatives, university and cooperative extension professionals. They developed priorities focused on pest management needs in commercial structural environments, such as schools and municipalities, rather than homeowner issues and concerns. The needs identified by participants fell into three main areas: education, industry standards, and leveraging funds.

Education was clearly identified as the number one priority. IPM education for the public at large is needed to continue to generate an interest and growing demand for IPM services; education of school and urban facility staff on their role within their IPM program; education in the form of garnering buy-in from key facility staff to ensure that their IPM program is prioritized commensurate with the resources invested by internal staff and external partners (extension, state agency, federal, etc.). Innovative education tools were discussed for both consumers and school staff (e.g., IPM Reality Show) and students (e.g., by incorporating invertebrate studies into the school curriculum).

The second identified priority was the need for industry-wide IPM standards in schools, facilities and buildings. Tools, such as inspection checklists and other forms of record keeping need to be developed or refined to address a consistent standard. Protocols have been developed to facilitate the consumer assessing the wide variety of services available. However, they are now widely available. Commercial companies claiming to provide IPM services should be held accountable to certain established standards. Promoting contractual Requests for Proposals is recognized as a helpful alternative to the “lowest-bid” option when entities are trying to partner with a company providing IPM services.

Leveraging funds to accomplish IPM goals was the third priority agreed on by this group. There is room for improvement in using stakeholder involvement to leverage IPM program funds.

Competing for more national level funds and exploring innovative funding sources (such as the green cleaning industry) as partners in the “environmental health” effort would increase funding options. Legislating leveraged IPM funds was another pathway the group discussed.

Noxious and Invasive Weeds

Major Priorities (no. of votes)

1. Secure funding for all phases (pest plant detection, management, restoration, etc.) (17)
2. Develop a statewide mapping and distribution database (16)
3. Complete and submit the “State of Arizona Strategic Plan” for statewide management of pest plants (14)
4. Conduct research on pest plant biology, ecology, identification and treatment statewide (12)
5. Increase public awareness of, and provide education about, pest plants (8)
6. Develop statewide early detection, rapid response process (7)
7. Improve communication and coordination among state, local and federal groups to facilitate partnerships (private, NGOs, agencies, etc.) (6)

Creative Solutions (by priority)

1. Secure funding for all phases (pest plant detection, management, restoration, etc.)
 - a. Seek tax-based funding

- b. State lottery funds
 - c. Complete the Arizona Invasive Plants Strategic Plan for statewide management of pest plants. This document will position state and local government agencies, universities, non-profit organizations and private land owners in Arizona as eligible entities for obtaining funds from federal weed abatement programs which require applicants to be participants in coordinated, state-wide, multi-partnered, strategic pest plant management plan activities.
 - d. Develop a Pest Management Strategic Plan (PMSP) for noxious and invasive weeds; apply for funds from the Western IPM Center to support this activity. Once a PMSP exists, this can be cited in research proposals as documented stakeholder input and will improve our chances of obtaining federal grants.
2. Develop a Statewide mapping and distribution database. What's needed to achieve this (requires funding):
 - a. Personnel
 - b. GPS units
 - c. Centralized database manager (e.g., SWEMP)
 3. Complete and submit the "State of Arizona Strategic Plan" for statewide management of pest plants
 - a. This document is already in progress. It needs to be completed and submitted.
 - b. Lobby for governor approval
 4. Conduct research on pest plant biology, ecology, identification and treatment statewide
 - a. Funding is needed! Especially funds that will support multi-year research projects, graduate student funding, etc., to develop good information.
 - b. The APMC can be a source for limited research funds (pilot projects, preliminary data to support larger grant proposals, etc.)
 - c. Explore and pursue competitive funding opportunities
 5. Increase public awareness of, and provide education about, pest plants
 - a. There is a role for Extension in public education/outreach on these issues (bulletins, fact sheets, websites, etc.)
 - b. Develop public service announcements
 - c. Reach urban populations
 - d. Master gardeners as "first detectors," as public educators about weed issues
 - e. Home owner's associations
 - f. Nurseries
 - g. Parks Departments
 - h. Schools
 6. Develop statewide early detection, rapid response process
 - a. Larry Howery has begun to coordinate this effort through the Noxious & Invasive Weeds Working Group
 - b. Explore organization role for the APMC
 7. Improve communication and coordination among state, local and federal groups to establish partnerships (private, NGOs, agencies, etc.).
 - a. Explore organization role for the APMC

Discussion

Funding was described as the most urgent need to address all phases of noxious and invasive weed research, management, implementation and education. Several ideas for increasing funding were generated, including completion of a State of Arizona Strategic Plan for statewide management of pest plants, development of an official Pest Management Strategic Plan (PMSP) with support of the Western IPM Center, and submission of an IPM proposal to the Arizona Pest Management Center to support research to generate preliminary data as a foundation for larger funding requests. Other funding ideas included state-based tax funding and state lottery funds.

Some identified needs relate to statewide coordination of weed detection and management efforts. Mapping of weed distribution and development of process for early detection and rapid response to weed issues were also listed as priority needs. Both the mapping effort and the detection/response network would involve the development of (separate) database systems. The need to improve communication and coordination among all groups (private, NGOs, state, federal and local agencies, Extension, tribes, weed management areas, etc.) and to establish better partnerships for achieving statewide management goals was discussed.

Fairly basic research on weed biology, ecology, identification and treatment are needed, as well as research related to restoration. Funding for personnel and equipment are needed to support this research. A comment was made that any real progress in weed research is dependent on fairly long-term funding to support graduate student projects and the like; one to two year grant funding makes it difficult to obtain rigorous data needed to develop biological and ecological understanding of the issues involved.

Finally, public education and awareness of noxious and invasive weed issues is important. Although our discussion of specific benefits of, and approaches to addressing, public education was limited, suggestions included the development of public service announcements to reach urban populations, Extension education/outreach programs, master gardeners, home owner associations, nurseries, parks departments and schools.

Urban Horticulture IPM

Major Priorities (ranking*)

*The number of votes for each item was not retained by focus session participants.

Education/implementation priorities

1. Create tools for public education (#1)
 - a. IPM recognition/certification program for golf courses and nurseries (#4)
 - b. Golf course superintendent IPM education (#5)
 - c. Educate cities on use of IPM (#8)
 - d. Develop standard for “Earth-friendly” (#9)

Research Priorities

1. Targeted research on various high-priority pests (#2)
 - a. Witches broom on Palo Verde
 - b. Pine blight
 - c. Mesquite decline
 - d. Glassy-winged sharpshooter
 - e. Ground squirrel
 - f. Whitefly
 - g. Chitalpa leaf blight
 - h. Pearl scale
 - i. Spider mites
 - j. Termites
 - k. Nematodes
 - l. Psyllids
 - m. Poa
2. Determine IPM thresholds for various high-priority pests (#3)
3. Pesticide review of turf and ornamental product availability (#6)
4. Research non-target effects of pesticides (#7)

Creative Solutions

Because time ran short, the group did not generate specific “creative solutions” for each priority. However, it was noted throughout the discussion that funding for research and education continues to be a critical need.

Discussion

This focus session included a diverse group including Extension personnel, master gardeners, and representatives from the Arizona Nursery Association and the turf and golf industry. It was a very lively group that generated several good ideas. The separate group discussions garnered approximately 45 different ideas. The entire group decided to include all 45 ideas in their presentation. Of the 45 ideas there were:

- 20 ideas that addressed different means of educating the public
- 15 that addressed different disease research ideas
- Several that addressed the Earth-Friendly standards

There was a natural dichotomy in the needs (to some extent reflecting the dichotomy of the group), which broke down into the two major areas of education needs and research needs.

Final Plenary Session: Presentation of Priorities

Following the conclusion of the breakout Focus Sessions, the full group was reassembled for a tag-team presentation of the final priorities as they were developed in each of the breakouts. A representative from each group presented one to three slides, presenting priorities from their group. A PDF file of the final presentation is available at cals.arizona.edu/apmc/Summit.html.

Program Evaluation

A complete summary of program evaluation data is available at cals.arizona.edu/apmc/Summit.html.

More Information

For more information about this event, please contact:

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Appendix A: Program Agenda



University of Arizona
Arizona Pest Management Center Summit 2006
June 6, 2006 – 9:00 to 4:30
Maricopa Agricultural Center
 37860 West Smith-Enke Rd., Maricopa, AZ 85239



Purpose of the Workshop: To assemble UA College of Agriculture and Life Sciences (CALs) faculty members involved in pest management related research and outreach, along with key participants from urban, agricultural and natural resource sectors, in a forum to identify pest management research and education needs and priorities.

Meeting Agenda

- 9:00 – 9:30 Registration and Continental Breakfast
- 9:30 – 9:40 A Welcome from CALS Administration
Colin Kaltenbach, Vice Dean & Director, Ag Experiment Station
- 9:40 – 10:25 The Arizona Pest Management Center
Al Fournier, IPM Program Manager, University of Arizona
- 10:25 – 10:50 IPM: What Does the “I” Stand for?
Peter Ellsworth, IPM Specialist & IPM Coordinator, Dept. of Entomology, University of AZ
- 10:50 – 11:00 Break
- 11:00 – 11:35 What’s Most Important in IPM?
Rick Melnicoe, Director, The Western IPM Center
- 11:35 – 12:00 Diagnostics & Identification: A Key to Pest Management
Carl Olson, Assoc. Curator, Dept of Entomology, University of AZ
- 12:00 – 1:00 Lunch Program
- 12:30 – 1:00 The Greening of the Marketplace: Increasing Demand for IPM
Tom Green, President, The IPM Institute of North America
- IPM Star Award for Mesa Public Schools district
- 1:15 – 1:30 Orientation for the Focus Sessions (Al Fournier)
- 1:30 – 3:15 **Focus Sessions:**

<u>Topic</u>	<u>Color</u>	<u>Location</u>
Agricultural & Cross-commodity IPM	Blue	Multipurpose room (rear)
Community & School (structural) IPM	Purple	Multipurpose room (front)
Noxious & Invasive weeds	Brown	Classroom annex (brown room)*
Urban Horticulture (landscape) IPM	Yellow	Classroom annex (yellow room)*

- 3:15 – 3:30 Break: Ice Cream Social (full group in multipurpose room)
- 3:30 – 4:30 Closing Plenary: Sharing of Priorities Among Breakout Groups and Identification of Common Themes and Action Items

Appendix B: Program Participants

University of Arizona Arizona Pest Management Center Summit Maricopa Agricultural Center June 6, 2006

Participants by Focus Session

Agricultural and Cross-commodity IPM Focus Session

Facilitator: Peter Ellsworth, University of Arizona, Maricopa Agricultural Center, Maricopa, AZ

- Kevin Adam, Bayer CropScience, Chandler, AZ
- Fred Amator, Arizona Crop Protection Association, Phoenix, AZ
- Virginia Barkley, University of Arizona, Maricopa Agricultural Center, Maricopa, AZ
- Gary Christian, Arizona Department of Agriculture, Phoenix, AZ
- Chang-chi Chu, USDA Arid Lands Agricultural Research Center, Maricopa, AZ
- Pat Clay, University of Arizona, Maricopa County, Phoenix, AZ
- Dave DeWalt, USDA National Ag Statistics Service, Phoenix, AZ
- Dolly Echeverria, MAC Advisory Council, Maricopa, AZ
- Lindsey Evans, L. Evans Enterprises, Phoenix, AZ
- George Frisvold, University of Arizona, Department of Agricultural & Resource Economics, Tucson, AZ
- Shane Hand, Bayer CropScience, RTP, NC
- Thomas Henneberry, USDA Arid Lands Agricultural Research Center, Maricopa, AZ
- Greg Hogue, Wilbur-Ellis Company, Buckeye, AZ
- Mike Matheron, University of Arizona, Yuma Agricultural Center Mesa Station, Somerton, AZ
- Greg Miller, Nichino America, Inc., Mesa, AZ
- Steve Naranjo, USDA Arid Lands Agricultural Research Center, Maricopa, AZ
- Kurt Nolte, University of Arizona, Yuma County, Yuma, AZ
- Eric Norton, University of Arizona, La Paz County, Parker, AZ
- Randy Norton, University of Arizona, Safford Agricultural Station, Safford, AZ
- John Palumbo, University of Arizona, Yuma Agricultural Center Valley Station, Yuma, AZ
- John Reding, Dow ArgoSciences, Phoenix, AZ
- Jesse Richardson, Dow ArgoSciences, Hesperia, CA
- Bob Roth, University of Arizona, Maricopa Agricultural Center, Maricopa, AZ
- Lorinda Sam, Tohono O'odham Nation, Dept. of Public Safety, AZ
- Maria Sims, University of Arizona, Maricopa Agricultural Center, Maricopa, AZ
- Jeff Smith, Valent USA, Gilbert, AZ
- Erin Taylor, Maricopa County, University of Arizona

- Trent Teegerstrom, University of Arizona, Department of Agricultural & Resource Economics, Tucson, AZ
- Phil Townsend, Sunlund Chemical Company, Inc., Yuma, AZ
- Clark Webb, The Dune Company, Yuma, AZ

Community and School (urban/structural) IPM Focus Session

Facilitator: Tom Green, IPM Institute of North America, Madison, WI

- Justin Abel, Chandler Unified School District, Chandler, AZ
- Andrew Backhaus, Pharma Pacific, Phoenix, AZ
- Paul Baker, University of Arizona, Dept. of Entomology, Tucson, AZ
- Mannie Bowler, Arizona Dept. of Environmental Quality, Phoenix, AZ
- Doug Brunner, University Termite & Pest Control, Tucson, AZ
- Paul Cardosi, Ecolab Pest Elimination, Scottsdale, AZ
- Ken Colpaert, Orkin Pest Control, Phoenix, AZ
- Diane Eckles, Arizona Dept. of Health Services, Phoenix AZ
- Bill Ehlers, Chandler Unified School District, Chandler, AZ
- Lyle Ferguson, Ecolab Pest Elimination, Scottsdale, AZ
- Jaydee Finney, Chandler Unified School District, Chandler, AZ
- Sherry Glick, US Environmental Protection Agency, Office of Pesticide Programs, Washington, DC
- Dawn Gouge, University of Arizona, Maricopa Agricultural Center, Maricopa, AZ
- Peter Hernandez, Pascua Yaqui Tribe, Tucson, AZ
- Janet Hurley, Texas Cooperative Extension, Dallas, TX
- Kurt Kalusa, Kyrene School District, Tempe, AZ
- Eileen Lopez, Tohono O'odham Nation, Pesticide Program, Sells, AZ
- Carl Olson, University of Arizona, Dept. of Entomology, Tucson, AZ
- Ventura Perez, Gilbert Public Schools, Gilbert, AZ
- Jeremy Phillips, Salt River Pima-Maricopa Indian Community, Scottsdale, AZ
- Monica Raab, City of Phoenix, Phoenix, AZ
- Rick Rupkey, Sr., University Termite & Pest Control, Tucson, AZ
- Jennifer Snyder, University of Arizona, Maricopa Agricultural Center, Maricopa, AZ
- Ed Stallard, Mesa Public Schools, Mesa, AZ

Noxious and Invasive Weed Focus Session

Facilitator: Linda Herbst, Western IPM Center, Davis, CA

- John Brock, Arizona State University, Polytechnic Campus, Mesa, AZ
- Patti Fenner, US Forest Service, Phoenix, AZ
- Al Fournier, University of Arizona, Maricopa Agricultural Center, Maricopa, AZ
- Larry Howery, University of Arizona, School of Natural Resources, Tucson, AZ

- Maria Kraucunas, USDA Animal Plant Health Inspection Service, Plant Protection and Quarantine, Phoenix, AZ
- Jerry Levitt, USDA Animal Plant Health Inspection Service, Phoenix, AZ
- Anna Massayeva, Hopi Environmental Protection Organization, Kykotsmovi, AZ
- Bill McCloskey, University of Arizona, Plant Sciences Dept., Tucson, AZ
- Kim McReynolds, University of Arizona, Cochise County, Willcox, AZ
- Bruce Munda, USDA – Natural Resources Conservation Service, Phoenix, AZ
- Jeffrey Myers, Arizona Dept. of Agriculture, Phoenix, AZ
- Ed Northam, University of Arizona, Maricopa County, Phoenix, AZ
- Nelson Roanhorse Bureau of Indian Affairs, Fort Defiance, AZ
- Gary Russell, Animal Plant Health Inspection Service, Phoenix, AZ
- Deborah Young, University of Arizona, Extension Administration, Tucson, AZ
- Kelly Young, University of Arizona, Maricopa County, Phoenix, AZ

Urban Horticulture IPM Focus Session

Facilitator: Rick Melnicoe, Western IPM Center, Davis, CA

- Larry Bell, Master Gardener Program, Maricopa County, AZ
- Rob Call, University of Arizona, Cochise County, Willcox, AZ
- Susan Chase, Desierto Verde, Tempe, AZ
- Shawn Connors, Horizon, Phoenix AZ
- Jo Cook, University of Arizona, Maricopa County, Phoenix, AZ
- Rick Gibson, University of Arizona, Pinal County, Casa Grande, AZ
- Cheryl Goar, Arizona Nursery Association, Tempe, AZ
- Stu Helffrich, Master Gardener Program, Maricopa County, AZ
- Michelle Johnson
- David Kopec, University of Arizona, Plant Sciences Dept., Tucson, AZ
- Terry Mikel, University of Arizona, Maricopa County, Phoenix, AZ
- Jim Oravetz
- Danny Schnell, Master Gardener Program, Maricopa County, AZ
- Charlie Stevens, Master Gardener Program, Maricopa County, AZ
- Kai Umeda, University of Arizona, Maricopa County, Phoenix, AZ

Appendix C: Priority Setting Process

Arizona Pest Management Summit 2006 Priority-Setting Activity INSTRUCTIONS FOR FOCUS SESSION FACILITATORS

Introduction

1. Welcome the participants and let them know that this will be an active exercise.
2. Remind them of the purpose: there are many potential activities related to pest management and limited resources. The goal is to identify what is most important, based on the IPM criteria discussed in the orientation.
3. Remind the group what your particular session will focus on. Define the parameters of the priorities you will develop (e.g., pest management needs related to agriculture). Needs might be related to research, education, regulation, economics, barriers to IPM adoption and implementation or “other.”
4. If there are logical sub-groupings within your focus area, designate small groups based on these. (For example, within agricultural IPM, we may have small groups focused on cotton, vegetables, melons, and cross-commodity issues) This may be a question to pose to the group, but it should be decided quickly.
5. Instruct people to break into small groups of 4 to 7 people. Each group will sit at a table with different color sticky notes and pens provided.
6. It is very important throughout the process that facilitators create an open, supportive environment to encourage participation—no idea is too far out for consideration. It is also important to keep to the time schedule and keep things moving along.

The Priority-Setting Process

1. **Begin with silent generation of ideas (3 minutes).** Instruct people to first work independently to generate their own list of pest management needs. Tell them to write as many ideas as they can on individual sticky notes. No interaction between individuals at this point. The idea is to generate as many ideas as possible.
2. **Share ideas (5 minutes).** Each individual briefly shares one idea (not already mentioned) with the small group in round-robin fashion until all ideas are shared.
3. **Discuss and clarify (10 minutes).** Within the small group, discuss and clarify all ideas, allowing participants to explain further the idea they shared. Remove duplications and cluster related ideas under a new heading. This can be done by laying out the sticky notes onto large pieces of paper and drawing circles and arrows to distinguish or show relationships among the groups. These worksheets should be retained for the summary afterwards. Each small group selects three

or four ideas that all members of the small group can support as priorities.

4. **Present ideas to larger group, from the large paper, posted on the wall (10 to 20 minutes, depending on the number of groups).** Ideas from small groups are presented to the larger group. As each idea is presented, the facilitator or designee writes these unranked ideas as “bullets” on a large pad using bold markers (don’t number the ideas yet!). As each large sheet of paper is filled, it is taped on the wall in plain view. Be sure to leave some space on the left margin of the paper. This space will later be used to classify and ultimately rank each potential priority.
5. **Ideas are discussed and clarified within the larger group (20 minutes).**
 - a. All the ideas that have been presented from the groups should be taped to the wall.
 - b. Through an interactive discussion with all participants, the facilitator will go through these items, relating them to the IPM criteria. (For reference, the IPM criteria will be provided as a handout in each participant’s packet). Identify and remove (cross out) any duplicated ideas. Put an “X” next to any ideas that do not fit the IPM criteria, but do not cross them out. (These will be placed on a list of “other priorities” to appear in the meeting proceedings.) Related ideas can be clustered under a new heading and treated as a single item (they may need to be rewritten). What remains is a list of potential priorities derived from the collective wisdom of the group.
 - c. ***This list should be rewritten as a single legible, numbered list.*** (Explain to participants that the numbers are not the priority rankings, but will be used to refer to each need during the voting process.) The next step is to rank (prioritize) the ideas through a voting process, using the IPM criteria as a guide.
6. **Voting (10 minutes).** Each participant considers the final list of numbered needs and must select and rank their top three in a “closed ballot.” Each person uses one sticky note and writes the numbers of the 3 designated needs they feel are most important. Next to each of these numbers they draw one, two, or three stars to rank the importance of the items. One star indicates the least important of the three, two stars indicate medium importance, and three stars indicate the most important need. They are asked to vote for and rank no more than 3 potential priorities. Votes are tallied by counting the total number of stars for each listed need and writing the total votes in the margin next to the bullet item. Facilitators should collect and save all the large papers from their session. (These will be helpful in generating meeting proceedings later.)
7. **Focus session results and discussion of creative solutions (15 minutes).** The top 5 to 10 needs are rewritten as a fresh ranked numbered list on a large paper. The facilitator states, “These are our top pest management priorities,” and

asks, “What can we come up as creative solutions to address these needs?” Call on the expertise in the room to quickly brainstorm some ideas on methods for addressing the needs, one by one. Write down these creative solutions on separate list. These may be “general solutions” or might be tied to a specific need.

8. **The final list or priorities and creative solutions will be presented in the final plenary** on Powerpoint slides. The facilitator’s assistant should transfer the information from the large paper sheets into a Powerpoint template on a laptop that will be provided. The facilitator may present these in the final plenary, or may designate a member from the group to do so.

Appendix D: IPM Criteria used for Priority Setting

Arizona Pest Management Summit 2006 Criteria for Priority-Setting Activity *What criteria are important to IPM priority setting?*

IPM priorities must deal with pest issues of some kind.

IPM priorities must fit the National IPM Program goals. The goals of the National IPM Program revolve around a them a risk-reduction:

- (1) To improve economic benefits related to the adoption of IPM practices (economic risk).
- (2) To reduce potential human health risks from pests and the use of IPM practices.
- (3) To minimize adverse environmental effects from pests and the use of IPM practices (environmental risk).

Risk reduction for these 3 areas should be considered for each potential priority generated.

What is IPM?

An IPM program consists of the following elements:

- (1) it integrates **multiple tactics** and addresses **multiple pests**;
- (2) it takes a holistic (**ecosystem** or landscape-level) approach;
- (3) it accomplishes economic and/or aesthetic objectives;
- (4) it capitalizes on natural controls and minimizes negative impacts on non-target organisms and the **environment**;
- (5) it meets **societal goals**;
- (6) it is a localized, **adaptive** approach.

Additional criteria for evaluating priorities:

- What is the urgency of the problem?
- How many people are affected?
- What is the size or economic value of the industry affected?
- What level and type of resources (money, time) would we need to invest?
- Is this an appropriate issue for the university/extension to address, i.e., is it consistent with our Land Grant mission?
- Is this something that could be addressed or is being addressed by some other organization?
- Are the opportunities for partnerships (leveraging of resources) to accomplish this goal?
- Are we currently vested in the problem, or would a wholesale new investment be required?

Appendix E: Program Evaluation

Arizona Pest Management Center Summit 2006 Program Evaluation Summary

Desired Outcomes (listed before meeting):

7. Identification of pest management priorities to inform and help focus Extension efforts.
8. Dialog initiated at the meeting should synergize relationships and partnerships between UA Extension and sister agencies and organizations.
9. Increased awareness of the APMC as a resource for faculty and partner organizations.
10. Increased awareness of funding resources for pest management and related programs.
11. Increased avenues for stakeholder input for all of our pest management programs.
12. Increased faculty expertise on stakeholder interaction and program evaluation.

Data Summary: Increased knowledge, value of program (1 = lowest, 5 = highest)

Table 1: Mean program evaluation rankings by focus session and affiliation.

	By Focus Session Attended				UA vs. non-UA		Grand
	Ag	Hort	School	Weeds	UA	Non-UA	
(n)	15	14	14	14	18	39	57
Meeting objectives clear	4.20	4.07	4.38	4.23	4.06	4.30	4.22
Fournier	3.80	4.07	4.46	4.36	4.06	4.21	4.16
Ellsworth	4.33	4.39	4.62	4.29	4.21	4.49	4.40
Melnicoe	3.80	3.71	4.23	4.21	3.88	4.03	3.98
Olson	3.97	4.29	4.50	4.07	4.11	4.24	4.20
Green	3.07	4.08	4.46	4.31	3.94	3.95	3.94
AM-relevance	3.73	3.92	4.43	4.00	3.94	4.05	4.02
AM-incr. IPM knowl.	3.87	4.08	3.79	4.00	3.94	3.92	3.93
AM-incr. prog. Knowl.	4.07	3.83	4.57	4.21	3.69	4.38	4.18
AM-incr. APMC knowl.	4.20	4.25	4.79	4.36	4.06	4.54	4.40
Facility (food, venue)	4.21	4.29	4.19	4.50	4.22	4.33	4.30
PM-value of program	4.03	3.79	4.21	4.21	4.00	4.09	4.06
PM-felt I contributed	3.60	3.79	4.14	4.36	3.89	4.00	3.96
PM-objectives clear	3.80	3.69	4.21	4.36	3.88	4.08	4.02
Overall Rating	3.95	4.06	4.32	4.23	3.98	4.20	4.13

Intended actions listed on program evaluations (Desired Outcome #)

- Will work toward the priorities identified. (DO#1) 2
- Will increase contact / collaboration with partner organizations. (DO#2) 4
- Will share information with coworkers, staff, boss, other organizations, state leadership. (DO#2) 4
- Will work more with university partners. (DO#2) 2
- Will write a proposal for the APMC. (DO#4) 1
- Will seek (new) sources of funding. (DO#4) 5
- Explore the possibility of doing a PMSP for noxious/invasive weeds. (DO#4) 1
- Will educate others about IPM. 4

- Improve IPM services/activities. 4

Additional outcomes (word of mouth)

- Request to conduct a citrus priority-setting session. (DO#6)
- Request to conduct a turf priority-setting session. (DO#6)
- Contacted about a potential role for the APMC to help coordinate efforts to apply for federal funding for noxious and invasive weed management. (DO#3,4)
- An attendee from the Hopi Environmental Protection Office made contacts at the meeting that led to the development of a pilot IPM program for a local hospital.
- An attendee from the City of Phoenix met on June 12 with city officials and pest management contractors to develop IPM pilot programs for 3 municipal facilities.
- One of the identified priorities in the school IPM session was a need to develop consistent "standards" for a school IPM service. Two pest management companies that participated in the meeting are moving forward to develop a model for a standard school IPM service. Dawn Gouge will apply for WIPMC funds to pilot test components of IPM in schools "toolbox."
- A representative from one of the tribes approached one of our faculty IPM team leaders to offer support when faculty apply for program grant funds.

Suggestions for improvement of focus sessions

- Provide more time for priority setting. 5
- Provide more direction for focus sessions 3
- Break into smaller groups, smaller rooms 2
- Plan a follow-up meeting to discuss how 2006 priorities are addressed 1
- Provide examples of priorities to clarify the process 1
- Focus sessions should "focus" on one or two ideas 1
- Do focus sessions in the AM 1
- Some ideas were "lost." Need a system for retaining ideas. 1
- Organize so that participants can attend more than one focus session 1
- Need trained facilitators 1
- Broaden participation or invite specific groups not represented 1
- No suggestions. Good job. 5

Additional Comments

Facilities

- Great food. 4
- Room was too hot. 5
- Good venue for IPM. 1

Meeting participation

- Good participation from the community; "very impressive!" 1
- Wish [my particular interest group] had been better represented. 1

Meeting content, topics, speakers

- Too much time spent on funding issues. 3

- “It would have been informative to see the entire breakdown for funding (for UA programs).” 1
- Too much time spent on IPM definitions. 1
- Good opportunity for stakeholders to have input. 1
- Eliminate the AM session. 1
- Recommend more focused meetings on each of the IPM areas. 1
- A challenge to appeal to such a variety of participants 1
- Morning presentations were all excellent. 1
- Olson’s talk was fun 1
- Green presentation: “I was offended by his lack of science and not telling all of the story.” 1
- Green presentation: “Some misleading statements put the ‘edge’ in IPM.” 1
- Green presentation: “He needs to have his slides peer reviewed by a panel of scientists. Much of it was scientifically invalid or questionable.” 1
- Focus sessions seemed successful 1

General

- Interesting mix of attendees. 1
- Great meeting attendance. 1
- Well run / well organized. 4
- “Great job” etc. 4
- “A good start.” 1
- “Time well Spent” 1
- Hold these kinds of meetings more often. 1
- “Why don’t Extension groups talk to each other? Between states, not just within focus groups (FCS, 4-H, Ag, specialists, etc.) Breakdown bureaucratic boundaries.” 1
- “Pesticide control [reps?] don’t understand the tribal programs.” 1

Other observations and suggestions of speakers/facilitators

- We might have had a better “mix” of morning presenters, representing other IPM disciplines (weed science, plant pathology, etc.)
- A bit more time (perhaps 20-30 minutes more) for the priority-setting activity would have allowed more time to discuss needs and solutions while still keeping an urgent focus.
- Need better representation from campus-based researchers.
- Perhaps the morning program was too long—too many speakers. People have more energy in the morning. If we could get to the priorities quicker, while still providing enough context, that would be beneficial.
- We should do sign-in sheets for the breakout sessions next time. This time we generated participant lists for each session based on the sign-in sheets for the overall meeting plus knowing which session people had RSVPed for. This didn’t account for people who left the meeting early or switched to a different session.