

Texas IPM 2013 Annual Report
SERA 003 Annual Meeting
March 25, 2014

PROGRAM MANAGEMENT

Dr. Charles Allen was the Statewide IPM Coordinator for the Texas IPM Program. He managed the use of \$195,000 in Smith Lever 3(d) funds provided by USDA-NIFA. These funds comprised 13.4 percent of the \$1.45 million invested in the program. These funds supported 14 Extension Agents-IPM, 5 Extension Program Specialists-IPM, and they provided partial support for the Statewide IPM Coordinator and three office staff personnel.

The IPM program generated extramural funding totaling \$1,296,408 in support of program activities. State, federal and extramural dollars totaled \$2.74 million. These funds supported the purchase of necessary equipment, travel, technical support, outreach and other needs. IPM Agents and Program Specialists had bases of operations which provided direct, on-site programming on a day-to-day basis in 41 Texas counties. The Texas IPM program had statewide outreach in pecans and school IPM. Through mass communications and electronic information delivery the IPM program provided benefits for clientele in all 254 Texas counties. Partners with IPM Agents and Program Specialists in delivery of programming and implementation of positive change in Texas were: Texas A&M AgriLife Extension County Extension Agents, Extension Specialists and Extension Administrators; Texas A&M and other Texas universities, County Commissioners Courts, schools, grower organizations, USDA (NIFA, ARS, APHIS, NRCS, FSA), TX Department of Agriculture, TX Department of State Health Services, US Center for Disease Control and many others.

IPM Agents were managed through combined supervision from the Statewide IPM Coordinator and the appropriate District Extension Administrator or County Extension Director (urban counties). IPM Program Specialists were supervised by the Statewide IPM Coordinator.

To ensure that programs are addressing local needs, each IPM Agent and Program Specialist maintains an IPM Steering Committee in his/her IPM unit. Steering Committees are made up of citizens in the community who have a strong interest in the program and want to see it serve the needs of people in the community in the best way possible. IPM Steering Committees prioritize educational programming, set costs for IPM program field scouting, have oversight over locally generated IPM program support dollars, provide local and state political support for the program and provide (in the agriculture, school and pecan programs but not the urban programs) directors to Texas Pest Management Association (TPMA). TPMA is a non-profit association whose goal is to support the maintenance and development of IPM programs in Texas. It is affiliated with, but not funded by, Texas A&M AgriLife Extension Service.

Texas A&M AgriLife Extension Service administrators report that the Texas IPM program is one of the most successful programs in the agency. They report nearly 100% positive community response associated with IPM programs. IPM Program Specialists and IPM Agents are recognized and appreciated by local stakeholders and by their administrators for successful programming in their communities on a continuing basis. They are regularly nominated for awards and honors as well. In 2012, awards recognizing superior programming for the public were presented as follows: Rick Minzenmayer, Warren Multer, Marty Jungman and Salvador Vitanza were awarded Texas A&M AgriLife Extension's highest award, the Superior Service Award, Janet Hurley (School IPM Program Specialist) was presented the Healthy Schools Hero Award, Manda Anderson (IPM Agent in Gaines County) was presented the Outstanding Agent in Peanuts Award by the Texas Peanut Producers Board, Marty Jungman (IPM Agent in Hill and McLennan Counties) was presented the Willis Gass Soil Fertility Award, Dr. Salvador Vitanza (IPM Agent in El Paso and Hudspeth Counties) was presented the Excellence in IPM 0-6 Years of Service Award from Texas Pest Management Association (TPMA), Bill Ree (Statewide Pecan IPM

Program Specialist) was presented the Excellence in IPM 7+ Years of Service by TPMA, and Clyde Crumley (IPM Agent in Jackson, Wharton and Matagorda Counties) was presented the Outstanding IPM Agent by TPMA.

Professional development for IPM Agents and Program Specialists is promoted and expected. It is a part of the performance appraisal process for agents and program specialists. Funding to attend professional development meetings is provided and extramural funds can also be used. Agents are expected to take advantage of appropriate society, commodity and other professional development activities. Required annual internal professional development activities include: IPM and Extension Entomology Professional Improvement Conference (a 2-3 day conference in the spring) and the TPMA Annual Meeting (a one day conference in the winter).

PROGRAM DELIVERY

- 5 intensive and 7 survey scouting programs totaling 64,953 acres of major field crops scouted
- 419 programs face-to-face educational meetings (306 for adult and 113 for youth audiences) reaching 28,485 people (13,116 adult and 15,369 youth)
- 113 programs for agent training reaching 1123 agents
- 160 programs for pesticide applicator CEU training, providing 301 credit hours, reaching 8,735 clientele
- 258 issues of newsletters which reached (cumulative) 92,413 people
- 254 Blog posts reaching 34,593 people
- Supported 12 websites with 226,514 page visits and 106,938 unique hosts
- 359 radio and TV programs
- 11 Texas A&M AgriLife Press Releases
- 118 articles in ag and popular press media
- 2 peer reviewed publications 18 published abstracts and proceedings articles
- 6 Extension Publications and 12 unnumbered Fact Sheets
- 7 college courses taught
- 4 guest lectures in college classes
- 80 newspaper and Media web-based articles
- 160 agricultural, scouts or IPM practitioners trained
- 37 IPM Steering Committee Meetings
- 139 local educational meetings for adults, 1,031 clientele attended
- 18 Oral/Poster Presentations at professional meetings
- 199 Result Demonstration and Applied Research projects initiated

Program Benefits were measured using surveys (mostly retrospective post), published reports and other sources.

Selected Program Highlights

- **Bed Bug Efforts** – Dr. Mike Merchant is leading an effort involving Wizzie Brown, Dr. Paul Nester and Molly Keck to improve bed bug detection and management in Dallas, Austin, Houston and San Antonio homeless shelters. Since early detection and control is essential to control bed bugs efficiently and cost effectively, their efforts are initially focused on improving detection. Later, they plan to test improved control measures. The monitoring and control results will be used to educate pest management professionals and managers of homeless shelters, motels, nursing homes and other facilities who need to be aware of the strategies are most effective in managing bed bugs.
- **Aflatoxin** - Central and South Texas corn growers have been plagued for decades with occasional instances where their corn is tainted with aflatoxin. The toxin is produced by the fungus *Aspergillus flavus* which produces the toxin. Since the toxin is highly poisonous to animals and

humans, corn is carefully checked for it and growers receive reduced prices for corn with aflatoxin above prescribed levels. When toxin levels are very high, the corn cannot be sold or used for any purpose. Losses in the United States were estimated in a recent publication at \$200 million per year. Recently, USDA-ARS found that some strains of *A. flavus* do not produce the toxin. They began experimenting with the concept of competitively displacing the toxin producing strains with these atoxigenic strains that do not produce the toxin. Extension Plant Pathologists, Extension Agronomists, County Agents and IPM Agents have collaborated to test the concept in Texas. The practice of applying atoxigenic *A. flavus* products to corn land has been widely accepted by Texas corn farmers in affected areas. The result has been a reduction in aflatoxin tainted corn throughout the affected dryland corn growing areas of Texas. This Extension group is working with other groups to further lower aflatoxin contamination in corn by educating farmers about which lines and hybrids are least contaminated by aflatoxin.

- **Saltcedar Beetle** - Saltcedar is an invasive plant of Mediterranean and central Asian origins which is believed to have been introduced to North America as an ornamental plant in the 1820s. It utilizes large amounts of water, degrades soil quality by concentrating salt at the soil surface, crowds out native plants and grows so prolifically that it impedes stream flow. It is considered a pest and causes water loss, soil degradation and ecological damage in drainages throughout the western US including western areas of Texas. Several species of saltcedar beetles – which feed only on saltcedar and athel (a closely related plant that is also an invasive species – were imported from areas of the Mediterranean and Central Asia and introduced by USDA to the watersheds from the panhandle, Rolling Plains, High Plains and Trans Pecos in Texas. A team of Extension Entomologists worked to aid their establishment and spread. In 2013, the beetles have become established and are defoliating the thick stands of saltcedars from the Rio Grande and Pecos river drainages, through the headwater and western drainages of the Colorado and Brazos rivers to the upper drainages of the Red and Canadian rivers. This year populations moved up the Pecos river and into New Mexico and up the Rio Grande River – through the city of El Paso - to enter New Mexico, this time along the Rio Grande. The expected result will be a riparian habitat opened up to native species once again, slow improvement of soil quality (salinity), increased water availability and improved stream flow. Long-term suppression of saltcedar is expected to be maintained.
- **Learning to Manage Invasive Insect Pests** - Because of the prevalence and ease of global trade, stow-away pests have been on the increase in recent years. Recent warmer climate may also be a contributor, as new pests encounter environmental conditions in which they can thrive. Invasive insect pests have been on the increase in recent years, and the trend has not diminished. In 2013 Texans have experienced problems with the sugarcane aphid – a pest of grain sorghum, and sorghum-sudan hay (not yet a pest of Texas sugarcane), and the Bermudagrass stem maggot a pest of bermudagrass grown for hay. Within the last several years Texans have experienced invasions from: tawny crazy ant – an extremely prolific pest of homes, electrical equipment, and agriculture; Kurtomathrips – a pest of cotton; brown marmorated stink bug – a pest of both agriculture and homes (just getting established), bagrada bug – a pest of vegetables, and chilli thrips – a pest of roses and other ornamental plants. Within the last 15 years, Asian citrus psyllid – the vector of citrus killing Huanglongbing disease, the Turkestan cockroach – a household pest of warm regions, and others have made their way to Texas. Extension Entomologists and IPM Program staff are working to provide Texans with solutions to problems caused by invasive pests. The continued influx of these invasive pests presents an ongoing challenge. Extension's efforts have improved, and will continue to improve, economic conditions, health and quality of life for Texas citizens.

- Melanaphis Task Force** - In the fall of 2013 Research and Extension Entomologists began to encounter an aphid on grain sorghum that had not been seen before. It was quickly determined to be in the genus *Melanaphis*. Specimens have been submitted to several laboratories and the consensus seems to be that the species is *Melanaphis sacchari*, the sugarcane aphid. If this is the sugarcane aphid it has apparently gone through a host shift because it has been found feeding on grasses in the genus *Sorghum* (grain sorghum, sorghum hays, Johnson grass and others) but not on grasses in the genus *Saccharum* (sugarcane and its relatives). The aphids showed up late in the season, after the majority of the grain sorghum crop had been harvested, but a few late grain sorghum fields in north Texas and Louisiana were heavily infested before they were harvested. The honeydew produced by the aphids was so abundant that combines were stopped up. By early November the aphid had been found in numerous Louisiana locations, in Texas east of IH35 and in eastern Oklahoma. Our knowledge of its range puts some 1.3 million acres of Texas grain sorghum at risk. Insecticide trials were run and the aphid proved difficult to control. Section 18 labeling was initiated for Transform (sulfoxaflor) insecticide, a new product that showed promise in 2013 tests. In fall grain sorghum plots seeding death from the aphids and failure of infested plants to set seed were observed. It is believed that losses from this aphid if left untreated on grain sorghum could range from 30-50%. USDA has the aphid in culture and is investigating sorghum lines to determine if any are resistant. Observations in South Texas through November indicated the aphid (believed to be a tropical aphid) was surviving winter conditions there. In November, as the potential for *Melanaphis* to damage young grain sorghum became known, the Extension Entomology Project Group named a task force to get information to growers about this pest. The task force is preparing educational materials for meetings, fact sheet(s), and web sites. The goal is to educate growers about this new threat to grain sorghum in county and multi-county meetings, via the ag press, via newsletters and newspapers, via radio programs and on websites.
- Spider Mite Management on High Plains Corn** - Spider mites are a cause of yield loss virtually every year to the 1 million acres of corn grown on the Texas High Plains. Damage results from mites removing chlorophyll from corn leaves, reducing the leaves ability to function. Heavy infestations can cause severe leaf death and significant yield reduction. Mite suppression is, in many cases, dependent on miticides. Control by predators and disease is too slow in some fields. Unacceptable amounts of damage often occur before suppression is achieved. Spider mites have a history of developing resistance to miticides and mites can develop resistance quickly. Recently, only a few miticides were available to corn producers. Some of these products had broad-spectrum toxicity. They killed not only the mites, but their natural enemies as well, which resulted in significant damage to corn fields as the mite populations quickly rebounded. Extension Entomologists and IPM Agents initiated programs to learn about new miticide products and teach growers and consultants about how they could be most effectively used. Newsletters, meetings, popular press articles, radio programs and other educational methods were used to educate stakeholders. Grower surveys in 2010 and 2012 demonstrated high levels of grower satisfaction and adoption of Texas A&M AgriLife Extension's spider mite management program information. Corn growers on the Texas High Plains benefitted by adopting more effective spider mite management practices. This resulted in better corn yields and improved farm profitability.
- West Nile Virus Task Force** - The West Nile Virus Task Force, created just over one year ago, is completing a handbook which will be used to educate personnel across Texas who are involved in mosquito and mosquito-borne disease management. The handbook will be used to deliver trainings to providers of mosquito/disease control, both in face-to-face and online workshops. Thresholds have been developed, based on trapping and mosquito testing data, to help communities know when treatments for mosquito larvae and adults are needed to prevent spikes in West Nile Virus infection of human populations. We expect this effort to play a significant role

in keeping Texans and citizens in other states safer from West Nile Virus. We also expect that the information in the manual will have application for other mosquito borne diseases.

- **Cotton Root Rot Control Education** - A team including Extension Economist Bill Thompson, Agronomist David Drake and IPM Agent Rick Minzenmayer have developed a management tool to help growers decide on whether or not to invest money in Top Guard[®], flutriafol, for cotton root rot control in their fields. The decision aid has been created and will soon be available on paper and via a cell phone app.
- **Texas Cotton IPM Program** – In 2012, IPM Agents worked with cotton farmers in 41 Texas counties to improve pest management and farm profits. They participated in over 713 educational programs reaching over 18,000 people, wrote 458 newsletter issues which reached a cumulative total of 156,803 people, provided information in 733 TV and radio programs and produced 153 newspaper articles. A 2012 survey of 136 cotton producers managing 272,000 acres indicated the average net returns attributable to the IPM program were \$40.19 per acre - a **total increase in net returns from responding producers of \$10.9 million**. Reduced pesticide use provided **environmental benefits** to both farmers and society.
- **School IPM Program** – In January 2013, Janet Hurley, Mike Merchant, Charles Allen, Dean McCorkle, and Dan Hanselka wrote a white paper describing the Texas School IPM Program and its benefits. The paper reported results from a 2006 survey of School IPM Coordinators. Seventy-five percent of respondents believed the school IPM program had resulted in more effective pest control. This result is consistent with studies done in other states. Other studies have shown that School IPM has significantly improved children's health and reduced pesticide use. A case study of Spring ISD near Houston has shown a **45% reduction in pest related work orders, 70% reduction in pesticide applications, only environmentally friendly products used and elimination of pesticide use indoors**.
- **IPM Internship Program** – Texas A&M AgriLife Extension Service sponsored 9 IPM Interns in 2013. Five female and four male students were selected for Internship positions. The students were from Texas Tech University (2), Texas A&M (2), Texas A&M Kingsville (1), Angelo State University (2), Lubbock Christian College (1) and West Texas A&M (1). The students were paired with an IPM Agent, IPM Program Specialist, AgriLife Extension or AgriLife Research professional and spent the summer working on research and extension projects. They were unanimously enthusiastic about the program and **100% stated in their final report that they would like to spend their careers working in IPM**.

PROGRAM INVOLVEMENT

Texas IPM programs are highly collaborative in nature. The programs highlighted in the previous section describe a few of the programs being implemented by the Texas IPM Program. They show interdisciplinary, and multi-partner collaborative efforts. Texas clientele are both the primary collaborators and the principle beneficiaries of the program. The programs strongly collaborate with farmers, commodity groups, Master Gardeners (and other garden related groups), Master Naturalists (and other groups interested in nature study), schools, botanical gardens, pest control operators, consultants, chemical and seed businesses, groups concerned with soil and water conservation, families, homeowner groups and many others. Texas IPM programs are connected and strongly collaborate within Texas A&M AgriLife Extension disciplinary departments (Specialists) and with County Extension Agents. They also collaborate with Texas A&M AgriLife Research, Texas A&M and other universities, USDA (NIFA, APHIS, ARS, NRCS, FSA), Texas Department of Agriculture, County government, city government, TX Department of State Health Services and many other entities. Regional, national and international liaison

is accomplished through interaction with professionals in collaborative projects, sharing of educational products through professional journals, extension publications, the internet, professional meetings, popular press, TV, radio, newspaper and other outreach media.

PROGRAM SUPPORT

The Texas IPM Program is supported financially by the Texas State government and USDA-NIFA. It is further supported by USEPA, the Southern Region IPM Center, pest management industry partners, farmers who pay for field inspection services, commodity groups, master gardener groups, county government, and numerous other partners. The program is supported administratively by the Texas A&M AgriLife Extension Service leadership: Director Doug Steele, Associate Director Pete Gibbs, and others; Texas A&M University Department of Entomology: Department Head David Ragsdale and Associate Department Head for Extension Dr. Charles Allen. Public support for the program is very effectively led by Texas Pest Management Association TPMA and TPMA Executive Director David Oefinger. Last, but certainly not least, the program is supported by thousands of Texans (and people from other states) who use the information, and participate and benefit from the program across the state (and the nation).