Texas Extension IPM Program Review
November 12, 1999

What is IPM?
* a strategy and decision-making process for managing pests in the most economically and environmentally sound way possible
* dynamic, ever-changing, time and space specific
* data driven and information intensive
* responds to biological variability within and between production seasons
* multi-tactic approach to provide sustainable solutions
* defined and characterized by economic and environmental goals
* application of “best management practices” related to crop production and protection
* brings the best science available to the solution of pest problems

How Has the Extension IPM Program Changed Through Time?

<table>
<thead>
<tr>
<th>Historically</th>
<th>Currently</th>
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<tbody>
<tr>
<td>* teach growers to scout and use ET</td>
<td>* technology transfer</td>
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<tr>
<td>* focus on pests</td>
<td>* focus on crop</td>
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<td>* primary emphasis on insects</td>
<td>* emphasis on insects, weed, diseases</td>
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<td>* pesticide management</td>
<td>* biologically intensive IPM</td>
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Methods
* intensive scouting
* costs of monitoring paid through grower contracts
* 1994, 27 producers/unit
* 1994, 5400 acres/unit
* professional time primarily spend on scouting program
* 40% of programs survey
* monitoring paid through agribusiness, points of sale
* 1997, 18 producers/unit
* 1997, 4029 acres/unit
* professional time primarily spent on research/demo/education

Growth in Positions
1972 - USDA/APHIS - 4 positions
1973 - USDA/APHIS - 2 positions
1975 - USDA/TEXAS - 17 positions
1995 - TEXAS - 4 positions
1997 - TEXAS - 4 positions (fire ants)
1999 - TEXAS - 1 position (with WT)
Currently 23 positions serving 56 counties for agricultural IPM plus 4 positions focusing on fire ants
Title of County Level Faculty

1972 - County Entomologist
1981 - Extension Agent - Entomology (or Plant Pathology) (Pest Management)
1996 - Extension Agent - IPM

How is the IPM Program Organized?

* basic unit for IPM programs is and has been the county
* IPM is an integral part of the total Extension educational program at county level
* Extension Agent-IPM is basically a specialist for IPM at the county level, serves to strengthen county programs
* Extension Agent-IPM responsibilities primarily related to IPM but in reality much broader
* area of responsibility generally one to three counties but influence much wider
* IPM Agent works closely with CEA, specialists, researchers with COALS, TAES, USDA
* applied research/demonstrations as a method of technology transfer a major responsibility
* in 1998 primary emphasis in demonstrations 49% entomological, 38% agronomic/weed science, 7% multi-disciplinary and 6% plant diseases
* much of entomological emphasis on transgenic varieties, pest ecology, natural enemies and environmentally friendly controls
* monitoring/field scouting provides local database for educational efforts including county/regional meetings, workshops, field meetings, personal contact and newsletters
* evolution from intensive to survey monitoring programs assures broader biological and financial support base
* evolution to working in closer partnership with consultants leverages efforts
* partnership with TPMA enhances efforts locally, statewide and nationally
* TPMA Board of Directors form one part of a three level user/advisory committee structure for IPM programs
* TPMA board includes one representative from each IPM unit and one from each commodity group. This group represents much of the ag leadership in Texas
* each IPM unit has IPM steering committee made up of growers, agribusiness representatives and consultants
* multi-disciplinary, multi-agency Statewide IPM Technical Advisory Committee includes 6 academic disciplines, 7 organizations/agencies and 3 private consultants

What Planning Process Has Been Utilized in the Evolution of IPM Programs?

Statewide planning
* numerous planning documents have been developed through the years
* 1973 Outline for Direction and Expansion of Future Pest Management Programs
* 1976 Statewide Five Year Cotton Pest Management Plan developed as compilation of 10 subplans from 10 production regions
* 1979 Cotton and Sorghum Pest Management Plan for Texas
* 1986 Implementing a Statewide Pest Management Plan for Texas
* 1996 Development of a Strategic Plan for the Texas IPM Program
  - 27 public and private IPM customers met to develop plan
  - 470 combined years of IPM experience
  - identified key products, essential customers and expectations of customers
  - conducted SWOT analysis to analyze strengths, weaknesses, opportunities and threats
  - developed strategic issues, recommendations, goals and action plans
* formed Statewide IPM Technical Advisory Committee in 1995 to help guide and direct IPM and to enhance communications, interaction and collaboration
* conducted statewide surveys of growers and consultants to help guide, direct and prioritize needs and expectations for Texas IPM Programs during 1997-98

Planning and Priority Setting at Local Level

* each IPM unit has IPM Steering Committee that plan and prioritize issues related to educational efforts including county/regional meetings, workshops, field meetings and applied research/demonstrations efforts on a yearly basis
* Extension Agents-IPM conduct annual evaluation of IPM program and newsletter and asks growers for applied research/result demonstration topics and educational program topics of concern to them
* expansion and location of IPM units have always been in response to needs expressed by growers

What Technology Has Been Deployed by IPM?

* greenbug resistance in sorghum
* short season concept in cotton
* stalk destruction for boll weevil management
* delayed uniform planting
* pesticide reduction in vegetable production
* area wide boll weevil diapause and eradication programs
* planting window for tomato spotted wilt virus management
* midge resistant sorghums
* pecan IPM program
* pink bollworm mating disruption
* pheromone monitoring systems for major pests
* insecticide resistance management plans for tobacco budworms, greenbugs
* statewide cotton aphid management plan
* biological control of citrus blackfly
* biological control of sugarcane borer
* IPM in interiorscapes
* IPM in schools program
* community-wide management of fire ants
* plant mapping of cotton
* COTMAN
* TEXCIM for cotton
* ScoutMaster for cotton and corn
* IPM newsletters on the WWW
* Toxic Plant Management
* Hort-IPM
* Transgenic technology in cotton and corn
* currently working with TPMA to deliver scouting reports, GIS/GPS information and regional and statewide IPM information via the WWW

What Has Been the Value of IPM to Texas Agriculture

A few examples of impacts of IPM in Texas follow:
* pecan IPM program between 1981 and 1996 reduced fungicide use by 30% insecticide use by 35%, increased yields of improved pecans by 617 pounds per acre and native pecans by 390 pounds per acre resulting in an overall economic benefit of $6.06 million per year
* the use of short season cottons in the Coastal Bend of Texas resulted in direct farmer profits of $11 million per year
* delayed uniform planting of cotton in the Rolling Plains increased net profits by $21.36 per acre and resulted in an annual regional economic impact of $192 million
* planting window for management of tomato spotted wilt virus on peanuts in South Texas reduced insecticide inputs by 29% and resulted in a regional economic impact of $1.2 to $4.6 million annually
* the annual economic benefit of greenbug resistance sorghums to U.S. agriculture was estimated to be $389 million and midge resistant sorghums $9.3 million
* IPM programs contribute field biological information to Section 18 regulatory procedures
* served vital role in demonstrating/evaluating transgenic crop technology
* a 1994 survey of 637 producers in 25 counties who grow a wide range of crops indicated that using IPM increased net profits by $106 million per year while reducing pesticide inputs resulting in a $340 million statewide annual economic impact
* insecticide use in Texas cotton has been reduced from 19 million pounds per year in the late 1960's to 4.2 million pounds in 1994 when only 51% of the state’s cotton acreage was treated with any insecticide
* recent studies document that 64% of Texas cotton producers, 86% of Texas sorghum producers can be classified as IPM producers
* Extension IPM programs in Texas helped spawn a consulting industry which now helps growers implement IPM at the field level
* the multi-tactic approach and economic threshold concept used by IPM in managing pests has proven to be an important component of risk management strategies for Texas producers
How Has the Texas IPM Program Been Recognized?

State and National Awards Presented to the Texas IPM Program
* Clean Texas 2000 Governor’s Award for Environmental Excellence
* Texas Agricultural Extension Service Superior Service Team Award
* Texas A&M University Vice Chancellor’s Award for Excellence
* USDA Group Honor Award for Excellence

What is the Vision of the Texas IPM Program?

* Vision Statement: The Texas IPM Program will deliver unbiased, credible, reliable and timely solutions to pest problems of agricultural and urban customers
* the Texas IPM Program will deliver the most credible, unbiased, science-based and technically accurate information available to customers and will do so in a timely manner
* the Texas IPM Program will focus on solutions to problems identified by customers
* IPM units will continue to shift from intensive programs to survey monitoring programs
* new communication technologies such as GIS/GPS systems, electronic diagnostic capabilities, distance education, bar-coding for monitoring tools, voice recognition computer technology, precision agriculture instrumentation and electronic delivery of technical information will be used to make the Extension Agent-IPM more efficient and more effective and will extend his/her influence. However, due to the dynamic and site-specific nature of IPM and due to the biological diversity in agricultural systems, the need to have trained IPM professionals at the county level who work daily with growers will remain. This is the mainstay and center of success of IPM in Texas. Other states who have eliminated county level IPM positions have lost touch with growers and programs have invariably suffered and lost grower support.
* the strategic shift in emphasis to adaptive research and technology transfer will require new competencies and enhanced levels of training of county level faculty. Extension Agents-IPM will become highly knowledgeable crop experts in addition to pest management experts. Competencies such as an understanding of molecular genetics, biochemistry and statistics will be essential additions to current competencies.
* the IPM program will enhance its ability to serve urban customers. This was a major recommendation of the 1996 Strategic Planning Session. This will require increased staffing in urban centers. Our vision includes Extension Agents-IPM who work with the nursery/greenhouse industry (most rapidly growing ag sector in Texas) to initiate IPM at the grower level and then extend IPM through the retail nursery level to the retail customer at points of purchase. Literature indicating the IPM way to grow and protect the plant will accompany the plant on its way home. Our vision considers current Extension Agents-IPM (Fire Ants) as the first county-based urban IPM agents who will shoulder expanded responsibilities in future years.
* our vision includes and IPM specialty category within the Master Gardener program to use “volunteers” to leverage efforts in extending IPM to urban audiences
Following is our vision and priorities for opportunities to enhance programming over the next 5-10 years by adding additional Extension Agents-IPM:

**Nursery/Greenhouse**
- East Texas (probably Cherokee and Smith Co.)
- Houston-Dallas corridor area
- Rio Grande Valley foliage industry

**Field Crops**
- Moore/Sherman - corn, wheat, sorghum
- Calhoun and Victoria counties - cotton, corn, soybeans
- Deaf Smith/Oldham - vegetables, corn
- Dallam/Hartly - corn, wheat
- Jefferson, Liberty and Chambers counties - rice
- Ochiltree/Hansford - corn, wheat
- Collingsworth/Donley - cotton, peanuts
- Gray/Carson - corn, wheat

**Urban IPM**
- Randall - Amarillo
- El Paso
- Corpus Christi

Positions needed to enhance the infrastructure of Texas IPM Program

Staff Assistant
Assistant/Associate IPM Coordinator
Staff Accountant