

The 1080 Pesticide Use Reporting Database: A Tool for Research and Extension Program Evaluation and Improvement 2007 IPM Proposal

Project Leader: Al Fournier (Arizona Pest Management Center / Maricopa Agricultural Center)

Project Team Members: Peter Ellsworth (Maricopa Agricultural Center / Entomology), John Palumbo (Yuma Agricultural Center / Entomology), Yves Carriere (Entomology), Bruce Tabashnik (Entomology), Rob Leonard (Plant Science and Plant Pathology), Jeff Silvertooth (Soil, Water & Environmental Science), Randy Norton (Director, Safford Ag. Center), Erin Taylor (Maricopa, Pinal and Pima County acting Ag Agent), Steve Manheimer (Arizona-National Agricultural Statistics Service), Jack Peterson (Arizona Dept. of Agriculture), Gary Christian (Arizona Dept. of Agriculture), Becky Papp (Maricopa Agricultural Center)

Location: Statewide effort, with impact on campus, county, and experiment station personnel.

Situation and Need

In years past, a Cooperative Agreement between the College of Agriculture and Life Sciences (CALs) and the Arizona office of the National Agricultural Statistics Service (AZ-NASS) provided a mechanism for a Federal-State partnership that allowed both organizations to share resources, avoid duplicative efforts, establish a state-specific statistical program and provide better products and services to our Arizona clientele. This agreement covered printing costs for the annual Arizona Agricultural Statistics Bulletin and provided support for a technical position (Senior Office Assistant) at AZ-NASS responsible for, among other things, maintaining and providing access to the 1080 pesticide use reporting (PUR) database. This database is compiled from agricultural pesticide reporting forms that commercial applicators in Arizona are legally required to submit to ADA for all pesticide applications (including aerial applications) and required use reporting by private applicators for pesticide applications involving pesticides on Arizona's groundwater protection list. These data are extremely useful to CALs research and extension personnel and our statewide and county outreach programs, particularly for measuring the impact of agricultural extension programs and adoption of Integrated Pest Management, as well as to regulators, policy makers, politicians, commodity and environmental organizations, and the agrochemical industry.

Budget cuts implemented in the 2002-03 fiscal year at CALs resulted in a drastic reduction in the Cooperative Agreement, reducing it to approximately \$5,000 per year to support printing of the annual Arizona Agricultural Statistics Bulletin. Since that time, the Senior Office Specialist position at AZ-NASS has been funded through federal grants and reimbursable projects that put other demands on this position, are ephemeral in nature (i.e., year-to-year) and are now threatened by this unstable arrangement. A stable source of funds (about \$32k/year) is necessary to continue support for this position, to provide data entry, analysis, survey work and related functions to service CALs ongoing research and outreach needs related to agriculture. Although AZ-NASS Director Steve Manheimer continues to seek external support for this position, we believe that a re-establishment of the CALs-NASS relationship, including partial support for this position, would yield great benefits to CALs agricultural extension faculty and programs, and to statewide and county-based outreach programs. A 2006 IPM proposal demonstrated the many benefits of a renewed relationship, as summarized in the attached report. Through this proposal, we are seeking a continuation of IPM funding to support this important partnership.

Relevance to Priorities

This project specifically addresses the Arizona Pest Management Center (APMC) priority of developing measures and indicators of IPM program adoption and impact, which is also a national and regional IPM priority. IPM assessment is a major focal area of the APMC. The APMC provides coordination and resources to enhance the effectiveness and efficiency of extension pest management programs statewide, by supporting strategic planning, needs assessment, program evaluation, and resource development within and across all programs. As part of this charge, the IPM Program Manager (Al Fournier) is responsible for developing means to measure and document IPM program adoption and impact. He also coordinates responses to federal information requests regarding pesticide use patterns and pest management needs of stakeholders statewide. The 1080 database and other statistical services offered by AZ-NASS are vital to accomplishing these goals. ***This database provides an objective and quantitative tool for measuring pest management practices and pesticide use patterns in agricultural crops statewide. When integrated with GIS maps available through commodity groups, these data have enormous potential: to measure adoption of extension pest management recommendations (and IPM specifically) across multiple crops; respond quickly and accurately to federal information requests; and to help identify and prioritize critical pest management needs of stakeholders statewide.*** These data also form the core set of information so important in developing educational outreach programs that reach hundreds of growers and applicators, with the potential to impact thousands of homeowners and other citizens around the state.

Outputs

Activities: The funds provided will help to stabilize a position at AZ-NASS that will maintain the 1080 database (see impacts), perform queries and interface with CALS research and extension personnel statewide to provide ag statistics related services (surveys, etc.). As IPM Program Manager, Al Fournier will coordinate with AZ-NASS and ensure faculty access to these services.

Products: Ready access to the 1080 database for CALS research and extension faculty; plus “at cost” survey consulting, sampling, implementation and analysis.

Participation: Although many functions of this position occur “behind the scenes,” data provided will be used to measure and document program impacts, identify stakeholder needs, and communicate with state and federal agencies on pesticide use patterns and program adoption. End users include statewide Extension personnel, other CALS faculty, department heads and administrators, federal agencies, stakeholder groups and other citizens around the state concerned about pesticide use.

Expected Outcomes and Impacts

Short-term: These funds will help to stabilize the cooperative relationship between CALS and AZ-NASS, ensure continued entry of and access to 1080 data, sampling and survey services, and data analysis “at cost” for CALS faculty.

Medium-term: The data services provided to CALS and the Arizona Pest Management Center (APMC) will increase our ability to measure program impacts, including adoption of IPM; increase the quality of our responses to federal requests for pesticide use data; and help us to identify priority pest management needs of stakeholders and increase the quality and relevance of our outreach and other educational programs for the citizens of Arizona.

Long-term: By improving measurement and documentation of program impacts, we expect to increase our ability to obtain extramural funding for IPM and related programs. Through identification of priority pest management needs, we will better direct UA-CALS pest management programs to meet the needs of stakeholders statewide. With increased access to pesticide use data, we will support our

clientele through better support for the registration process (e.g., Section 18s and 24c) and for EPA inquiries regarding re-registrations of key active ingredients in the state of Arizona. Further, we will improve our communication with federal agencies and raise the profile of our programs within the Western region.

Plan for Evaluation

Realization of the full benefits of this proposed arrangement will depend upon a long-term stabilization of the AZ-NASS position and a long-term relationship between AZ-NASS and UA. The funds requested here are a step in that direction, and will be leveraged with other sources (as described below) to achieve these ends. Outcome Indicators for this short-term project:

- 1080 data for 2006 will be entered into the database, cross-checked for errors, and made available through the APMC. Availability of these data is a measurable short-term outcome.
- 1080 data queries, sampling and survey services available to faculty will be advertised through the APMC. We can measure the extent to which faculty take advantage of these services and will also conduct a “level of satisfaction” survey of participating faculty.

More long-term measures of success and achievement of long-term goals are dependent on our success in securing a stable, long-term source of funding for this position.

Inputs/Budget

Approximately \$32k is needed annually to support a Senior Office Specialist position at AZ-NASS. Through this proposal, we are requesting \$8k in the coming year to partially support the position. This will be leveraged with other funding sources, including \$7.5k that the ADA currently provides to AZ-NASS through a cooperative agreement. (A separate proposal submitted to the CALS Executive Council last year for an additional \$8k went unfunded.) Key representatives from the agricultural industry have expressed a willingness to contribute partial support, provided that the university has shown a financial commitment to supporting these activities. Coordination between UA faculty and AZ-NASS, will be handled by Al Fournier as part of his duties as IPM Program Manager. A significant portion of Al Fournier’s time in the coming year will be dedicated to 1080 database work, but these efforts are funded through a 2005 Regional IPM Competitive grant; no additional salary funds are being requested through this proposal.

In addition to financial inputs, UA faculty members, ADA personnel, and USDA-NASS staff have contributed significant time and energy to this new partnership and will continue to do so.

Proposed Budget

AZ-NASS Senior Office Specialist	
Salary Support w/ERE	<u>\$8,000</u>
Total	<u>\$8,000</u>

Report on 2006 IPM Grant attached.



LOGIC MODEL for Stabilizing the CALS-NASS Relationship and Pesticide Use Database

SITUATION	INPUTS	OUTPUTS		OUTCOMES – IMPACT		
		Activities	Participation	Short	Medium	Long Term
<p><i>What is the problem or need?</i></p> <p>The 1080 pesticide use reporting database maintained by AZ-NASS is threatened due to budget shortfalls. These data and additional services previously provided through cooperative agreement with CALS are useful to research and extension personnel, particularly for measuring the impact of programs and adoption of IPM recommendations, and for County- & Ag Center-based outreach programs. Funds are needed to help to continue support for a position at AZ-NASS for data entry, analysis, survey work and related functions to service CALS' ongoing statistical needs.</p>	<p><i>What we invest</i></p> <p>Approximately \$32k are needed to support a Senior Office Assistant position at AZ-NASS.</p> <p>This request will provide \$8k for the coming year. This will be leveraged with other funds, including \$7.5k provided by ADA through a cooperative agreement.</p> <p>We hope this will be leveraged with \$8k in additional contributions from industry and stakeholder groups.</p>	<p><i>What we do</i></p> <p>The funds provided will help stabilize a position that will maintain the 1080 database, perform queries, interface with CALS research and extension personnel statewide to provide ag statistics services (surveys, etc.).</p> <p><i>Products:</i> Ready access to the 1080 database; “at cost” survey consulting, sampling, implementation and analysis.</p>	<p><i>Who we reach</i></p> <p>Although many functions of this position occur “behind the scenes,” data provided will be used to measure and document program impacts, identify stakeholder needs, and communicate with state and federal agencies on pesticide use patterns and program adoption. End users include statewide & county Extension personnel, other CALS faculty, department heads and administrators, federal agencies, stakeholder groups and AZ citizens concerned about pesticide use.</p>	<p><i>What the short term results are</i></p> <p>These funds will stabilize the cooperative relationship between CALS and AZ-NASS, ensure continued entry of and access to 1080 data, sampling and survey services, and data analysis “at cost” for CALS faculty.</p>	<p><i>What the medium term results are</i></p> <p>The data services provided to CALS and the Arizona Pest Management Center (APMC) will increase our ability to measure program impacts, including adoption of IPM; increase the quality of our responses to federal requests for pesticide use data; identify priority pest management needs of stakeholders; and increase the quality and relevance of our outreach and other educational programs for the citizens of Arizona.</p>	<p><i>What the ultimate impact(s) is</i></p> <p>By improving measurement & documentation of program impacts, we expect to increase our ability to obtain extramural funding for IPM and related programs. Through identification of priority pest management needs, we will better direct UA pest management programs to meet the needs of stakeholders statewide.</p>

From: "Steven Manheimer" <Steven_Manheimer@nass.usda.gov>
Date: December 4, 2006 1:21:49 PM MST
To: "Al Fournier" <fournier@Ag.arizona.edu>
Subject: Re: IPM proposal for continued 1080 support to NASS

Statement of Support:

USDA-NASS has been involved with the processing of 1080 pesticide data records for several years. We have seen the extensive interest that university researchers, agribusinesses and the general public have in the pesticide use trends that this type of database provides. USDA-NASS helps maintain the public-use database and has continued to do so even with State funding cutbacks. USDA-NASS continues to leverage its federal staff to help keep a current and functional research database in place. This highlights how much USDA-NASS values this project and we will continue to do so as long as possible. The funds provided by CALS are vital to keeping the USDA-NASS involvement in place. We hope funding support will continue so that USDA-NASS can provide service to Arizona agriculture.



Steven Manheimer
Director - Arizona Field Office
USDA-National Agricultural Statistics Service
Voice: 602-280-8850
e-mail: Steven_Manheimer@nass.usda.gov
Visit us online at www.nass.usda.gov/az

From: "Rob Leonard" <plshead@Ag.arizona.edu>
Date: December 4, 2006 4:52:58 PM MST
To: "Al Fournier" <fournier@Ag.arizona.edu>
Subject: RE: Draft proposal to support AZ-NASS 1080 database

Al

You can continue to count me among the supporters of the project! Best, Rob

Robert T. Leonard
Head, Plant Sciences
Forbes Room 303
University of Arizona
Tucson, AZ 85721
Phone: 520 621 1945
Fax: 520 621 7186

-----Original Message-----

From: Al Fournier [mailto:fournier@Ag.arizona.edu]
Sent: Monday, December 04, 2006 11:09 AM
To: Jeff Silvertooth; brucet@Ag.arizona.edu; Rob Leonard
Cc: Peter Ellsworth
Subject: Fwd: Draft proposal to support AZ-NASS 1080 database

Jeff, Bruce, and Rob,

Earlier this year each of you expressed your support for an IPM proposal I submitted to CALS to provide 8k in salary support to the Arizona field office of USDA National Ag Statistics Service (NASS) for 1080 pesticide database work. I believe your support was crucial to the success of our funded proposal. The partnership made possible through those funds has been productive and mutually beneficial, as detailed in the attached document.

I plan to re-submit this same funding request through the Arizona Pest Management Center call for IPM proposals, due Dec 7 (draft proposal and report attached, FYI), and am again seeking your philosophical support. As the attached report shows, we have made great strides toward establishing an improved database of Pesticide Use data (2001 - 2005) and have greatly improved our relationship with NASS and our access to their data and services in the process.

FYI, I've included some background information from a previous email below.

If you would like to be included as a Team Member on the proposal and express your support for the importance of this project, please let me know by email by COB Weds.

Thank you.

Al

Dr. Al Fournier
IPM Program Manager
University of Arizona
Maricopa Agricultural Center
37860 West Smith-Enke Rd.
Maricopa, Arizona 85239
office 520-381-2240
mobile 520-705-9903
fax 520-568-2556

From: Bruce Tabashnik <brucet@Ag.arizona.edu>
Date: December 4, 2006 12:52:10 PM MST
To: Al Fournier <fournier@Ag.arizona.edu>
Subject: Re: Fwd: Draft proposal to support AZ-NASS 1080 database

I support the proposal. You can include me as a team member.
Bruce

Jeff, Bruce, and Rob,

Earlier this year each of you expressed your support for an IPM proposal I submitted to CALS to provide 8k in salary support to the Arizona field office of USDA National Ag Statistics Service (NASS) for 1080 pesticide database work. I believe your support was crucial to the success of our funded proposal. The partnership made possible through those funds has been productive and mutually beneficial, as detailed in the attached document.

I plan to re-submit this same funding request through the Arizona Pest Management Center call for IPM proposals, due Dec 7 (draft proposal and report attached, FYI), and am again seeking your philosophical support. As the attached report shows, we have made great strides toward establishing an improved database of Pesticide Use data (2001 - 2005) and have greatly improved our relationship with NASS and our access to their data and services in the process.

FYI, I've included some background information from a previous email below.

If you would like to be included as a Team Member on the proposal and express your support for the importance of this project, please let me know by email by COB Weds.

Thank you.

Al

Dr. Al Fournier
IPM Program Manager
University of Arizona
Maricopa Agricultural Center
37860 West Smith-Enke Rd.
Maricopa, Arizona 85239
office 520-381-2240
mobile 520-705-9903
fax 520-568-2556

From: Jeff Silvertooth <silver@Ag.arizona.edu>
Date: December 4, 2006 11:53:27 AM MST
To: Al Fournier <fournier@Ag.arizona.edu>
Subject: Re: Fwd: Draft proposal to support AZ-NASS 1080 database

Al:

I still fully support your efforts in this arena. I appreciate what you are doing and I can offer my support for the project.

Jeff

Al Fournier wrote:

Jeff, Bruce, and Rob,

Earlier this year each of you expressed your support for an IPM proposal I submitted to CALS to provide 8k in salary support to the Arizona field office of USDA National Ag Statistics Service (NASS) for 1080 pesticide database work. I believe your support was crucial to the success of our funded proposal. The partnership made possible through those funds has been productive and mutually beneficial, as detailed in the attached document.

I plan to re-submit this same funding request through the Arizona Pest Management Center call for IPM proposals, due Dec 7 (draft proposal and report attached, FYI), and am again seeking your philosophical support. As the attached report shows, we have made great strides toward establishing an improved database of Pesticide Use data (2001 - 2005) and have greatly improved our relationship with NASS and our access to their data and services in the process.

FYI, I've included some background information from a previous email below.

If you would like to be included as a Team Member on the proposal and express your support for the importance of this project, please let me know by email by COB Weds.

Thank you.

Al

Dr. Al Fournier
IPM Program Manager
University of Arizona
Maricopa Agricultural Center
37860 West Smith-Enke Rd.
Maricopa, Arizona 85239
office 520-381-2240

--

Jeffrey C. Silvertooth, Ph.D.
Professor and Head
Department of Soil, Water and Environmental Science
Shantz 429, Bldg. #38
University of Arizona
Tucson, AZ 85721-0038

**A Partnership for Enhancing Extension Program Success:
Stabilizing the CALS - National Agricultural Statistics Service Relationship
and 1080 Pesticide Use Database**
2006 IPM Grant Report

Project Leaders: Al Fournier (Arizona Pest Management Center / Maricopa Agricultural Center)

Project Objective: The objective of this proposal was to provide financial support for the 1080 pesticide database management activities performed by the Arizona Field Office of the National Agricultural Statistics Service (USDA-NASS) and to develop an enhanced relationship between UA and USDA-NASS through the APMC. The short-term goal has been the development of a searchable 1080 database to be developed and maintained by the APMC. This database will be used to respond to federal pesticide information requests and to assess adoption and impact of UA IPM programs.

Activities

- Communicated extensively with partners at Arizona Department of Agriculture (ADA) and USDA-NASS to develop an understanding of 1080 data entry and management process.
- Had meetings and discussions with Paul Baker to gain a historical perspective on 1080 data management by his former employees; learned that historical 1080 data previously managed by Ken Agnew were lost.
- Obtained complete copies of 2001-2005 1080 data files from ADA and USDA-NASS. The raw data were in the form of multiple tables that needed to be integrated and verified.
- Established outstanding working relationship with partners from ADA and USDA-NASS. This partnership has already improved the quality of the existing 1080 data and may result in changes in data entry practices that will help us capture higher resolution data in the future.
- Obtained appropriate software for data manipulation and database development (FileMaker Pro, JMP-In, Text Wrangler).
- Worked with data files from USDA-NASS to develop a single complete integrated matrix of 2001-2005 1080 data (completed in Nov 2006). However, this database is in need of additional checking and refinement.

Participation

Al Fournier, Peter Ellsworth, Yves Carriere, Krista Kirk, John Palumbo, Paul Baker, Steve Manheimer (USDA-NASS), Linda Hoffman (USDA-NASS), Sharon Cochran (USDA-NASS), Jack Peterson (ADA), Gary Christian (ADA).

Participants listed above have been involved in the initial phase of this project, which has focused on acquiring, error-checking and correcting the 1080 data and developing a searchable data matrix for queries. As the database is finalized, it is expected that more faculty will be engaged.

Outcomes / Current Status

- Five years of 1080 data (2001-2005) have now been developed into a workable integrated database available for pesticide information queries. While still not perfect, these data have been significantly corrected and improved from the source data. Each interaction with the data will result in continued refinements.
- The process of working with the raw data files from ADA and USDA-NASS has been documented and refined through successive iterations of data management. The experience we have gained will make future expansion and additions to the existing data more expeditious.
- The quality of the 1080 data has been significantly improved directly through the interactions between the APMC and USDA-NASS. Specific requests by the APMC have resulted in a more thorough review of the 1080 data by USDA-NASS, which has resulted in new edit checks and improved database structure.
- Relationships have been established between the APMC and partners at ADA and USDA-NASS that will help ensure continued access to these data, as long as funding is available to support data entry and management.
- The preliminary 5-year 1080 database we have developed has already proved quite useful:
 - Data are now available and will facilitate rapid responses to future pesticide information requests from EPA.
 - For example, Peter Ellsworth was able to access the 1080 data to respond (multiple times) to EPA requests for information on Arizona endosulfan use. The availability of these data made it easy to generate real world statistics and graphs related to endosulfan use. In all likelihood, without this data-based response to EPA, our current use patterns for endosulfan in cotton would have already been curtailed or eliminated altogether. Endosulfan has been documented among the top three active ingredients that cotton growers use in the control of a wide array of pests including whiteflies and Lygus. Examples of questions posed by EPA:
 - How much and how often is endosulfan used in cotton through aerial application?
 - What are the average rates required when used alone or in mixture with other crop chemicals?
 - What are the major uses and targets for this compound in cotton?
 - What are the maximum number of acres that an applicator covers per day?
 - What would be the impact of lowering the maximum labeled rate to 0.75 lbs ai / A?
 - How many pilots, planes and aerial application businesses are there in Arizona? How do they receive their training / education?
 - How many mixer / loaders are associated with a typical aerial application?
 - How would Arizona enforce their proposed daily limit of 900 lbs ai / day?
 - The expected outcome of this activity is a precedent-setting re-registration and label change that would permit cotton growers in Arizona access to this valuable active ingredient with new daily application limits. At the same time, by imposing limits based on real practice, the resulting use pattern should better protect the health and safety of aerial applicators, mixers and loaders.

- The database has been used to develop some preliminary data on the adoption of UA Extension guidelines for neonicotinoid use in cotton and vegetable crops. John Palumbo will present these data at the 2006 Annual Meeting of the Entomological Society of America (ESA) and Peter Ellsworth will present these data at the 4th International Bemisia Conference (12/06). This initial query will be expanded and will form the basis of analysis work by Al Fournier, Peter Ellsworth, John Palumbo and Yves Carriere for a 2005 Western Regional IPM Competitive Grant.

Leveraged Resources, Continuing Need

- A 2005 Western Regional IPM Competitive grant related to IPM program assessment provides significant salary support to Al Fournier related to his 1080 work.
- Leveraged funds to support USDA-NASS 1080 data work come from various sources. Due to the APMC grant funds, Steve Manheimer, Director of the USDA-NASS Arizona Field Office, has devoted federal staff to help review 1080 data and to provide as needed help with APMC 1080 data requests. These federal resources would not have been provided without the support of the APMC grant funds. In an effort to keep the Senior Office Specialist employed, USDA-NASS has provided more than \$7,000 in federal funds to offset the shortfall in funding.
- The Arizona Department of Agriculture (ADA), who is also a primary data user, has provided some additional funding to USDA-NASS. However, without the APMC grant, there is no other agency or enterprise that could make up the \$8,000 shortfall and the position of Senior Office Specialist will be eliminated. Without this position, all 1080 work performed by USDA-NASS will cease.
- UA faculty members, ADA personnel, and USDA-NASS staff have contributed significant time and energy to this new partnership and continue to make themselves available as questions and concerns arise.
- The 1080 database is very useful to the APMC, the ADA and to specific commodity groups that need to provide supporting data to federal and state agencies regarding pesticide product use. USDA-NASS is involved because of their database expertise. While they are willing to leverage their limited resources to serve Arizona agriculture, in the current funding climate they remain reliant on the APMC grant.
- Even prior to the funding of this proposal in 2006, Peter Ellsworth and Al Fournier had discussions with Colin Kaltenbach, Alan Ker, and members of the agricultural industry to garner support for AG Statistic's 1080 data management position. So far these efforts to obtain additional leveraged funds for these efforts have been unsuccessful. For the 1080 data management position at USDA-NASS to become sustainable in the long-term, and to provide continued access to these important data for program assessment and hypothesis testing, we feel it will be important to establish a more long-term funding commitment from UA and other end-users.