State or Territory: **Florida** Program Start Year: **2006**

Narrative Overview: University Plan of Action

The first coordinated, statewide integrated pest management (IPM) program in the state of Florida has been established, including IPM and biological control research, extension and education. New pest management technologies have been developed and implemented in collaboration with public and private organizations that can use them to improve Florida's agricultural productivity and profitability, protect urban environments, and preserve natural resources. Technology identification, development and delivery networks have been established among international, national, state and private sector organizations to resolve technical problems in implementing IPM and biological control. The Florida IPM program has increased the use of IPM practices according to the following objectives: 1. Support and encourage county extension faculty and agricultural and urban clientele in planning, developing and implementing IPM and biological control programs, 2. Form collaborative partnerships composed of faculty and clientele group members to enhance the development and delivery of IPM practices, 3. Serve as the UF, IFAS contact for IPM information and coordinate this activity with pest management discipline specialists, the Pesticide Information Office, and other UF, IFAS programs, 4. Serve as a focal point for institutional IPM and biological control issues and a link between clientele and UF, IFAS, 5. Keep abreast of and support faculty IPM research, extension and teaching programs and activities, 6. Encourage the development of grant proposals by faculty teams to submit to agencies and organizations funding IPM and biological control, 7. Promote UF, IFAS IPM programs in state, regional and international settings, 8. Document and disseminate information on Florida's achievements in IPM, and 9. Maintain close working relationships with UF, IFAS Administrators, including Department Chairs, Center Directors and District Extension Directors, in advancing IPM and biological control research, extension and teaching programs.

Smith Lever 3(d) Funds and Additional Program Inputs Supporting Coordinator Managed Statwide IPM Program

Smith-Lever 3(d) Extension IPM program funds.				
FTEs	**Salaries, Wages, & Fringe Benefits**	**2006**	**2007**	**2008**
1.00	**Faculty**	49,000	49,000	49,000
0.00	**Other Professional**	0	0	0
0.00	**Paraprofessional**	0	0	0
0.30	**Graduate Students**	10,000	10,000	10,000
0.00	**Prebaccalaureate Students**	0	0	0
0.00	**Secretarial-Clerical**	0	0	0
0.00	**Technical, Shop and Other**	0	0	0
Nonexpendable Equipment		0	0	0
Materials and Supplies		4,500	4,500	4,500

Travel	12,500	12,500	12,500
Publication Costs	8,000	8,000	8,000
All Other Direct	85,000	85,000	85,000
Total	169,000	169,000	169,000
Federal Allocation	169,356	169,356	169,356

Smith-Lever 3(d) Funding Plan Narrative:
Smith Lever 3(d) IPM funding for the Florida IPM program is set at $169,356 annualy. FY 2006-2008 funds will be used to support IPM program operations ($26,000 for travel, meetings, vehicle maintenance, computer equipment, office equipment, extension materials, OPS assistance, etc.), the Assistant IPM Coordinator's salary ($49,000), and the IPM Florida grants program ($85,000).

Funds Supporting Extension IPM Program: IPM programs commonly receive funding and in-kind support from several sources in addition to federal Smith-lever 3(d) appropriations. This might include other your host institution, state government, or other sources (e.g., commodity checkoff, grower associations, other non-governmental organizations). Please include only those funds that support the statewide IPM extension program that is managed by the designated IPM coordinator.

Additional annual funds from institution	0
Additional annual in-kind support from institution	335,000
Additional direct funding and in-kind support from state government	0
Additional annual support from other sources	0
Total	335,000

Additional Funding Narrative
UF, IFAS non-3d support for salaries ($155,000 per year in-kind support) included salary and benefits for a full-time IPM Coordinator and staff support (Department of Entomology and Nematology office, computer, graphics, facilities maintenance, and 1/4-time IT assistant from IFAS Communication Services). The IPM Office is housed in the Department and occupies about 300 sq. ft. ($180,000 per year in-kind support). The 3d funds will be leveraged to enable IPM Florida grant supported projects.

Statewide IPM Program:
Leveraging and Targeting Resources

Other Staff Supporting State IPM Adoption. IPM adoption is supported by many people in your state. These people fall into two categories as they relate to your state's extension IPM program:

- **Cooperators** -- Employees of universities (e.g., extension agents, research and extension faculty), government entities (e.g., department of agriculture officials), or employees from other organizations (e.g., growers, crop consultants, processors) who support the IPM program as part of their full time occupation. Cooperators are not paid from IPM funds, but cooperate on IPM projects as "part of their job."
- **Volunteers** -- Volunteers cooperate with the IPM program, but not as "part of their job" (e.g., master gardeners, event volunteers).

Estimates of the numbers of people who promote IPM adoption in your state in association with your university sponsored extension effort.

		Number of Cooperators
Annual cooperators supporting IPM adoption in your state:	**University employees (research & extension faculty & staff)**	300
	Non-university employees (state government, consultants, etc.)	125
Volunteers supporting IPM adoption in your state:		100
	Total	525

Narrative describing this participation:
The Florida statewide IPM program maintains a large network of cooperators from the seven Areas of Emphasis but constant contact is mainly with the 300 plus subscriber listserv. This core group is mainly comprised of University of Florida faculty and staff but contains about 25 outside collaborators. The non-university cooperators belong to commodity and interest groups (vegetables, ornamental plant producers, cattlemen, etc.), federal and state government (USDA, EPA, Florida Department of Agriculture and Consumer Services, etc.), and industries allied with IPM (Association of Natural Bio-control Producers, International Organization for Biological Control, etc.). Volunteers include Master Gardeners, School IPM workers, etc.

Areas of Emphasis Overview

Area of Emphasis	**% Effort**
Vegetables	20.0
Ornamentals and Turf	20.0
People and Communities	15.0
Citrus	15.0
Deciduous and Small Fruits	10.0
Watersheds and River Basins	10.0

Pasture and Forage Crops 10.0

Areas of Emphasis Detail

Vegetables **Effort: 20.0%**

The Extension educational opportunities associated with this area of emphasis, including any difficulties that will need to be overcome in order to achieve success.

Statewide IPM programs for several types of vegetables will work together to deliver educational information, using multiple venues, including multi-state in-service training on tomato diseases every other year, other IPM in-service trainings, and presentations at grower meetings. This education and training, along with associated publications will inform clientele about IPM principles. A model publication for training new county Extension agents will be the "Grower's IPM Guide for Florida Tomato and Pepper Production." In addition to this publication, several list-serves, focus teams, and websites will help to deliver IPM educational materials.

University's extension IPM activities and outcomes associated with this area of emphasis.

Planned activities include website improvement, presentations at grower meetings, training classes, IPM participation at field days, research plots and/or demonstrations. The number of articles in popular press sources for educating the general public will be increased and EDIS publications updated. Demonstration projects, including large scale tests of IPM practices are planned for pepper. For vegetable clientele, information will be provided via several newsletters, fact sheets, fax notices and alerts. At risk clientele will be provided with one-on-one contact with IPM experts. Stakeholders will be kept up-to-date on both old and new pests, and all types and management strategies. Emphasis will be placed on resistance management and alternatives to methyl bromide, along with pesticide training and basic education on IPM principles specific to the different categories of applicator licenses. Target audiences will include county Extension agents, grower groups, 4-H students, vegetable scouts, and the general public. Extension messages will be based on IPM's role in environmentally sound vegetable production and in reducing the risks and costs associated with vegetable production.

The roles and involvement of individuals and/or programs at your university (including the Extension IPM Program, if applicable) and key cooperating organizations.

A multi-disciplinary vegetable IPM research team focuses on implementation of tomato disease management with county agents in North Florida and South Georgia. The Plant Disease

Diagnostic Clinic properly identifies diseases so appropriate action can be taken to decrease the inappropriate use of pesticides. Additional funding for Vegetable IPM activities comes from the Florida Tomato Committee and the Florida Fruit and Vegetable Association. Several state and federal agencies (FDACS, FDEP, Water management districts), USDA and SARE also collaborate. IFAS researchers and extension specialists work on IPM projects and demonstrations with growers with the Florida Fruit and Vegetable Association (FFVA), commercial scouts, chemical manufacturers, and others. Pesticide resistance management is particularly important. Commercial scouts, industry representatives and key growers collect and collate information for a local biweekly pest update during the growing season. This information is published in local newsletters and included in a pest hotline. IPM efforts are pursued cooperatively with these groups and others, such as USDA/ARS and the Florida Tomato Committee.

How this land-grant university hopes to change pest management behavior through stakeholder participation in these activities.

New training programs for growers should lead to increased scouting, a decrease in the use of copper based fungicides, increased adoption of cultural practices and the use of biorational products. Programs for pesticide applicators should increase their knowledge of IPM and lead to possible adoption of IPM practices. Surveys will show if there is an increased use of "soft" pesticides and non-chemical control measures, especially for diseases. Past surveys have shown an increase in scouting and associated decrease in pesticide use following IPM training but there is a need to increase these benefits to include more growers and more acres. Acceptance and implementation of IPM principles should lead to better decisions being made in the field.

The planned impact of this university's efforts in terms of the three overall IPM roadmap goals.

Overall IPM impacts will be measured using written and oral surveys of clientele, including growers and scouts. Pesticide applicators will also be questioned through surveys to assess knowledge gained and practices changed. These surveys will collect information on the adoption of new tactics and the number of acres under production with reduced environmental impact. Surveys will also measure the amount of pesticide being used and the number of sprays for each crop. Economic benefits and the maintenance of high quality produce will be measured using a cost/benefit analysis of IPM implementation. This has been done in the past for IPM scouting and will be implemented for current projects.

Ornamentals and Turf **Effort: 20.0%**

The Extension educational opportunities associated with this area of emphasis, including any difficulties that will need to be

overcome in order to achieve success.

Statewide, several educational opportunities exist in ornamental and turf IPM, including: in-service training for county agents, Master Gardener training, pesticide applicator training, continuing education short courses, and regional workshops for extension clientele. A diverse audience can be reached using distance education, several IPM related websites, email distribution lists and county based newsletters. Our biggest obstacle to overcome in the next three years will be improving communication among agents and specialists to streamline our educational opportunities and maximize our public visibility. A major project in our 3-year plan is to work in cooperation with the AgClimate Consortium to develop a website focusing on phenological modeling and analytical tools for Florida, Georgia and Alabama. Target audiences for this website include county agents, Master Gardeners, golf course superintendents, athletic field managers, lawn and landscape maintenance personnel, municipalities, and to a small extent, tree nurseries.

University's extension IPM activities and outcomes associated with this area of emphasis.

Planned activities include; Annual IPM nursery scout training, demonstration gardens, website based training, fact sheets, newsletter and brochure production, an IPM yard recognition program, several workshops and seminars, and displays and exhibits. A team project is being designed to create a statewide ornamental nursery IPM website. Turf grass and ornamental field days will teach Insect Identification and scouting techniques. Target audiences include Extension agents, homeowners, developers, landscape maintenance companies, big retail nurseries (Lowes, Home Depot), landscape architects, realtors, government planners, teachers, 4-H members, grounds superintendents, master gardeners, pest management professionals, public park managers and the general public. A Professional Landscape Management workshop series will include four-hours of training on Landscape IPM. Extension messages include IPM's role in environmentally sound landscape design and maintenance, lawn care, and turf and ornamental production.

The roles and involvement of individuals and/or programs at your university (including the Extension IPM Program, if applicable) and key cooperating organizations.

Florida County extension agents and specialists assist with program development and the dissemination and implementation of educational materials. Florida Nursery, Growers and Landscapers Association(FNGLA), The Florida Turfgrass Association (FTGA), and the Florida Golf Course Superintendents Association (FGCSA), and a number of individual golf course superintendents, lawn care companies (e.g., Arrow, TruGreen Chem Lawn, ValleyCrest Inc.), and sod growers provide support for the IPM program by conducting trials on their sites, providing information on specific pest problems, or advising on alternative pest management strategies that have lead to a reduction in

pesticide applications for their organization. The Florida Yards and Neighborhoods (FYN) program provides support to IPM Florida. They work closely with FDEP and the water management districts, UF's Program for Resource Efficient Communities, the EPA, the National Estuary Program, city and county planning and environmental resources departments and utilities. FYN provides materials and consistency in content for the extension agents.

How this land-grant university hopes to change pest management behavior through stakeholder participation in these activities.

Clientele participating in the educational activities will learn how to design and maintain landscapes and turf to encourage natural enemies and prevent pests. Participants will increase scouting activities and develop new scouting skills so that growers, landscape maintenance personnel and homeowners identify what they are trying to control and reduce pesticide use by implementing cultural practices to avoid problems. Implementation of new technology and information into decision making should have a widespread positive impact on pest management behavior and increase our stakeholder's ability to recognize and identify common pest problems, and seek IPM solutions such as increased scouting, pesticide reduction, reduced risk practices and proper pesticide handling.

The planned impact of this university's efforts in terms of the three overall IPM roadmap goals.

Groups working on landscape IPM are planning to measure direct environmental impacts, e.g., water quality changes. In addition to this, adoption of IPM practices will be measured with pre-and post-program surveys (post-surveys 6 months later to assess actual changes in practices). This adoption data will demonstrate environmental benefits of landscape IPM and BMPs, e.g., the effect of new pesticides on natural enemies of the target pests of ornamentals and turf. From this, a cost/benefit can be determined by calculating the cost of product application vs. the amount of pest mortality and residual control, as well as the effect of applications on non-target organisms. Additionally, web-based surveys of collaborating growers will be built into their weekly reports to show levels of IPM adoption.

People and Communities **Effort: 15.0%**

The Extension educational opportunities associated with this area of emphasis, including any difficulties that will need to be overcome in order to achieve success.

The primary activity in this Area of Emphasis is the Florida School IPM Program. The goal of this program is to develop "demonstration models" for verifiable IPM in schools. A major educational opportunity is for the expansion of this program to impact the general public via school children taking IPM information home. This plan incorporates county faculty in a train-the-trainer model to help with program expansion, which is

not being done anywhere else in the U. S. for School IPM. It is especially important for extension to add value in counties where agricultural demands have significantly decreased. Development of a business model for the pest control industry will ensure that programs are profitable and meet IPM goals. The school IPM program is very hands-on intensive, so more personnel are needed to keep up with expansion. The Florida School IPM Website is an avenue of information dispersal and has been designated as the National site by EPA, but there is no financial support to keep it updated.

University's extension IPM activities and outcomes associated with this area of emphasis.

Over the next 3 to 5 years, the growing coalition of School IPM practitioners will be solidified via our Statewide Expansion Plan. Training is provided to teachers, cafeteria staff, administration and maintenance/custodial staff with monthly updates. Recognition is provided to school districts in Florida that meet and maintain verifiable IPM standards.
Target audience: School/daycare providers, children, parents. Educational messages include, “IPM is a process, not a miracle,” “Pest prevention is the best method of pest management,” and “Pesticides don’t prevent bugs, they kill bugs.”

The roles and involvement of individuals and/or programs at your university (including the Extension IPM Program, if applicable) and key cooperating organizations.

School districts with county agent involvement receive the highest priority for inclusion in the first level of expansion. County and campus faculty will provide hands-on training for practitioners. IPM coordinators will be designated from within for each school district. Practitioners include school maintenance staff or outsourced, private pest control technicians. Key cooperating organizations include school districts, the Florida School Plant Managers’ Association, the National Pest Management Association and various state associations.

How this land-grant university hopes to change pest management behavior through stakeholder participation in these activities.

The first 3 years of expansion will focus on well-managed school districts with strong principals (enforcers) to provide access to faculty and staff through meetings and site visits. There are several levels of stakeholders extending from the districts and schools to individual students and employees who ultimately move information to the general public. Previous experience has demonstrated that if the principal enforces IPM guidelines, the program will be a success. Education on pest prevention and building maintenance that promotes pest exclusion is the key to behavioral changes.

The planned impact of this university's efforts in terms of the three overall IPM roadmap goals.

Decreasing pest incidence and pesticide use in schools by 50%

while maintaining or reducing costs are the primary goals. Success will be measured by insect monitor counts for pre- and post-IPM training and numbers of pesticide applications. Reducing the risk of pests and pesticides in schools should impact more than 1 million school children and staff within 3 to 5 years. There are almost 3 million children enrolled in Florida schools, including preschool and daycares. There are 271,213 children (3 to 4 years old) enrolled in daycares where pesticide use is virtually unregulated. There are 945,823 children under 5 years old in Florida. The Florida School IPM Program is creating a new niche market and job opportunities for mid-size pest control companies. Preliminary data indicate that very small and very large companies do not fit this economic model but may create career enhancement opportunities for staff where IPM in done in-house. New employment opportunities are also possible for verifying IPM in schools, particularly involving site visits and pesticide audits.

Citrus **Effort: 15.0%**

The Extension educational opportunities associated with this area of emphasis, including any difficulties that will need to be overcome in order to achieve success.

The Florida citrus industry is faced with serious new problems that threaten its viability as an agricultural commodity in the state of Florida. These problems include low fruit prices, the diseases citrus greening and citrus canker, and continued recovery from the impact of multiple hurricanes. These issues, together with other annual pest problems that must be managed, have made profitable citrus production more challenging than ever. Florida citrus growers rely on the research and extension programs developed by the University of Florida citrus IPM program to make decisions on pest management as well as other aspects of citrus production. Citrus specialists are working to further educate growers on adopting an IPM program that incorporates chemical, biological and cultural control practices. The end goal is to provide a system approach that will enable growers to reduce inputs (e.g., pesticide use) and increase profit.

University's extension IPM activities and outcomes associated with this area of emphasis.

The primary target audience of the Citrus IPM program is commercial citrus growers. Citrus specialists will hold in-service training for multi-county citrus agents on important pest issues at that time. Agents will be given handouts and presentations that will be used at their county grower meetings throughout the state. Citrus specialists will give presentations on citrus IPM at

regional, national and international citrus conferences and other professional societies. The extension educational subject matter of these presentations will include pest biology, monitoring and updates on control strategies including the integration of chemical, cultural and biological controls. The University of Florida Citrus Pest Management Guide will be published annually with updated information on citrus IPM for commercial growers. Outreach activities, including university publications and media outlets, will serve to educate homeowners with dooryard citrus trees about managing citrus pests in an environmentally safe manner.

The roles and involvement of individuals and/or programs at your university (including the Extension IPM Program, if applicable) and key cooperating organizations.

The Florida Citrus IPM Program is the collaborative effort of more than thirty citrus specialists located at the University of Florida Citrus Research and Education Center in Lake Alfred, the University of Florida Extension IPM Program, numerous faculty located at the main UF campus in Gainesville, citrus specialists located at experiment stations throughout the state and five multi-county citrus extension agents located in designated citrus growing regions of Florida. These groups work with industry organizations including Florida Citrus Mutual, the Florida Citrus Production Research Advisory Council, Florida Department of Citrus, the Florida Department of Agriculture and Plant Industry, the USDA and smaller citrus grower groups to identify and respond to pest problems affecting the citrus industry.

How this land-grant university hopes to change pest management behavior through stakeholder participation in these activities.

Florida citrus growers are familiar with the term IPM but are often uncertain how to implement IPM in their own groves. This uncertainty is likely due to the lack of a cohesive plan that incorporates all aspects of the citrus production system into an IPM program that growers can follow to reduce pesticide use without sacrificing yield or profitability. To enable citrus growers to implement true IPM practices, guidelines will be developed that detail IPM strategies for managing multiple pests rather than each pest on an individual basis. Multi-year field trials will be presented for grower evaluation at field days to demonstrate the benefits of such practices.

The planned impact of this university's efforts in terms of the three overall IPM roadmap goals.

Florida citrus growers are continually invaded by new pest problems that result in increased pesticide usage which leads to development of other pest problems. Developing an all-inclusive pest management plan that growers can easily adapt to their

growing conditions will help to reduce the number and amount of pesticide applications annually. Use of selective rather than broad spectrum pesticides when needed will reduce the risk of worker exposure to harmful pesticides and decrease the likelihood of adverse environmental effects. Written surveys given annually to citrus growers on management practices they employ will be used to document impacts of this program on clientele behavior.

Deciduous and Small Fruits **Effort: 10.0%**

The Extension educational opportunities associated with this area of emphasis, including any difficulties that will need to be overcome in order to achieve success.

The Small Fruit IPM Program focuses on the ecological management of insect pests affecting blueberries, strawberries, grapes, raspberries, and blackberries.The extension educational opportunities offered by the Small Fruit IPM Program include fruit schools for blueberries and grapes, in-service training and researcher-to-grower contacts.

University's extension IPM activities and outcomes associated with this area of emphasis.

The planned extension activities for primary commodities include meetings with grower groups, field days, on-farm demonstrations, newsletter publications, website information and PowerPoint presentations. This program provides information to extension faculty, industry groups, growers, crop consultants and marketing representatives. Current work directly involves several small farmers. The program conducts evaluation of registered and unregistered (new) insecticides and acaricides in blueberries and strawberries to provide growers with information on the performance of these compounds in comparison with conventional insecticides. It is also our goal to identify new compounds that may have future use in these industries. The establishment of a new grape vineyard for demonstration purposes will also provide opportunities for grape growers to evaluate IPM for grapes.

The roles and involvement of individuals and/or programs at your university (including the Extension IPM Program, if applicable) and key cooperating organizations.

The USDA-ARS Small Fruit Laboratory in Poplarville, Mississippi is rearing and evaluating parasitoids of cranberry tipworm for release in blueberry fields in the future. This group is also replicating some of our reduced-risk insecticide trials in Mississippi.

USDA-ARS scientists are working with our laboratory to develop trapping protocols to monitor fruit flies, Anastrepha spp., for selected Caribbean countries. Collaboration also includes scientists from the USDA-APHIS laboratory in Gainesville, Florida. The goal is to develop alternatives to broad-spectrum pesticides. Currently, we are evaluating bait stations and Attract-and-Kill devices to control pest fruit fly species. The Small Fruit

IPM Group works with the Department of Horticultural Sciences at the University of Florida and the University of Georgia, The primary goal is to assist growers in reducing the amount of pesticides used in blueberry fields for management of key insect pests.

How this land-grant university hopes to change pest management behavior through stakeholder participation in these activities.

Continued growth and development of Florida small fruit industries will depend on the producer's ability to develop effective pest management programs that specifically target the key pests in these cropping systems. Conventional programs for managing key pests in small fruit systems have traditionally involved large-scale application of broad-spectrum pesticides. This new program focuses on a more integrated approach involving effective monitoring for insect pests, biological control, cultural techniques, host plant resistance and the use of reduced-risk pesticides for managing key insect pests. Changes in grower practices to a more integrated approach will bring about a significant reduction in the use of broad-spectrum pesticides. Growers who adopt our monitoring protocols will be trained to target reduced-risk spray applications only when pest populations are very high. These practices will positively impact the environment of small fruit production systems.

The planned impact of this university's efforts in terms of the three overall IPM roadmap goals.

Formal and informal surveys will be conducted to evaluate the percentage of growers that have adopted the integrated strategies. Grower surveys will be initiated prior to and after the implementation of a specific project. Growers will periodically be questioned to determine if they are continuing to use the tactics that they initially adopted.

Watersheds and River Basins **Effort: 10.0%**

The Extension educational opportunities associated with this area of emphasis, including any difficulties that will need to be overcome in order to achieve success.

The Watersheds and River Basins Area of Emphasis is characterized by the Florida IPM in Waterways Program that entails a variety of educational and outreach efforts. An aquatic weed ID and IPM guide will be designed, as well as a trifold brochure for distribution at municipal buildings, fishing tackle shops, marinas, and restaurants in high impact areas. Signage will be installed at boat launch ramps and other key locations to publicize aquatic weed alerts. Other plans include the development of a month to month model information guide with specific BMPs to be applied through the year. Many constraints are associated with these shoreline programs because residents frequently do not comprehend how their activities, e.g., using

pesticides to maintain attractive yards or building new waterfront homes, directly impact surface and ground water. As stewards of a watershed, an entire community's action is required to maintain a healthy environment.

University's extension IPM activities and outcomes associated with this area of emphasis.

A primary goal of this IPM Extension program is to focus on actions that watershed users can take to ensure that lake maintenance and restoration efforts are sustainable. Specific educational programs will focus on reducing pesticide and fertilizer runoff, preventing the spread of aquatic weeds, and managing septic systems. Efforts will be made to create awareness of the importance of avoiding the spread of nuisance plants, e.g., hydrilla and water hyacinths, by assuring that plant fragments are removed from boats, trailers, and fishing tackle. The target audience for this education is all residents and visitors in Florida that live on and/or use the waterways. The major Extension message being that an integrated approach is necessary to reduce the risk of waterway destruction by invasive species and their control.

The roles and involvement of individuals and/or programs at your university (including the Extension IPM Program, if applicable) and key cooperating organizations.

A variety of partners are essential to implement a successful shoreline stewardship program, such as the Florida Yards and Neighborhoods Program (FYN), Southwest Florida Water Management District(SWFWMD), Florida Lake Watch, county environmental health agencies, public utilities, homeowner associations, fishing guides, marina and fish camp owners and operators, and University of Florida Cooperative Extension. Extension provides leadership to the educational and outreach components of the program. The SWFWMD has served as a funding source for educational programs and has a key interest in maintaining water restoration projects. Homeowner groups, fishing guides, and marina owners and operators serve as a voice of the public and assist in the successful implementation of the program. Florida Lake Watch will monitor water quality.

How this land-grant university hopes to change pest management behavior through stakeholder participation in these activities.

The desired outcome will be judicious use of pesticides and fertilizers to maintain yards and landscapes in close association with Florida waterways. Additionally, a notable improvement is expected in actions to control and prevent the reintroduction of aquatic weeds into lakes and neighboring waterways. Efforts will be made to work with SWFWMD and its Restoration Committee to assess progress in reinforcing maintenance and restoration efforts. Ultimately, the target audience that is being called-to-action will be assessed to determine if they have increased significantly the implementation of IPM practices for maintaining

the shorelines and lakes.

The planned impact of this university's efforts in terms of the three overall IPM roadmap goals.

The University of Florida, Institute of Food and Agricultural Sciences, FYN Program promotes IPM, e.g., using alternatives to chemical pesticides, minimizing fertilizer applications, and adequately maintaining home septic systems. Collectively these practices decrease risks to human health and the environment. The partnership will continue with Extension and FYN to determine the cost and level of acceptance of the Florida IPM in Waterways Program.

Pasture and Forage Crops **Effort: 10.0%**

The Extension educational opportunities associated with this area of emphasis, including any difficulties that will need to be overcome in order to achieve success.

The following are educational opportunities to promote Pasture IPM: in-service training for county agents, pesticide applicator training, continuing education short courses, and regional workshops for extension clientele, such as the Florida Cattlemen's Association. The targeted audience can be reached using several IPM related websites, email distribution lists and commodity based newsletters. The biggest obstacle to overcome in the next three years will be improving communication among agents and specialists to streamline educational opportunities and maximize IPM program visibility. Much of the progress will be made through the established Mole Cricket IPM Workgroup.

University's extension IPM activities and outcomes associated with this area of emphasis.

Planned activities include: annual IPM pasture manager training, website based training, forage and pasture improvement fact sheets, newsletter and brochure production, an IPM invasive weed control program, several workshops and seminars, displays and exhibits. A team project is being designed to create a statewide pasture improvement project that will work to control imported fire ants, mole crickets, invasive weeds, and other damaging pests. Pasture improvement field days will teach insect identification and scouting techniques as well as expand awareness of new cultural practices. The major target audiences are Extension agents, government planners, pasture managers, pest management professionals, public park managers and the general public. Extension messages will be focused on IPM's role in environmentally sound pasture maintenance and forage production.

The roles and involvement of individuals and/or programs at your university (including the Extension IPM Program, if applicable) and key cooperating organizations.

Florida County Extension agents and specialists assist with

program development and the dissemination of educational materials. Cattlemen and pasture owners provide support for the IPM program by conducting trials on their sites, providing information on specific pest problems, and by advising on alternative pest management strategies that have lead to a reduction in pesticide applications.

How this land-grant university hopes to change pest management behavior through stakeholder participation in these activities.

Participants in the educational activities will learn how to maintain pasture in ways that encourage natural enemies and prevent pests. A measurable goal is to increase the number of participants who learn new techniques for scouting and apply them to their pastures. Cultural techniques will be emphasized to preclude pest problems and reduce the use of pesticides. Implementation of new technologies and the application of information for decision making should have a widespread positive impact on pest management practices and increase stakeholder's ability to recognize and identify common pest problems. Primary IPM solutions will include increased scouting, pesticide reduction, reduced risk practices and proper handling of pesticides.

The planned impact of this university's efforts in terms of the three overall IPM roadmap goals.

Groups working on pasture and forage crop IPM are planning to measure direct environmental impacts, e.g., water quality improvements. In addition to this, adoption of IPM practices will be measured with pre-and post-program surveys. The environmental benefits of pasture and forage IPM and BMPs will be demonstrated to encourage increased adoption of these practices. Improved pastures and forage should lead to reduced costs associated with quality beef and dairy production. Organic beef and dairy products are gaining wider appeal in the marketplace. A cost/benefit analysis for farmers and ranchers who practice IPM should encourage others to implement similar production and pest management systems.