

WERA 069 2007 meeting
Phoenix
May 8-9, 2007

These minutes are supplemented by various documents attached and noted throughout this document. Unfortunately, because of file size limitations, not all Powerpoint presentations used at the meeting could be included.

Minutes – May 8, 2007

After splitting into three groups for agricultural tours, we convened the meeting Tuesday afternoon. (*see Agenda PDF*)

Introduction

- Welcome and introductions
- Reminder to group: sign up on the NIMMS system to ensure that you may be eligible for reimbursement through your Ag. Expt. Station Director.
- Frank Zalom is vice Chair (not present, and not available for secretary). Al Fournier is to take minutes.

Bill Coli (UMASS): National IPM Evaluation Effort.

Using adoption measures to try to get at impacts: economic, human health & environmental. Bill has been involved in this national evaluation group for the past few years, with Carol Piltcher, Linda Herbst and others. They have been working on developing impact indicators for IPM (2001). That report criticized IPM nationally, indicating: 1) no national goals, 2) poor national leadership, 3) 75% IPM implementation goal had been met, but pesticide use increased over that period as well.

There is a need to document not only our good work in IPM, but also the impacts of that work, in part in response to OMB report on IPM.

Resource: PART analysis – Performance Assessment Rating Tool (on the web): many federally funded programs have been evaluated and are on this website. Those with little or no impact, funding go away.

The group participated in an Exercise that the national IPM evaluation group developed (based on the logic model). The group determined the needed inputs, target audience, activities (outputs) for a program for production agriculture. Based on this, how do we measure impacts? Next, we worked on developing potential measurable impacts from this program.

- Short term: Changes in knowledge (pre/post test, surveys, etc.)
- Medium term: Changes in behavior (baseline data and pre/post measure of behavior, monitor IPM adoption over time)
- Long term “conditions” change: this is the long-term goal we started with, in our example, “profitability of production agriculture is improved through adoption of IPM.”

Long term impacts are the hardest to measure and they can be difficult to directly tie to our programs. But we need to take a share of the credit for these impacts.

Benefit: as a result of this exercise, the group learned some methods for how to better measure IPM program impacts using a logic model approach.

LOGIC models

Planning a program

Production Agriculture

- Economic Impacts

- Roadmap: improve cost-benefit ratio

Input (what do you need to invest)

- Personnel

- Money

- Time

- Applied research

- Organized outreach

- Vehicles

- Equipment

- In-kind resources

- Inter-agency cooperation

Whom we reach?

- Growers

- Consumers

- Agrichemical industry

- Extension

- PCAs

- Ext. Agents

- Farmers/ranchers

- Commodity Organizations

- Advocacy groups

- General public

- State Department of Ag

Activities (what do we do?)

- Baseline information

- Do PMSP

- Conduct applied research

- Secure funding

- Web sites, posters, field days, bulletins, manuscripts, demonstrations

- Training

- Face-to-face teaching

- Media

Non-formal education
Partnerships

All the above are inputs, sometimes outputs. These things do not say anything about impacts.

Near Term Knowledge Changes

What do audiences need to know and how do we measure that?

- Relative Efficacy of tactics
- Thresholds
- Scouting
- Market conditions
- Insurance vehicles
- Risks associated with IPM
- Costs of various technologies
- Knowledge of externalities
- Basic biology, ecology

Measurements

Collect baseline data on medium and long term impacts
Use self-assessments. Pre/post tests and follow-up measurement tools to assess changes in knowledge, attitudes, skills and aspirations.

Medium term behavioral changes

What practices/behaviors need to change?

- Planning
- Reduced pesticide use
- Increases in choice for reduced-risk tactics
- Lower input costs
- Higher profits
- Lower economic damage in their production
- Increase use of IPM practices
- Consumers adjust aesthetic thresholds
- Increased tolerance of subeconomic pests
- More participation in marketing efforts

Measures

monitor cost-effectiveness of IPM adoption
govt. support or incentive programs increase (and participation)

Long Term Conditions Change

cost/benefit analyses include externalities
side-by-side comparisons on yield/quality
creation of demand for IPM brands by food processors with provided incentives to growers
New market access for certified farmers

This is a LOGIC model.

The National IPM Evaluation group is working with Ron Stinner at NC state to put up a website with drop down menus that would be a resource for program planning based on this model. Before that, they need to distribute the 16 logic models they have developed out for review. IPM Coordinators will be included in the review process. Ultimate goal is to be able to aggregate impacts. It's not enough to aggregate data if no one knows about it. We have to get this information about the impact of IPM to decision makers, funders, legislators, etc. We need people to take notice. Once impacts are made, they need to be publicized.

A good discussion on evaluation and measurement of impacts followed.

Al Fournier, John Palumbo, Peter Ellsworth (U AZ): Arizona's Spatially Explicit Measurement of Adoption of Cross-Commodity Guidelines. (See presentation PDF [could not be included because of file size])

Al Fournier provided some background information on the reorganization of UA IPM programs to better facilitate measurement of outcomes and impact.

John Palumbo described how whiteflies move across crops (cotton, vegetables & melons). A shared pest and shared pesticides. The cross-commodity guidelines were developed to help conserve the use of neonicotinoids across crops and slow the development of resistance. The growers and PCAs came to UA specialists, anticipating this problem, and came up with a game plan for addressing this issue. Came up with guidelines for 3 different cropping communities: cotton intensive, cotton-melon, and multi-crop (cotton-vegetable-melons).

Peter Ellsworth explained the spatial component of the whitefly guidelines and the methodology behind the research. Initial analysis indicates at least partial adoption of guidelines: cotton growers in multicrop system are using less neonicotinoid than those in the same area (Yuma) in a cotton-intensive system.

Dawn Gouge (U AZ): School IPM Update (see Presentation PDF [could not be included because of file size])

- National School IPM PMSP. This is underway: meeting in Nevada last Fall.
- Western School IPM Working Group – 9 out 13 Western states are involved; also collaborating with Southern School IPM Working Group. Activities: sharing of resources among those states working on school IPM; conducting an inventory of policy, laws, resources, education programs, etc. This provides a snapshot of current activities. The resource inventory will be put online by this group. Dawn asked the group to help her identify / help to recruit partners for a Western IPM in Schools working group effort.

- UA School IPM / Urban IPM Program - IPM in schools = a children's environmental health issue. Provided examples of unsafe and illegal pesticide use in schools, and impacts of pests and pesticides on children's health. The UA IPM in schools program has focused on an implementation program in the Phoenix area. Have documented reductions in pests and pesticides, and risks. Program focuses on pest exclusion, habitat modification, elimination of scheduled pesticide sprays, notification of parents, education of pest control operators.

Minutes – May 9, 2007

Bob Schlub: Guam Weed Guide Book – new, colorful excellent resource on agronomic weeds of Guam. Email bob to buy a copy (\$35). Each page (both sides) also works as a fact sheet. Funded by a TStar grant (earmarks for pacific basin and Caribbean region). **REPORTABLE OUTCOME.**

Carolyn Pickel (UC-IPM) Corporate Social Responsibility: Walmart and IPM (See Presentation PDF)

“Corporate Social Responsibility” (CSR) is a concept that focuses on sustainability. Focuses on the triple bottom line: financial, social and environmental. [Porter and Kramer 2006 – points of intersection, an important reference from Harvard Business Review.] Walmart believes that all farmers should be using sustainable practices and that it can be done for less money. Walmart farm guidelines: requirements for farmers to meet the program and sell to Walmart. A discussion ensued on all the companies and industries in the US that Walmart has destroyed. Linda Herbst indicated that a follow-up meeting is planned in DC Aug 1: Tom Green will bring together Sysco and Walmart and others together, to try to get a shared definition of “sustainable.” We talked about the Sysco guidelines and the fact that they are overly-detailed for the sake of grower / processor compliance. The Walmart guidelines are simplified by comparison. The point was made that IPM experts need to be involved in the dialog to move things to a more realistic middle ground.

Business Meeting

- Doug Walsh is current representative of this group to the WIPMC advisory committee and is looking for a replacement. **ACTION:** volunteers send an email to Peter and Linda.

Next/Future meetings /Chair & vice-chair election: (See proposed changes below)

- Frank Zalom is Chair for 2008 and will likely host the meeting CA next year. Possibly in conjunction with the ESA-PB meeting in March (where? Exact date?). Alternate choice is in Portland, hosted by Doug Walsh offsite from the ESA meeting. No farm tour if we do it in conjunction with ESA meeting. Doug is elected as vice-chair for 2008 and chair for 2009.
- Future meeting for WERA-069 in 2009: **MUST** be at Next IPM Symposium is Mar 24 in 2009.
- Diane: Vice Chair for 2009; meeting in Utah in 2010, when Diane will be Chair.

Post-Meeting discussion with Frank Zalom and others resulted in the following proposed leadership and meeting sites for the future. Members are encouraged to comment if they wish to propose alternatives:

2008 - Jahns (Chair), mtg site: Alaska; Doug Walsh (vice-chair)

2009 - Walsh (Chair), mtg site: Portland (in conjunction with IPM Symposium); Diane Alston (vice-chair)

2010 - Alston (Chair), mtg site: Logan?, UT; Vice-chair tbd.

Clarification: Who files the annual report for WERA-069? Should be the Chair's responsibility in conjunction with the vice-chair. **ACTION:** We will send information to participants, guidelines for how to provide information from their state reports. Participants will send information to Peter to organize and include in report.

State Reports

Alaska: Tom Jahns (*See PDF report*)

- Cooperative Extension System is in transition. Extension director has been reassigned and associate director was fired. New interim director with no Extension background is in place. Extension has been moved to the school of natural resources and ag sciences. This has been disruptive. But IPM program manager, Corleen Rose is effective and makes things work, does all reporting except for federal reporting.
- Alaska IPM has strong partnerships with US Forest Service, which funds the IPM Program Manager and 100% invasive weeds position and a 75% IPM pest scout based in Anchorage (university positions). These positions emphasize forest service needs but also include urban component.
- Also work through WPDN and others on gypsy moth trapping program. Found European gypsy moth in Fairbanks.
- 3(d) monies support 6 IPM Scouts throughout the state. (16 week positions.) They go through first-detector training. They become local IPM agents, functionally. They report to IPM Program Manager.
- NRCS EQIP program will fund 4 positions throughout Alaska to support EQIP activities, through Technical Service Providers program. Funds from NRCS go to the university to fund the positions. Focus is on nutrient management and pest management in agriculture. NRCS feedback on EQIP program: they want increased record keeping. Discussion ensued about different state relationships with NRCS and the potential for partnerships with university and extension. It is important to try to get on their state and local technical committee to represent IPM interests. There is also a source of funds from NRCS to train NRCS people ("TSPs").
- Late blight in Alaska has shown up 4 separate times. Potato growers are at risk. IPM monitoring program in effect, and has reduced fungicide use as a result of monitoring. They are exploring additional markets in Asia.

- IPM program with municipality of Anchorage. They are choosing less invasive types of plants as a result of IPM education. E.g., purple loosestrife is sold as an ornamental for years and have recently found escapes.
- IPM invasive weeds agent online. Partner with ARS experts for entomology and weed expertise.

America Samoa: Fred Brooks (*see Presentation PDF*)

- 2 people working on IPM.
- New insect pest: erythrina gall wasp. Discovered in Dec 2005. Defoliates coral trees. Did a delimitation survey of the island where it was found. Initiated a containment effort, but it spread to outer islands. Did Pest Alert.
- Seychelles scale. Damages breadfruit, brings black sooty mold. They have been using a naturalized *Rodolia*...
- Melon Aphid on cucumbers. Did efficacy work on a number of products. A product called Fulfill (pymetrozine) was effective and affordable.
- Mosquito research (*Aedes polynesiensis*) vectors dengue and filariasis; breed in containers. They have been working on developing effective traps (publication forthcoming) and control strategies, primarily source reduction. 93% of vectors come from 6 types of containers.
- Black leaf streak (sigatoka). A fungal disease of banana, currently controlled with biweekly spraying. Applicators are not well-protected. (Bob pointed out that this disease occurs in Guam, but is much more mild. A benefit of this group's dialog is appreciating these differences.) BLS-resistant hybrids were introduced, with better quality and taste, but it has been tough to get growers to adopt these.
- Taro evaluation program. Taro was devastated by phytophthora leaf blight in mid 90s. Fred is looking at improving genetic diversity of the crop, including bioassays for resistance and field trials and taste tests to determine the best varieties (for taste and resistance).

California: Carolyn Pickel

- UCIPM Project underwent an external review. UC ANR Program Council requires a strategic plan before any review. UCIPM hired an outside agency to help develop a strategic plan. From this, they have decided they need to develop urban and natural resources areas. Panel developed a very positive review and provided 56 recommendations that they are working on implementing. But they have to do what they can without additional resources. The leadership team consists of 3 associate directors and a senior management person. Associate Directors primarily coordinate activities among the "units" and ensure consistency in publication. Carolyn Pickel is Associate Director for IPM in Ag ; Mary Louise Flint, AD for urban IPM, will be expanding urban IPM program (they have done urban surveys) – still looking for funding sources; Joyce F. Strand is AD for communications: writer and web folks. Strategic planning process is continuing ("the IPM Compass."). Peter asked if the panel report could be made available to this group.

- Pete Goodell is interim director for IPM. Tim Paine, Program Leader for Agricultural Policy and Pest Management Programs is heading up the search for a new director. They are negotiating to make the position as attractive as possible.
- They have revised their website to help NRCS to train people. UC pest management guidelines online are linked to information for NRCS use. Monitoring guides are based on season: year-round plans. Also they have annual checklists of primary pests by crop. This can be passed on to NRCS or other certification agencies to document grower practices.
- They expect they will be evaluating who is using year-round plans and how to improve them, etc.
- Earmarked funds for Exotic and Invasive Species Research Program were curtailed in the next fiscal year. Funds for Pierce's Disease Research will continue.

Guam

- Weed book report (above) is the update.

Idaho: Ed Bechinsky

- Focus on one aspect of program: how they are documenting IPM program outcomes. 15 year ago, decided to conduct periodic surveys of key industries (about every 5 years). Baseline data in 1992. Did a 1998 progress survey and another in 2006. Followed the Dillman method. Funded through 3(d) dollars as well as USDA, water quality grants, etc. Now have 3 survey points ('92, '98, '06) for potato growers, for example, measuring changes in practices, etc (report provided to the group). They notice changes in the most important pests. He has also noted differences between grower survey data and PMSPs. ACTION SUGGESTION: proposal to WIPMC that would be a joint effort between a few Western states to conduct a number of surveys with shared resources, to lower the cost for all states. Tom suggested also developing a template that would be useful for other states. A discussion about survey methods and benefits ensued.

Oregon: Ed Peachy (weed scientist perspective)

- Ed's first time to participate in WERA-069
- Furidan misuse in Eastern Oregon in onions for thrips has had regulatory implications for several western states. Bob: problem in Guam is with Chinese farmers finding another source for pesticides and not getting certified.
- Canola may be introduced into W. Oregon for biodiesel production, as a rotational crop. May have a negative impact on Specialty seed group in Oregon.
- Research projects: 12-spot model using spatial and temporal model for snap beans. White mold control research. Puncture vine moving into ag fields, are looking at biological control using weevils. This is a big education issue, to prevent the spread from moving of farm equipment.
- Paul Jepson, Oregon IPM Coordinator has many projects. Beetle bank project in W. Oregon to improve predator populations for various crops, market gardens.
- Ed has a project monitoring insect seed predation by carabid beetles.
- Organic economic assessment to examine cost of transition to organic crops.

Utah: Diane Alston, state coordinator (15%) (*see Presentation PDF*)

- Hired IPM Project Leader (100%) Marion Murray
- Cooperators include extension and research faculty (several disciplines) and county agents
- Four recent foci:
 1. Pest advisory service includes access to weather data and pest model. Focus is ornamental horticulture & tree fruits, primarily. (Provided examples of advisories; very nicely done). Marion is also working on automated weather station data, to make this available online for growers, including pest models.
 2. Generation of education materials. New IPM Website: utahpests.usu.edu, click on IPM. Includes links to fact sheets, photo gallery, FAQs, etc. Japanese Beetle discovered in Utah this year. Developed a new fact sheet on this. JB was discovered by a trained master gardener. The state PDN got involved and facilitated a quick response. Utah pest newsletter is new. Bob suggested that the WIPMC might host a photo database for the western region.
 3. Training includes workshops, pesticide recertification, master gardeners, NRCS EQIP program, etc.
 4. Mini-grants program is also on the website. They do cost-sharing with the Utah Sustainable Agriculture Program (WSARE) to leverage the IPM mini-grants program.

Washington: Doug Walsh

- Doug shared an IPM annual report with the group.
- Washington State Commission on Pesticide Registration helps to fund IPM efforts. Also a report to the legislature on the impact of this funding source was shared with the group.
- Can fund through the State Commission Pesticide Registration. They now have \$875,000 of additional funding for IPM in a State IPM grants program: commodity groups or individual growers actually submit grants (often written by specialists). The emphasis is on applied research. State general fund dollars support the program (tax funds). The Ag Research Center distributes the money. About 75% of funds end up going to WSU researchers, 15% to ARS.
- 2 WSU people participated in beef cattle PMSP, and now WSU has conducted a survey or Washington ranchers pest management practices. They have done pesticide efficacy studies and are monitoring dung beetles. Just got a PMAP grant to study other beef cattle issues.

Western IPM Center: Linda Herbst

- RIPM competitive grants update: 7 project funded for 665k. 4 research only; 3 research and extension. ZERO extension projects funded.
- Report abbreviated due to time constraints.

Arizona: Al Fournier (refer to Gouge Presentation and Fournier/Palumbo/Ellsworth Presentation PDF)

- We are planning for a “desert cotton” PMSP; our meeting will be May 24 in Maricopa. This is being done in conjunction with an update of the California cotton PMSP headed up by Pete Goodell (meeting May 22 in Fresno).
- Dawn Gouge and Al Fournier are involved in a national school IPM PMSP, an idea originated in the west, headed up by Tom Green of the IPM Institute.
- We have an internal IPM grants program at UA, making the balance of 3(d) monies available for various IPM-related projects. 3(d) funds also pay 50% of Al Fournier’s salary. Complete proposals and reports for the past 3 years can be found on the IPM Projects page of the APMC web site (cals.arizona.edu/apmc)
- Report abbreviated due to time constraints.

Carolyn Pickel (UC-IPM) & Tom Jahns (U of Alaska): Discussion on Impact of EQIP on IPM

This was incorporated into state reports.

Actions:

- Peter will send a note to prompt people to send info for the federal report;
- Also, ideas for nomination of a WERA representative to the WIPMC advisory committee;
- And to solicit agenda items and other mtg ideas for next year.

Meeting adjourned at 12 noon.

The following supplementary information is below:

- Communication prior to meeting
- Meeting Agenda
- Presentation Powerpoints and other State Report documents (some referred to above had to be left out because of file size limitations (1MB)).

WERA-069 and WERA-060 Participants:

Our joint annual meeting is less than 1 week away. We look forward to your participation in Phoenix, 7-9 May. Below is valuable information you might find useful as you prepare for your trip. Contact me ASAP if your plans have changed or if there are others wishing to signup and attend. A full agenda will follow later today.

Peter
Chair, WERA-069

ATTENTION: Individuals with specific dietary requirements.
Please reply to me ASAP if you have specific needs or wish to have the vegetarian option for the Monday lunch.

ATTENTION: All WERA-060 meeting participants, (including non-members)
Please prepare for the meeting and:

- identify pesticide resistance issues to share with the group. As part of this discussion we will consider whether these issues are suitable topics for the committee to address through outreach activities.
- prepare research reports (informal or Powerpoint) on anything you wish to share with the group. Bring handouts, reprints, etc.
- look at the previous proposal which is attached, especially if you are interested in being a committee member.

Meg McGrath, WERA-060 Chair

GRACE INN

For those arriving by **AIR** at Phoenix, the Grace Inn provides a free shuttle from Sky Harbor Airport between 6 am and 10 pm. Instructions for shuttle service:

1. Pick up your luggage first.
2. Call Grace Inn at 480-893-3000. They will provide you with pick-up information and where to meet.
3. Grace Inn is only about 15 minutes from the Airport. They promise a prompt pick-up.

Their Address:

10831 S. 51st Street
Phoenix AZ 85044
480.893.3000
reservations@graceinn.com

If driving by CAR,

Directions: From Sky Harbor International Airport:
Take I-10 south (toward Tucson) (13 miles)
Take Exit 157, Elliot Road; turn Right on Elliot (0.2 miles)
Turn Left at S. 51st Street.

Directions from Tucson:

Take I-10 North (toward Phoenix) (100.5 miles)
Take Exit 157, Elliot Road; turn Left on Elliot (0.2 miles)
Turn Left at S. 51st Street.

Weather

Expect sunny conditions each day, highs in the high 80's and low's in the low 60's. Conditions will be very dry, so temperatures will be quite comfortable. However, we have very intense solar conditions. Hats and skin protection is recommended.

For a local forecast, consult:

<http://www.wrh.noaa.gov/forecast/MapClick.php?site=psr&smap=1&textField1=33.30528&textField2=-111.945>

TOUR OPTION #1

Native American Farm- See participant list at bottom

This tour will encompass a detailed discussion and tour of the Gila River Community Farm about 30 minutes drive south of our hotel location.

The Gila River Indian Community (GRIC) traces its roots to the Hohokam, prehistoric Indians who lived and farmed along the Gila River Basin centuries ago. Composed of two members of tribes, the Pima and Maricopas, GRIC is located in south-central Arizona. The 372,000 acre reservation, which lies south of Phoenix, Tempe and Chandler, was established by an act of Congress in 1859 and formally established by Constitution in 1939. In addition to emphasizing industry, business and recreational opportunities, the Community continues to depend upon agriculture to grow its economy. 15,000 acres of Community farms on the GRIC support a variety of crops such as cotton, wheat, millet, alfalfa, barley, melons, pistachios, olives, citrus, and vegetables. Independent farming operations cultivate an additional 22,000 acres of similar crops, bringing the total agricultural product value to an excess of \$25 million.

We will visit with Farm Manager, Bobby Stone, and if available, their pest control advisor (PCA), Mr. Jim Kirkpatrick. We will have an opportunity to view cotton (recently planted), alfalfa (for forage production), citrus (grapefruit, Valencia oranges, etc.), small grains (e.g., wheat nearing maturity), and melons. We will discuss the constraints to farming from the standpoint of a large grower in the desert southwest and the impact that this operation has on the Native American community. We will hear about their successes and their less than successful ventures (e.g., olive production).

This tour will depart from the Grace Inn at 8am (sharp!). We'll arrive at our destination about 30 minutes later. While mornings are still cool and comfortable, it will be important that people come prepared and protected from the sun as it will warm up quickly by late morning. Be prepared to walk in agricultural fields. We'll have water on hand, but please bring your own hats, sunglasses, sunscreen, etc. The tour will end around 11:30a and we'll proceed to have lunch (at your cost) at the The Gila River Arts and Crafts Center.

We will return to the Grace Inn by 1:45p.

Van Driver: Virginia Barkley (UA, Research Specialist); Tour Leader: Bobby Stone (Manager, GRIC Farms); WERA Contact: Dr. Al Fournier (UA, IPM Program Manager / Assoc. Director APMC)

[Barkley (UA), Brooks (Am.Samoa), Fournier (UA), Gouge (UA), Pickel (UC-Davis), Siegfried (UNeb), Snyder (UA)]

**TOUR OPTION #2 - See participant list at bottom
Vegetable Production**

This tour will encompass a field tour, site visit and discussion at local carrot fields and the carrot packing plant of a major vegetable producer in the Phoenix area about 30 minutes drive west of our hotel location, passing through downtown Phoenix. Time permitting, we will also visit melon production fields as well as a very unique field-grown rose production area.

Rousseau Farming Company was founded in 1980 by a 4th generation Arizona family and has its headquarters in Tolleson, Arizona. The Rousseau family has deep roots in the Salt River Valley , dating back to 1892 on their father's side and all the way back to 1878 on their mother's. The family started in agriculture in cattle, then expanded to cotton, hay and corn in 1979 and finally transitioned to vegetables in 1980. Rousseau grows, packs and ships fresh cut carrots, broccoli, and a variety of other winter vegetables on 4,309 acres in three areas around Phoenix, AZ. Their total acreage is 9,000 acres, 600 of which produce organic vegetables. They are a major employer in Tolleson, Arizona, a suburb of Phoenix , and are the third largest private employer; they currently employ 400. Brothers Will and David Rousseau were educated locally and graduated from the University of Arizona

Rousseau Farming Company is regarded in the industry as a legendary "urban farmer." They farm on 10-12 tracts of 40+ acres on a 12-mile arc around the southwest edge of residential Phoenix . To maintain good relations with their suburban neighbors, they schedule their movement of heavy equipment to weekends rather than Monday-Friday rush hour periods. Rousseau Farming is committed to staying close to their ever expanding home market.

Lin Evans (local independent pest control advisor, Lin Evans Enterprises) and Dr. John Palumbo (UA, Vegetable Research Scientist) will be leading the tour, which will focus on carrot production, harvest and packaging as well as stops at local melon fields and a unique field rose production area (time permitting). Pest management in these and other crops will be the focus of discussions, as well as the unique "urban" farming role filled by this operation and the opportunities and constraints this provides.

This tour will depart from the Grace Inn at 8a (sharp!). Be prepared for warm weather, bringing your own hats, sunglasses, sunscreen, etc. Wear clothing and footwear

appropriate for visiting agricultural fields. Water will be available. The tour will conclude around 11:30a and proceed to a local dining establishment for lunch (at your cost). We will return to the Grace Inn by 1:45p.

Van Driver: Dr. Tim Dennehy (UA, Extension Specialist & Professor of Entomology);
Tour Leader: Lin Evans (PCA, Lin Evans Enterprises); WERA Contact: Dr. John Palumbo (UA, Vegetable Research Scientist / Co-Director APMC).

[Alston (USU), Bechinski (UI), Dennehy (UA), Hahns (UAK), Holtzer (CSU), McGrath (Cornell), Palumbo (UA)]

**TOUR OPTION #3 - See participant list at bottom
"New" Crops**

This tour will focus on several crops that are in development for production in the desert southwest on the UA's largest research and extension center, 30 minutes drive south of our hotel location.

We will visit Mike Sheedy (UA, Research Specialist) in a driving tour of the research and demonstration farm including stops at hesperaloe (renewable, fine fiber source), lesquerella (caster bean oil replacement), and tepary bean (Native American bean) production fields. In addition, we will see guayule (for hypoallergenic latex and rubber replacement) both in production fields and in the world's first pilot processing plant, guided by Tony Nocera (VP of Manufacturing, YULEX Corp.). In addition to the considerable production and marketing challenges of developing a new crop, we will touch upon some of the pest constraints and pest management research that is underway.

This tour will depart from the Grace Inn at 8a (sharp!). Be prepared for warm weather, bringing your own hats, sunglasses, sunscreen, etc. Wear clothing and footwear appropriate for visiting agricultural fields. Water will be available. The tour will conclude around 11:30a and proceed to a local dining establishment for lunch (at your cost).

Van Driver & Tour Guide: Mike Sheedy (UA, Research Specialist); Tour Leaders: Mike Sheedy & Tony Nocera (YULEX Corp.); WERA Contact: Dr. Peter Ellsworth (UA, IPM Specialist & State IPM Coordinator / Co-Director APMC).

[Ellsworth (UA), Herbst (UC-Davis), Hodgson (USU), Murray (USU), Schlub (UGuam), Walsh (WSU), Sims (UA), Sheedy (UA)]

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Peter C. Ellsworth, Ph.D.
Full Specialist & IPM Coordinator
University of Arizona & Arizona Pest Management Center
Department of Entomology, Maricopa Agricultural Center
37860 W. Smith-Enke Road
Maricopa, AZ 85239
peterell@ag.arizona.edu
Tel: 520-381-2225; FAX: 520-568-2556

Joint Meeting of WERA-060 (Resistance) & WERA-069 (IPM)

7-9 May 2007
Grace Inn, Phoenix, AZ

Agenda (all times approximate)

I. WERA-060 (7 May, 8a – 5p) (Lunch provided at noon), Meg McGrath, Chair

- a. Welcome & Introductions
- b. National Program Leader for Plant Pathology,
Marty Draper
- c. Select secretary for this meeting
- d. Review and modify agenda as needed
- e. Administrative Advisor report by Thomas Holtzer
- f. Discuss pesticide resistance issues (all attendees
requested to contribute to this informal discussion).
Identify possible committee outreach activities.
- g. Research presentations
- h. Discuss WERA-060 Renewal Application and
committee goals

Begin editing proposal. Select writing committee to
complete.
- i. Select chair and vice-chair for 2008
- j. Make preliminary plans for meetings in 2008 and
beyond

II. Joint WERA-060 & WERA-069 mixer (7 May, 5 – 7p)

III. Field Tours (8 May, 8a – 1:45p) (Lunch during the tours at area restaurants)

- a. Native American Farm (Tour #1); Vegetable
Production (Tour #2); “New” Crops (Tour #3):
Check to see which tour your were assigned.

IV. WERA-069 (8 May, 2 – 5p), Peter Ellsworth, Chair

- a. Welcome & Introductions (2 – 2:15p)
- b. National IPM Evaluation Effort, “Moving from Regional Priorities to Programs” - Bill Coli (UMASS) (2:15 – 3:15p)
- c. Arizona’s Spatially-Explicit Measurement of Adoption of Cross-Commodity Guidelines – Al Fournier, John Palumbo, Peter Ellsworth (UA) (3:15 – 3:45p)
- d. “Corporate Social Responsibility”, Walmart, and IPM – Carolyn Pickel (UC-IPM) (3:45 – 4:15p)
- e. School IPM Update: Pest Management Strategic Plan, Western School IPM Working Group, and the Arizona School IPM Program – Dawn Gouge (UA) (4:15 – 4:45p)
- f. Discussion (4:45 – 5:00p)
- g. Dinner on own; There are many local dinner options including some within walking distance as well as a many others that are across the freeway.

V. WERA-069 (9 May, 8 – Noon)

- a. Guam Weed Guide Book / CD – Bob Schlub (UGuam) (8 – 8:15a)
- b. Discussion: Impact of EQIP on IPM [Carolyn Pickel (UC-IPM) & Tom Jahns (UAlaska)] (8:15 – 9a)
- c. State Reports (9 – 11a)
- d. Discussion & Future Plans (11 – Noon)

VI. ADJOURN (Noon)



A Food Company's Perspective on Retail Trends in Sustainability

Crossovers Workshop
January 17, 2007

Sustainability Defined

Definition (Brundtland 1987)

"Sustainable development is development that meets the needs of the present without compromising the needs of future generations . . ."

or as the Native American proverb states . . .

"We do not inherit the earth from our Ancestors, we borrow it from our Children."

or as our grandfathers used to say . . .

"Don't eat the seed corn."



Context – Driver

Tragedy of the Commons (Hardin 1968)

- Unrestricted demand for a finite resource ultimately dooms the resource to overexploitation.
- The positives accrue to the abuser, the negatives accrue to all the users.
- Resources (commons) in agriculture
 - Water
 - Air
 - Soil
 - Ecosystems
 - Workforce
 - Good will

Context - Response

Corporate Social Responsibility (CSR)

- “Triple bottom line” or 3BL – financial, social, and environmental
- Managing according to the role of business in society
- Business seen as an integral part of society, not an isolated operation

Prevailing Justifications

- Moral obligation
- Sustainability
- License to operate
- Reputation

Context – Response *continued*

CSR - Criticism

- Milton Friedman (1970) – “The Social Responsibility of Business is to Increase its Profits”
- “Enlightened Pandering” – Companies aren’t true believers, they are still bottom-line driven and just protecting against poor publicity.

Solution? (Porter and Kramer 2006*) – Points of Intersection

- Interdependence between a company and society implies that business decisions and social policy must follow the principle of shared value.

* Porter, M.E. and M.R. Kramer. 2006. *Strategy & Society*. Harvard Business Review, Dec 2006

Sustainable Agriculture

Points of Intersection for Food Processors and Buyers

- Protected resources, e.g., soil, water, energy, ecosystem
- Supportive community
- Economically successful farmers

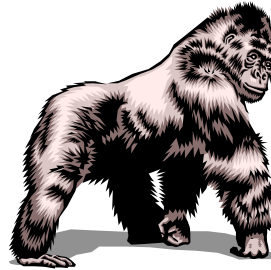
According to Porter and Kramer, a failure to sustain these social values leads to loss of competitiveness.

Sustainable Agriculture

Another solution (with a little mixing of metaphors)

When the 600 lb gorilla says “Jump!”, you say “How high?”

- SYSCO
- Wal*Mart
- Whole Foods
- Starbucks



Sustainable Agriculture Requirements

SYSCO – Farm standards (31 pp)

- Biosolids – do not use
- **GMOs – do not use**
- **Pesticides – record use**
- **Nutrients – record use**
- **Sensitive areas – map and protect**
- Soil – prevent erosion and protect quality
- Water – conserve and protect quality
- Energy – conserve
- Waste – reuse and recycle
- Employees – engage, reward and train
- **IPM – implement strategies**

Wal*Mart – Farm Guidelines (8 pp)

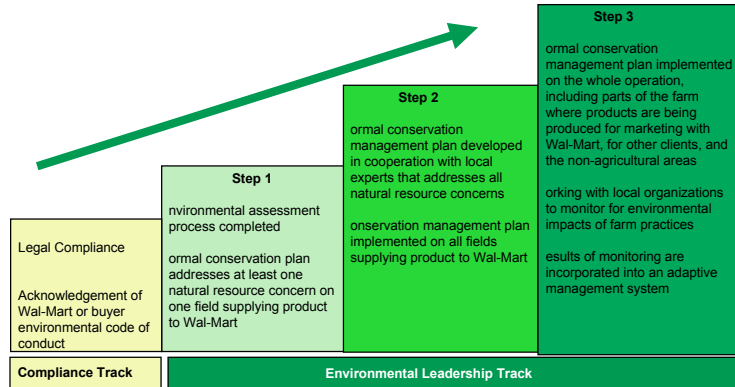
- Maximize water use efficiency and prevent pollution
- Utilize practices that control or enhance soil structure and fertility
- **Utilize production systems that maintain and enhance biological diversity, wildlife habitat, and ecosystem functions**
- **Maximize reliance on natural, renewable manufacturing inputs and responsibly use chemicals**
- Develop and deliver responsible water and land use training
- Develop and deploy metrics and data collection tools to track performance
- Contribute to the conservation of prime agricultural lands



Sustainable Agriculture

Wal*Mart's Two Performance Tracks

- Compliance
- Environmental Leadership



Sustainable Agriculture

Questions for consideration:

1. Can a buyer reasonably ask a grower for proprietary business information and should the grower provide it? Does this fundamentally change our relationship?
2. What sort of infrastructure will we need to accomplish sustainability goals? What's the strategy for getting there?
3. If growers and buyers pursue sustainable management systems, what additional costs will we incur? What benefits will we reap?
4. Can we reasonably identify all the tradeoffs?
5. Ultimately, will we be more or less competitive on a global scale?

Narrative: FY 2006 Alaska IPM Program Overview
Alaska PI - Dr. Thomas R. Jahns

Since 1981, the Alaska Integrated Pest Management Program (AKIPMP) has been recognized as the premiere educational outreach program of the University of Alaska Fairbanks, Cooperative Extension Service (UAF-CES). This unique statewide, value-added program is a cooperatively funded effort, combining the primary resources of UAF-CES, the USDA/CSREES IPM Program, and the US Forest Service Region 10 Forest Health Program with secondary funding coming from the Alaska Division of Agriculture (Gypsy Moth Trapping) and the USDA/CSREES Western Plant Diagnostics Network (WPDN).

At the forefront of the AKIPMP are six seasonal (16 week) IPM Technicians, placed within strategic urban and rural centers across the state. These CSREES funded positions are the foundation upon which the entire IPM outreach program is based. Supporting this seasonal outreach team is our IPM Program Manager, one full-time 'invasive plants' faculty member and one full time IPM staff member. Under the supervision of a faculty IPM oversight committee, these combined faculty and staff form an experienced IPM team responsive to a diverse audience, which includes urban and rural residents, educators, youth groups, community agencies, agricultural and horticultural producers, garden clubs, municipalities and the green industry.

Services Provided by AKIPMP Technicians include: Evaluation of plant, insect and disease disorders, including field-based tree and plant health issues, identification of insect, plant and disease specimens, researching information about pest biology & lifecycles, and the utilization of data for the recommendation of IPM control options. AKIPMP Technicians are state certified pest consultants that may advise the public on pesticide information and recommendations. IPM Technicians provide daily assistance, about the least-toxic and most effective, control options. This free assistance is research-based; and the public seeks out the IPM Program as an unbiased and reliable source of information. Over the 16 week IPM Season in 2006, over 2,000 insect, plant, and disease specimens were identified, statewide.

Program outreach methods include telephone, mail, email, and direct in-office (walk-in) and field-visit contacts with clientele. IPM educational programs, in the class and field, are provided to children and adults. Media contacts are made via television, radio, the internet, and in newspapers and newsletters. IPM publications are mailed, handed out, and distributed at public events, including state and regional conferences, workshops and fairs. Educational clinics and classes are advertised and held where clients receive direct assistance.

The AKIPMP team raises the pest management awareness level of more than 14,000 Alaskans and tourists, annually. Adhering to the principles of the National IPM Road Map, this program supports a least toxic, most effective, economically sound and environmentally responsible approach to pest control by offering clientele a wide range of pest management alternatives. The AKIPMP Technicians are trained through the WPDN to serve as proactive, first detectors through the performance of daily monitoring, trapping and educational outreach to help prevent destructive, imported pests from becoming established in Alaska's forests.

IPM 2006 American Samoa



Mark Schmaedick
Entomologist

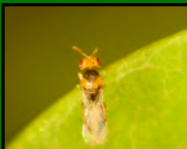


Fred Brooks
Plant Pathologist

IPM 2006 American Samoa

- New pests: erythrina gall wasp
- Biological control: Seychelles scale
- Reduced-risk pesticides: melon aphid
- Vector mosquito management
- Disease resistant bananas promotion
- Disease resistant taro evaluation program

Erythrina Gall Wasp



- Discovered, identified, and completed delimitation survey
- Pest alert: informed residents and nearby islands
- Containment efforts
- Wasp spread to all major islands in < 1 yr
- Little damage to some *Erythrina* spp.

Seychelles Scale



Icerya seychellarum

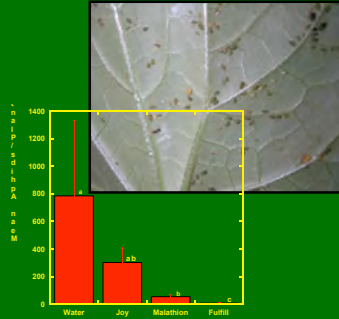


Rodolia limbata

- Severe damage to breadfruit after accidental introduction
- Trees grow throughout villages; reduced-risk insecticides expensive or ineffective
- *Rodolia* sp. effective elsewhere may be introduced

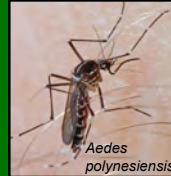


Reduced-risk insecticides: melon aphid on cucumbers



- Early season control can be critical
- If conserved early, natural enemies may be sufficient in later crop stages on virus-resistant cultivars
- Need for affordable narrow-spectrum insecticide for early season outbreaks

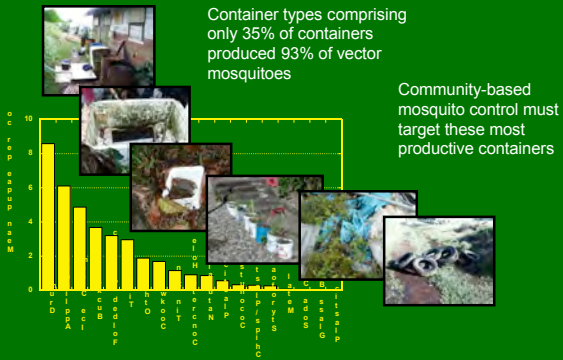
Disease prevention by targeted vector source reduction



- Dengue and filariasis vectors are container breeders, but water-holding containers abound
- Research identified productive and unproductive container types



Targeted vector source reduction



Container types comprising only 35% of containers produced 93% of vector mosquitoes

Community-based mosquito control must target these most productive containers

Black Leaf Streak (Sigatoka)



- Almost all fungicide use
- Bi-weekly spray
- Applicator safety
- Groundwater contamination
- Labeling restrictions
- Cost



BLS-Resistant Hybrids

- FHIA (old United Fruit Co.)
 - No fungicides
 - Heavy yields
 - Improved eating qualities
 - Nematode resistance/tolerance
 - USDA School Lunch Program
-
- BUT . . . "It's not like 'Williams!'"



Taro Evaluation Program

- Genetic diversity
- Taro leaf blight disease
- 40 hybrids multiplied *in vitro*
- Bioassay for resistance
- Field trials



Taro Evaluation Program



Early problems



Success in the field



Harvested over 30 hybrids



Taste tests select 10

END

Utah IPM Program

- Personnel
 - State Coordinator (15%): Diane Alston
 - Extension IPM Project Leader (100%): Marion Murray
- Cooperators (USU):
 - Extension and research faculty:
 - Entomology, Plant Pathology, Pesticide Education & Safety, Horticulture (Fruits, Veggies, Ornamentals, Turf)
 - County Extension Agents

Utah IPM Program

1. Pest Advisory Service & Access to weather data and pest models
2. Educational materials
3. Training
4. Mini-Grant Program

Pest Advisory Service



Tree Fruit IPM Advisory

The screenshot shows the "Tree Fruit IPM Advisory" website. It includes several sections:

- Upcoming Monitoring/Scout Activity:** A table listing activities for various crops and regions.
- Degree Day Accumulations:** A table showing degree day accumulations for different crops and regions.
- Phenological Stages:** A table listing stages for various crops.
- Scout Activity:** A section with text and images describing scout activity.
- Ornamental Activity:** A section with text and images describing ornamental activity.

Crop	Region	Activity
Apples	Utah	Scout for apple maggot
Cherries	Utah	Scout for cherry weevil
Peaches	Utah	Scout for peach weevil
Pistachios	Utah	Scout for pistachio weevil
Walnuts	Utah	Scout for walnut weevil
Plums	Utah	Scout for plum weevil
Prunellas	Utah	Scout for prunella weevil
Apricots	Utah	Scout for apricot weevil
Almonds	Utah	Scout for almond weevil

Tree Fruit IPM Advisory

Woody Ornamental IPM Advisory

Weather Station Data (Automated)

Station	Date	Temp	Humidity	Wind	Wind Dir	Wind Spd	Wind Gust
Utah State	4/29/15	55	65	1.0	10	1.0	1.0
Logan	4/29/15	55	65	1.0	10	1.0	1.0
Provo	4/29/15	55	65	1.0	10	1.0	1.0

We have plans to add access to pest models

Weather Station Data

Date	Air Temp	Soil Temp	Soil Depth	Soil Moisture	Soil Salinity	Wind	Wind Dir	Wind Spd	Wind Gust	Rain	Snow	Snow Depth
4/29/15	47.3	39.8	30	30	0.0	0	0	0	0	0	0	
4/29/15	50.7	42.3	30	30	0.0	0	0	0	0	0	0	
4/29/15	50.4	41.4	30	30	0.0	0	0	0	0	0	0	

Educational Materials



Utah Pests News



IPM Training

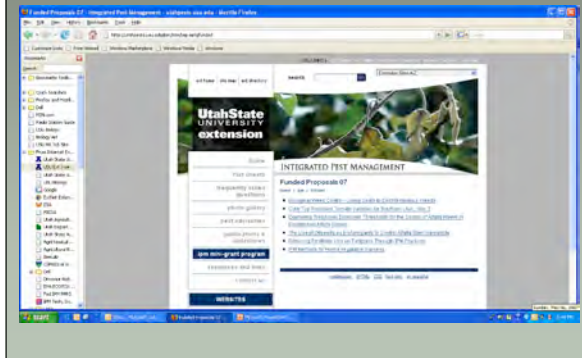
- Examples of workshops:
 - USU County Agent In-Service
 - Pesticide Recertification
 - Master Gardener
 - Federal/State Agencies
 - NRCS EQUIP for Orchards
 - Commercial Agriculture and Green Industries

Utah IPM Mini-Grant Program



Partner and cost-share with Utah Sustainable Agriculture Program (WSARE)
 USU County Extension Agents are primary grant recipients

Utah IPM Mini-Grant Program



Utah IPM Program is Integrated with "Utah Pests"

