

Agricultural Extension Team: A New Model to Enhance Stakeholder Input, Program Planning and Outreach to Agricultural Clientele – Extension Signature Program Initiative (SPI) Project

2010 Grant Report

Goals/Objectives

The goals of this grant are (1) to identify information needs of agriculture clientele statewide; (2) to improve communication between specialists and agents within Cooperative Extension to enhance program planning; and (3) to provide quality up-to-date research-based education to stakeholders via stakeholder meetings and workshops, e-mail, USPS mail and publications.

Outputs, Outcomes and Impacts

I. Identification of Stakeholder Needs

Identification of agricultural stakeholder research and education needs is a critical part of ongoing extension program planning. Our proposal outlined a plan to conduct 3 sessions explicitly focused on gathering stakeholder input to guide future program planning. At least 6 sessions were held with an explicit focus on stakeholder dialog and program planning input. These included 4 Crop Pest Losses workshops and 2 1080 database advisory meetings. Crop Pest Losses data are collected, processed, and posted on the Arizona Crop Information Site annually. These data are used to identify pest management research and education gaps that inform the Cotton IPM and Vegetable IPM programs. (See <http://cals.arizona.edu/apmc/croplosswg.html> for more information on this project and links to related ACIS pages, including survey data). The 1080 database advisory group is made up of PCAs, growers, commercial applicators and ag-chemical industry representatives that are providing input into the development of a pesticide use reporting database that has great potential value for identification of pest management research and education needs and extension program planning. The data have already been used to provide input on federal pesticide information requests that have informed registration issues (see http://ag.arizona.edu/apmc/Arid_SWPMC_Info_Requests.html).

In addition, nearly every face-to-face extension meeting this year included opportunities for direct stakeholder input into program planning. This occurred via an agronomic crops needs assessment activity and a Lygus bug management survey, both designed to identify research and / or education needs of clientele. Lygus survey data are being analyzed this fall and represent 3-years worth of data on Lygus management practices and educational resource needs. A preliminary summary of data from the agronomic IPM survey, conducted as part of our year-one Extension IPM grant, are posted online at http://cals.arizona.edu/apmc/agronomic_ipm.html. A complete analysis of the full data set will be conducted this summer to inform future programming in this area, and will be posted on the APMC website. Stakeholder input was also collected via county advisory sessions held throughout the state and through meeting surveys and evaluations. This information is used to direct the topics presented at future extension meetings.

II. Improve Communication within Cooperative Extension

Meetings: We held 5 meetings of the Agricultural Extension Team; three of these were focused on development of the agronomic IPM survey and the other two were dedicated to broader program planning. Meeting notes are available on the APMC Integrated Crop Management Team webpage at http://cals.arizona.edu/apmc/cotton_team/index.html#notes and on the Agronomic IPM Team webpage at http://cals.arizona.edu/apmc/agronomic_ipm.html. Team leadership is shared among one specialist and one agent and leadership is alternated for each meeting. Items that are discussed include: agent and specialist updates, budget items, extension program planning and industry participation. Meetings were held at the Maricopa Ag Center this year, but the team has discussed varying meeting locations to allow those that usually travel to meetings a chance to host the meeting, and to highlight any field work that they may be doing that will benefit other agricultural producing areas of the state. These meetings and ongoing email communications have improved the level of interaction and information sharing among agents and specialists.

Websites. The Arizona Pest Management Center websites hosts working group web pages (cited above) for the Integrated Crop Management Team, the Agronomic IPM Team and the Crop Pest Losses working group, all subsets of our Agricultural Extension Team. These web pages provide a point of contact for Team members to post meeting notes and share current information and resources.

Mentoring: Tenured faculty has provided mentoring to junior and new faculty members by providing support and direction. Monthly meetings held at the Maricopa Ag Center have proved to be a useful tool for new agents and specialists.

III. Extension Outputs and Impacts

Extension Meetings, Workshops and Field Days:

16 July 09 – Melon Pest Losses Workshop – Phoenix, AZ
16 July 09 – Desert Vegetable Meeting – Phoenix, AZ
26 August 10 – Preseason Vegetable Workshop – Yuma, AZ
3 September 09 – Corn Field Day in conjunction with Pioneer and Cal-Agro Seed – Bonita, AZ
18 September 09 – SAC Field Day and Variety/Defoliation Workshop – Safford Ag Center
25 September 09 - Chile Field Day - Pearce, AZ
28 September 09 – 1080 Database Advisory meeting – Maricopa, AZ
29 September 09 – Small Grains and Late Season Cotton Meeting – Maricopa, AZ
28 October 09 - Organic Production Workshop - Surprise, AZ
17 November 09 – UA Corn Production Workshop – Willcox, AZ
2 December 09 – Cotton Pest Losses – Maricopa, AZ
3 December 09 – Ag Production and Pest Management Workshop – Poston, AZ
3 December 09 – Cotton Pest Losses – Poston, AZ
9 December 09 – 1080 Database Advisory meeting – Yuma, AZ
10 December 09 – Ag Production and pest Management Workshop – Yuma, AZ
10 December 09 – Cotton Pest Losses Workshop – Yuma, AZ
10 February 10 – Early Season Crops Meeting – Maricopa, AZ
17 February 10 – 2010 Graham County Farmer’s Day – Safford, AZ

24 February 10 – Early Season Crop and Weed Management Workshop – Poston, AZ
2 March 10- Early Season Agricultural Crops Meeting – Marana, AZ
31 March 10 – Water Management Workshop – Safford, AZ
26 April 10 – How Herbicides Work – Yuma Ag Center
18 May 10- Fertilizer Recommendations for Small Grains Following Cotton – Marana, AZ
22 June 10 – Summer Field Crops Meeting – Buckeye, AZ
13 July 10 – Summer Field Crops Meeting – Marana, AZ

The Extension Team delivered at least 24 meetings, workshops and field days to clientele, providing over 50 CEU credit hours to the agricultural industry across the state during FY 10/11. In addition, specialists and agents helped organize and / or presented at various conferences across the state including the Southwestern Agricultural Summit in Yuma and the Desert Agriculture Conference in Casa Grande.

Publications

Team members invested time in reviewing existing agriculture and pest management extension publications, including those published prior to 2005, and provided input to Robert Casler, either revising, pulling, or maintaining publications as needed. In addition, through the former Cotton ICM / IPM Working group that this new Ag Team. Members of the Agricultural Extension Team, with input from Ed Martin and Robert Casler, developed a procedure for initiating a peer-review process for all IPM-related publications and also for all future Cotton Report articles. These systems of review will ensure timely advancement of extension publications and also ensure a high level of quality in publication outputs.

A summary of new or revised articles and publications that represent outputs of this group:

Blake, C. 2010. (Nolte, K.D.. contributor). El Nino Rains Swamp Nation's Salad Bowl. In H. Brandon [ed.], Western Farm Press. Penton Media, Inc., New York, NY. URL:
<http://westernfarmpress.com/environment/el-nino-rains-0126/>

Murphree J. 2010 (Andrade, P. and Nolte, K.D., contributors). A Professor, a Farmer and an Extension Agent: Why Agriculture Technology Advances Depend More Than Ever on Synergistic Relationships. Arizona Farm Bureau Featured Article, URL:
<http://www.azfb.org/news/index.cfm?fuseaction=article&rowid=302>

Nolte, K.D., M. Ottman, T. Teegerstrom and G. Wang. 2010. Minimum Tillage for Wheat Following Winter Vegetables. Extension Research Report. A College of Agriculture Report Series, University of Arizona, College of Agriculture and Life Sciences, Tucson, Arizona (In Review, Manuscript Submission Number: 2010-0208).

Nolte, K.D. 2010. Reducing the Risk of Biocontamination in the Production of Leafy Greens Through Public Outreach, Awareness and Education. Journal of Extension. (In Review, Manuscript Submission Number: 10001IAW).

Palumbo, J. C., and Natwick, E. T. 2010. The Bagrada bug (Hemiptera: Pentatomidae): A new invasive pest of cole crops in Arizona and California. Online. Plant Health Progress
[doi:10.1094/PHP-2010-0621-01-BR](https://doi.org/10.1094/PHP-2010-0621-01-BR).

Pena, M. et al. 2010. Vegetable IPM Updates. Arizona Crop Information Site. University of Arizona Cooperative Extension. Available at: <http://ag.arizona.edu/crops/vegetables/advisories/advisories.html>

Wang, G. and K.D. Nolte. 2010. Summer Cover Crop Use in Arizona Vegetable Production Systems. University of Arizona Extension Report. In Press.

Nolte, K.D. and J. Palumbo. 2010. The Relative Physiology and Phenology of Cucurbit Yellow Stunting Disorder Virus (CYSDV) in Desert Grown Cantaloupes. Plant Health Progress. (In Review, Manuscript Submission Number: PHP-RS-10-0082).

Other: Over twenty other publications have been submitted and accepted to online publications, research reports and professional publications. Some examples include:

Castle, S.J., J.C. Palumbo, N. Prabhaker, R. Horowitz, and I. Denholm. 2010. Ecological Determinants of *Bemisia tabaci* Resistance to Insecticides. In P.A. Stansly, S.E. Naranjo (eds.), *Bemisia: Bionomics and Management of a Global Pest*, Springer Science+Business Media B.V, doi: 10.1007/978-90-481-2460-2_16.

Crowder, D.W., P.C. Ellsworth, B.E. Tabashnik and Y. Carriere. 2008. Effects of operational factors on evolution of resistance to pyriproxyfen in the sweetpotato whitefly (Hemiptera: Aleyrodidae). *Environmental Entomology*, 37(6): 1514–1524.

Palumbo, J.C. and S. J. Castle. 2009. IPM for fresh-market lettuce production in the desert southwest: the produce paradox. *Pest Management Sci.*, 65:1311-1320.

Palumbo, J.C. 2009. Spray Timing of Spiromesifen and Buprofezin for Managing Bemisia Whiteflies in Spring Cantaloupes. Plant Health Progress. Online. doi:10.1094/php-2009-047-01-RS.

Palumbo, J.C. 2009. Spray Timing of Spiromesifen and Buprofezin for Managing Bemisia Whiteflies in Spring Cantaloupes. Plant Health Progress. Online. doi:10.1094/php-2009-047-01-RS.

Matheron, M.E. and Porchas, M. 2010. Efficacy of fungicides for management of downy mildew on broccoli, 2009. Plant Disease Management Report, 4:V053.

Naranjo, S.E. & P.C. Ellsworth. 2009. The contribution of conservation biological control to integrated management of *Bemisia tabaci* in cotton. *Biological Control*, 51(3): 458–470.

Other Outputs

Vegetable IPM Updates. Starting in January 2010, the Vegetable IPM Team (Palumbo, Nolte, Matheron, Ticks and others), led by Marco Pena, initiated biweekly Vegetable IPM advisories which are posted to the ACIS website and sent out via a smart-phone message. Updates include topical issues related

vegetable production and insect, weed and disease management. An archive of past updates can be viewed at <http://ag.arizona.edu/crops/vegetables/advisories/archive.html>.

Cotton Advisories. The Arizona Cotton Advisory Program issued weekly production advisories from early March through late August for 15 locations in 2009. Advisories were disseminated to clientele via the internet, fax and hard copy mailings. Advisories were accessed in excess of 9000 times via the AZMET website. Cotton heat stress reports were generated daily and distributed through the AZMET website. Growers accessed these report approximately 12,000 times in 2009. This tool is used to also convey timely information to growers. These advisories include weather information, cotton development, plant growth regulator application guidelines, fertilizer and irrigation recommendations, insect updates and meeting notices to the agricultural industry in the three regions

A \$10,000 grant from the Arizona Cotton Research and Protection Council helped support the operation of AZMET, including the development of the cotton advisories.

Arizona Crop Information Website. The ACIS website (<http://ag.arizona.edu/crops/>) hosts current information and publications for clientele on crop production and pest management and is a primary outlet for Extension outputs. The site also provides clientele with information about upcoming meetings and pesticide regulatory updates. Our ACIS email list includes about 300 participants, and is used to send updates to clientele on new extension publications, emerging pest or pesticide issues and upcoming events.

Clientele Listserv. In Central Arizona an e-mail based list serve has been developed. This list serve is being used to communicate information to the Agricultural clientele on a weekly basis during the cotton season and either bi-weekly or monthly during the rest of the year. Positive feedback from growers has been noted. A separate list is maintained for those clientele that do not have regular internet/e-mail access or that prefer to receive their information by mail. This has cut mailing costs to a minimum and it has expedited the delivery of information. Other counties such as Yuma, La Paz, Mohave, Graham and Cochise currently use mailing and have set up their own lists serves through their e-mail clients. In Yuma County text messages are also used to distribute information.

Stub Cotton Feasibility Report. A team of University specialists (P. Ellsworth, J. Silvertooth, P. Brown, M. Olsen and R. Tronstad) developed a comprehensive guidance document to the Arizona Cotton Growers Association. This document addressed the feasibility of stub cotton in Arizona. The report was researched and developed, distributed to the ACGA leadership, reviewed by their board, summarized, and printed in the ACGA newsletter. This document is in the process of being finalized and will be submitted to the Cotton Report publication.

Budget Report

The team was awarded \$4500 for FY09/10. The funds that were spent went to travel/fuel expenses for team related meetings and extension meetings and workshops. The total spent was \$981.49. Due other budget cuts, none of the requested money went to support salaries.

Appendix A: Meetings

Extension Team Meetings:

7 July 09- Agronomic IPM Team

16 July 09- Agronomic IPM Team

20 July 09- Agronomic IPM Team

11 September 09 –Agricultural Extension Team

5 February 10–Agricultural Extension Team

Mid August 10 – Date to be determined–Agricultural Extension Team