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IMPACT[®]

The University of Florida Institute of Food and Agricultural Sciences



**Northwest Florida Focus:
putting Florida FIRST**



UNIVERSITY OF
FLORIDA
Institute of Food and Agricultural Sciences

Perspective

By Michael V. Martin

Almost three years ago, the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) launched a long-term program planning effort known as Florida FIRST: Focusing IFAS Resources on Solutions for Tomorrow.

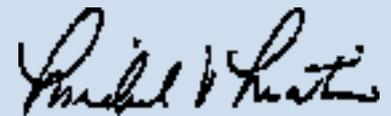
The plan and the process that produced it were built upon several principles, including open participation by all interested and affected parties. The planning effort — designed to be transparent, understandable and relevant — has resulted in significant evolutionary changes for statewide UF/IFAS teaching, research and extension programs. Moreover, the planning effort is dynamic and adaptable so our faculty and staff can respond to changing economic, social and environmental conditions.

The plan that we collectively produced has guided our efforts and decision making for the past two years. We have filled faculty positions that focus on cornerstone capabilities and major program imperatives. We have created an internal grants program and launched a special project intended to better assess the contributions of natural resource industries (agriculture, forestry, fisheries and aquaculture) to the state's economy. We have created and implemented a UF/IFAS institutional marketing program. To date, through administrative restructuring, we have reallocated more than \$1.5 million from administration to specific program activities.

This issue of IMPACT magazine highlights UF/IFAS programs in Northwest Florida that are putting Florida FIRST. We invite you to learn how faculty at the West Florida Research and Education Center are originating distance education courses to other parts of the state. Find out how UF/IFAS programs are targeted toward natural resource enhancement, forest restoration and fire management in the Florida Panhandle. And see how consolidated programs at the North Florida Research and Education Center are helping producers compete in today's global marketplace.

This issue also highlights extension faculty and programs that help our citizens improve the quality of their lives through direct application of science-based information.

The diversity of Florida's natural resource sector and the ever-changing needs of the state's residents — coupled with rising concerns about the environment and the pressures of global competition — are some of the issues being addressed in Northwest Florida as UF/IFAS continues putting Florida FIRST.



Mike Martin

Vice President for Agriculture
and Natural Resources

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UF/IFAS is putting Florida FIRST in developing knowledge in agricultural, human and natural resources and the life sciences and making that knowledge accessible to sustain and enhance the quality of human life. Visit the Florida FIRST (Focusing IFAS Resources on Solutions for Tomorrow) Web page at: floridafirst.ufl.edu

On the cover: Debbie Miller, left, and Shibu Jose, faculty at the West Florida Research and Education Center in Jay and Milton, use a white quadrat to measure the growth of wiregrass following a prescribed burn in a longleaf pine forest. Prescribed burning helps maintain a desirable ground cover. (Photo by Thomas Wright)

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(Photo by Thomas Wright)

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Emerald Coast Connection

With programs in environmental horticulture, turf grass science and natural resource management, the West Florida Research and Education Center near Pensacola provides a vital link between the University of Florida and counties along the state's famous Emerald Coast.

Established in 1947 to conduct research on row crops, the University of Florida's West Florida Experiment Station — now the West Florida Research and Education Center — has evolved into a comprehensive program that serves counties in the Florida Panhandle and neighboring states.

Faculty at the center still conduct research and extension programs on row crops such as corn, cotton and peanuts, but the scope of their work has been expanded to include environmental horticulture, turf grass science, weed science, natural resource management and conservation, and forestry.

In addition, the center now offers UF degree programs in environmental horticulture, natural resource conservation and turf grass science in cooperation with Pensacola Junior College and the University of West Florida. The new teaching programs are based in Milton while research is located at the center's original site in Jay. Both sites are part of UF's Institute of Food and Agricultural Sciences (UF/IFAS).

Jeff Mullahey, center director, said the new cooperative education programs allow students to complete a bachelor's degree without having to attend classes at the main UF campus in Gainesville. He said the center's nascent teaching program at Milton already attracts about 50 students each semester, and the program can accommodate up to 100 students.

"We have initiated a new marketing plan to help increase awareness about the center's teaching, research and extension programs," he said. "Students can take our courses here in Milton or complete them through our new distance education program."

He said a new tuition agreement allows students from 15 counties in southern Alabama to enroll at the Milton campus without paying out-of-state tuition, saving them as much as \$200 per credit hour. For 60 credit hours, the savings add up to \$12,000.

Mullahey, a professor of wildlife ecology and conservation, said the center's long-range goals are being reviewed under the Florida FIRST (Focusing IFAS Resources on Solutions for Tomorrow) strategic planning effort. Future program areas may include alternative cropping systems, precision agriculture, wildlife ecology and ecotourism.

He said the center's geographical location in West Florida opens the door to regional partnerships with other land-grant institutions in the Southeast.

Photo by Audrey S. Wynne



Jeff Mullahey, left, and Barry Brecke provide program leadership in forestry, environmental horticulture, agronomy and natural resources. Brecke, professor of agronomy, serves as associate director of the West Florida Research and Education Center. (Photo by Thomas Wright)

Distance Education

Students at the center have been taking distance education courses since 1996 when the Milton campus was linked to UF in Gainesville and other research and education centers around the state. Now, with the recent installation of a two-way interactive video production facility at the Milton campus, distance education courses are being disseminated from the West Florida center to other areas of the state for the first time.

“Annual and Perennial Gardening (ORH 4804C), a three-credit hour undergraduate environmental horticulture course, was the first distance education course to originate from our campus,” said Rick Schoellhorn, assistant professor of environmental horticulture.

During fall 2000, he taught the course to 40 students at UF distance education sites in Apopka, Fort Lauderdale, Fort Pierce, Gainesville, Homestead, Milton and Naples. He said the course was a team effort involving faculty at each location.

“We had excellent faculty at each site,” Schoellhorn said. “Each instructor provided guest lectures, with talks on invasive plants, mulch and compost alternatives, the psychology of different colors in the landscape and commercial plant breeding.”

“Because we’re educating students at remote sites around the state, the instructor needs to emphasize student interaction,” he said. “Once students become comfortable with being on television, they participate more freely in discussions with the instructor and other students.”

Rick Puckett, coordinator of academic support services at the Milton campus, said UF’s College of Agricultural and

Life Sciences provided funds for the new interactive distance education classroom.

“We have cameras, computers, cordless microphones and all the production equipment needed to produce classes and transmit them statewide via UF’s distance education network,” he said. “This was the first time we originated a course from Milton for the entire state, and it was very successful.”

Forestry

Shibu Jose, assistant professor of forestry at the West Florida center, is working on research aimed at restoring longleaf pine forests that once dominated the landscape in the U.S. Southeast.

“One hundred years ago, there were about 90 million acres of longleaf pine forest in the Southeast, and now there are only 3 million acres of longleaf pine forest — about 4 percent of what we once had,” said Jose. “As a result, there is a strong interest on the part of natural resources agencies and the general public in restoring these forests.”

He said longleaf pine forests gave way to agriculture and stands of loblolly and slash pine, two fast-growing species raised commercially for their wood. Only isolated pockets of the stately tree remain, but Jose wants to reverse the trend by determining how foresters can help the longleaf.

“This particular species of pine can be somewhat difficult to manage when it comes to conditions needed to produce new trees that will grow to maturity,” Jose said. “If trees produce seeds, the seedlings can remain in what we call the grass stage for up to 15 years if there is intense competition from other plants. Our research objective is get the seedlings out of the



In the aftermath of Hurricane Opal and other storms, Debbie Miller is using a variety of methods, including the installation of fences and sea oats, to stabilize and restore sand dunes on Santa Rosa Island near Pensacola. (Photo by Eric Zamora)

grass stage as quickly as possible so they can grow into marketable trees in 50 years instead of 100.”

To promote environmentally friendly farming practices in Florida and the Southeast, Jose is working with scientists in the new Center for Subtropical Agroforestry in UF’s School of Forest Resources and Conservation.

Established with aid of the \$3.9 million grant from the U.S. Department of Agriculture, the center will provide teaching, research and extension in agroforestry, a new farming practice that grows crops alongside of trees or shrubs. P.K. Nair, distinguished professor in the school, is director of the new center.

Jose said agroforestry practices are relatively unknown to industrialized nations, but are common in tropical regions where limited-resource farmers grow trees in crop fields to produce firewood.

“In the Southeast, agroforestry could bridge the gap between commercial agriculture and traditional farming,” Jose said. “It could help smaller farms diversify, enhance their revenues and become more sustainable. It also can promote conservation of land and wildlife habitat.

“In most cases, we want to minimize competition,” he said. “One promising environmental strategy uses deep-rooted trees to capture excess crop fertilizer and prevent it from leaching into groundwater.”

Jose said preliminary tests at the West Florida center have focused on planting cotton between rows of pecan trees and cotton between rows of loblolly and longleaf pines.

Dune Restoration

When Hurricane Opal swept through Santa Rosa Island in 1995, the scenic barrier island that runs from Destin to Pensacola Beach lost most of its sand dunes. Since then,

researchers at the West Florida center have been trying to help Mother Nature repair the damage.

“Just piling up sand on the beach with a bulldozer is not the only way to rebuild dunes,” said Debbie Miller, assistant professor of wildlife ecology and conservation who leads the dune restoration project.

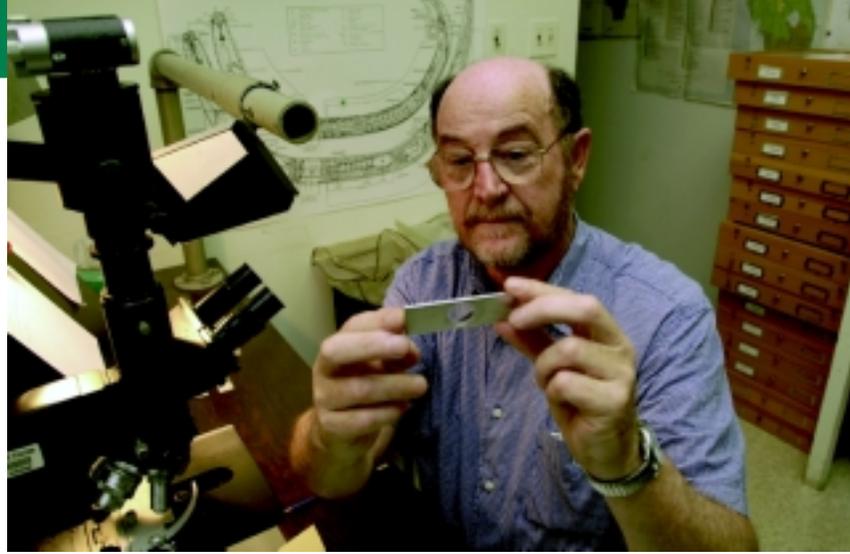
“Installation of a wood fences, for example, helps rebuild dunes that blew away after native vegetation was removed by the hurricane or bulldozing of storm debris. Once sand starts to accumulate around fences, native plants like sea oats are planted to stabilize the dune,” she said. “We have found that dunes come back pretty quickly using this method.”

However, knowing how to build a dune doesn’t mean the dune will do what it is supposed to. She said researchers must remember dunes actually serve two purposes.

Leonard Dunavin, associate professor of agronomy at the West Florida Research and Education Center, evaluates a ryegrass test plot in Jay as part of his program to select high-yield forage varieties for farmers in Florida and Alabama. (Photo by Thomas Wright)



Robert Kinloch, associate professor of nematology at the West Florida Research and Education Center, isolates nematodes from a soil sample provided by a local farmer. Kinloch's research program focuses on methods to control nematodes and develop sustainable management practices for agronomic and horticultural producers. (Photo by Thomas Wright)



“We need dune restoration not only for building protection, but also because dunes provide habitat for animals, including several subspecies of endangered beach mice,” Miller said. “We want to learn how beach mice move through the landscape so we can plan for restoration that will help with the recovery of those subspecies.”

Garden Festival

Activities at the Milton campus provide services that go beyond research and teaching students. As part of its goal to be a center of horticultural knowledge, faculty at the Milton campus work with Pensacola Junior College and the Florida Federation of Garden Clubs to present the annual Emerald Coast Flower and Garden Festival. This year's festival took place April 6-8.

“One goal of the festival is to increase awareness about gardening and landscaping in this part of the state,” Schoellhorn said. “We had 30 vendors this year, with the booth fees going to scholarships for students.

“Visitors attended educational talks, and information was available at booths on butterfly gardening, native plants and environmentally friendly gardening,” he said. “Overall, it was a celebration of spring with lots of color and new plants.”

While the festival is four years old, Schoellhorn said 2001 was the second year it was held on the Milton campus, with attendance growing to about 8,000 for the three-day event. Most of the vendors were from the Florida Panhandle, but some came from Alabama, Mississippi and Louisiana.

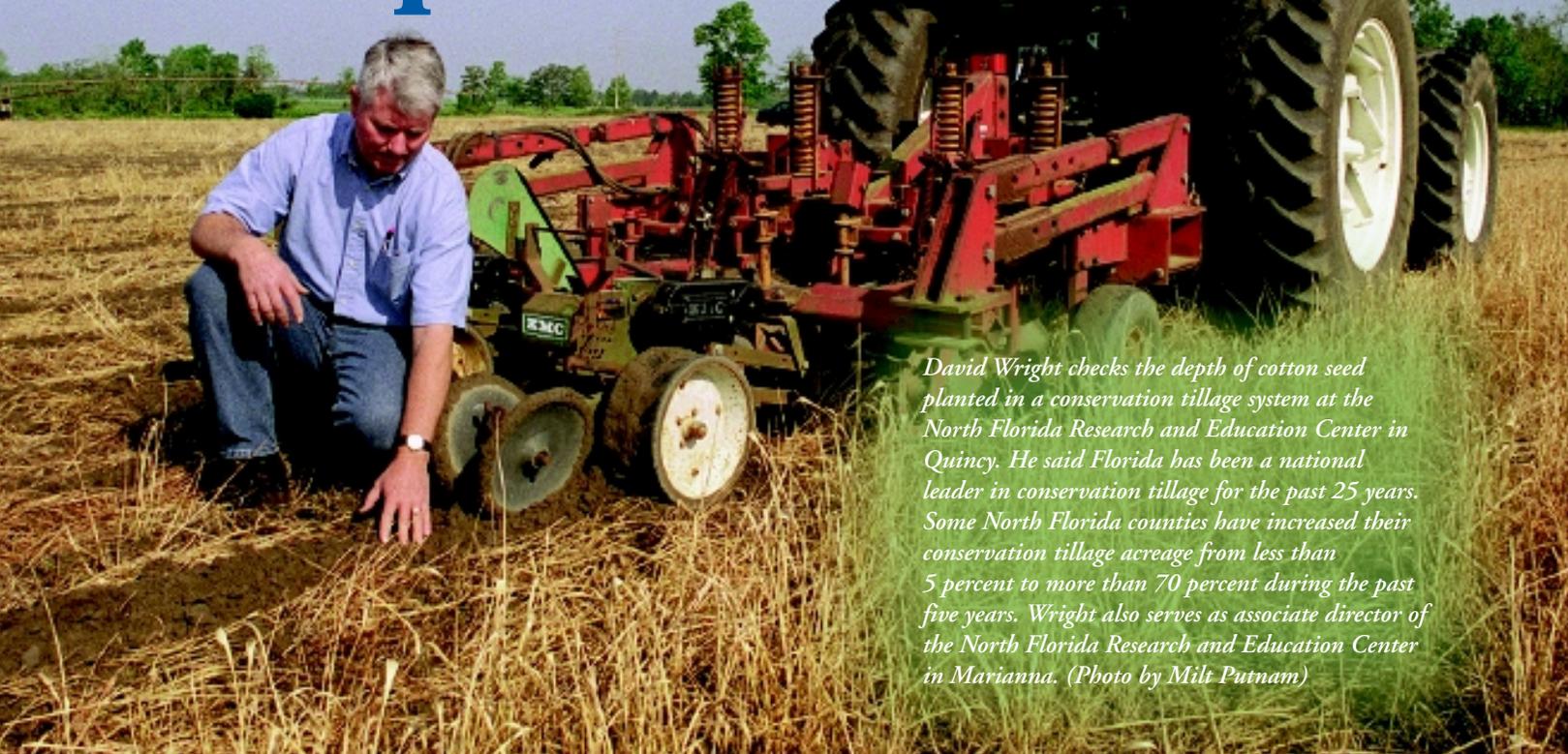
— *Chuck Woods and Ed Hunter*

Jeff Mullahey, wfgator@ufl.edu

Dick Bedics, left, provost of Pensacola Junior College, and Rick Schoellhorn examine ornamentals at the Emerald Coast Flower and Garden Festival, April 6-8. The annual event is held at the Milton campus of the West Florida Research and Education Center in cooperation with PJC and the Florida Federation of Garden Clubs. (Photo by Thomas Wright)



Multistate Impact



David Wright checks the depth of cotton seed planted in a conservation tillage system at the North Florida Research and Education Center in Quincy. He said Florida has been a national leader in conservation tillage for the past 25 years. Some North Florida counties have increased their conservation tillage acreage from less than 5 percent to more than 70 percent during the past five years. Wright also serves as associate director of the North Florida Research and Education Center in Marianna. (Photo by Milt Putnam)

Faculty and staff at the North Florida Research and Education Center have expertise in a wide range of programs and commodity areas, and the center's impact on agriculture, natural resources and consumers extends well beyond the state's border.

By Chuck Woods

With 23 scientists and educators in nine academic disciplines working on more than 30 research projects, the University of Florida's North Florida Research and Education Center is like no other facility in Florida or the southeastern United States.

"Of course, Florida is our first concern, but our geographical location allows us to deal with problems that don't stop at our northern border," said George Hochmuth, center director. "Our faculty work closely with scientists at the UF campus in Gainesville as well as those stationed at other UF research and education centers around the state. And our strategic location makes it possible — and desirable — to work with scientists in other states to solve regional problems."

Faculty at the center also are active internationally, working with scientists from as many as 20 other nations, he said.

The North Florida center currently has research and education programs at four different locations: Live Oak, Marianna, Monticello and Quincy. The center's beef unit in Chipley has been closed and moved to Marianna. Ornamental and fruit crop programs at the Monticello center will be moved to Quincy later this year. All programs are part of UF's Institute of Food and Agricultural Sciences (UF/IFAS).

"The consolidation — from five locations to three — will allow us to improve the effectiveness and efficiency of our teaching, research and extension programs," Hochmuth said.

At Quincy, a new 27,780-square-foot laboratory and office building is scheduled for completion this fall. Programs at the center focus on all aspects of plant science, including plant breeding, crop production, plant disease,



Ron Barnett, professor of agronomy, examines new lines of triticale at the Quincy center. He said the small grain is a cross between durum wheat and rye being developed as an alternative food, feed and forage crop. Under the small grain breeding program directed by Barnett, 23 new varieties have been developed for Florida growers since 1980. (Photo by Milt Putnam)

insect and nematode pests, forestry, soil science, economics, marketing and rural development. The State Rural Development Council is located at the center, linking UF with community development in North Florida.

New research laboratories and bull-testing facilities have strengthened agronomic and animal programs at Marianna, he said. This center will continue to focus on cattle research, peanut breeding, forage production and agricultural economics.

Hochmuth said the North Florida Research and Education Center – Suwannee Valley in Live Oak is closely tied to extension programs in the region. Examples of programs at the various center locations follow.

Conservation Tillage

Thanks largely to the work of faculty at the North Florida Research and Education Center in Quincy, Florida has been a national leader in conservation tillage for the past 25 years. Some North Florida counties have increased their conservation tillage acreage from less than 5 percent to more than 70 percent during the past five years.

The practice — which reduces the need for tractor passes over fields — saves fuel, labor and equipment. It also helps protect the soil, prevents erosion and enhances the long-term sustainability of farming.

“Even with the high adoption rate for conservation tillage and the \$20 to \$70 per acre advantage it offers, the family farm is still under pressure because of droughts, stagnant yields and low commodity prices,” said David Wright, professor of

agronomy at the Quincy center. “As a result, the number of family farms in the Southeast continues to decline, and some farm supply dealerships have lost almost a third of their customers during the past five years.”

For example, in Jackson County, which leads the state in peanut production, the number of farms has dropped from 4,000 in the mid-1980s to fewer than 800 today. Although some of this reduction is due to consolidation into larger farms or a shift into tree farming, a viable cropping system is essential for the survival of farming in the region, Wright said.

He said research at the UF center indicates sod-based rotations with bahia grass and bermuda grass can lower production costs even further and produce dramatic yield increases.

“Even though row crop acreage is reduced when sod crops are introduced into rotations, net profits can double,” Wright said. “With sod-based rotations, peanut yields increased to 3,800 pounds per acre — up from 2,600 pounds per acre without sod rotation.”

In addition to sod-based rotations, the research program uses integrated pest management, biotechnology, precision farming and minimum or no-tillage systems.

“The primary goal over the next five years is to develop and deliver an economically and environmentally sustainable row crop production system for Florida and the Southeast,” Wright said.

Other faculty at the center working on the project include Tim Hewitt, professor of food and resource



Steve Olson, left, and Tim Momol evaluate how black and metalized plastic mulch bed covers affect the population of thrips and the incidence of tomato spotted wilt virus on tomato transplants. (Photo by Milt Putnam)

economics; James Marois, professor of plant pathology; Fred Rhoads, professor of soil and water science; Jimmy Rich, professor of nematology; Richard Sprenkel, professor of entomology; and David Zimet, associate professor of food and resource economics. Ray Gallaher, professor in the Department of Agronomy in Gainesville, also is working with the group.

Vegetable Production

New pest management programs developed at the Quincy center are helping vegetable growers in the Southeast control western flower thrips and tomato spotted wilt virus, which is spread by the insect pest.

“During the past two decades, western flower thrips have spread the tomato virus worldwide, causing yield losses ranging from 20 to 40 percent — sometimes as high as 100 percent — in tomatoes, peppers and other crops in the Southeast,” said Steve Olson, professor of horticultural sciences. “As a result, western flower thrips and tomato spotted wilt virus are now the key insect and disease problems for vegetable growers in the region.”

He said growers responded by spraying broad-spectrum, highly toxic insecticides on a regular basis, even though the chemicals were not effective in controlling the virus. In the mid-1990s, Olson and Joe Funderburk, professor of entomology at the center, began developing integrated pest management (IPM) programs that have proven to be effective against the insect and the virus it spreads.

“First, we found that the minute pirate bug is a natural predator of the thrips vector in peppers. Then we discovered a natural insecticide, spinosad, was effective against western flower thrips, but harmless to the natural predator,” Funderburk said. “Pepper growers have adopted this IPM

strategy for controlling thrips and tomato spotted wilt virus, reducing or eliminating the need for conventional broad-spectrum insecticides.”

Funderburk said tomato plants are somewhat toxic to the minute pirate bug predators, which limits their ability to suppress the thrips vector. Nevertheless, spinosad is effective against thrips in tomatoes.

Working with Tim Momol, assistant professor of plant pathology at the Quincy center, Funderburk and Olson have developed other solutions to the pest and disease problem, including the use of plastic mulches or bed covers that reflect ultraviolet (UV) light.

“Western flower thrips are attracted to flowers of low UV, yellow, blue and white, and our highly-reflective UV mulches confuse them so they are unable to locate the tomato flowers or plants,” Funderburk said. “In our tomato test plots, we found that UV-reflective mulches are an effective way to reduce losses from thrips and tomato spotted wilt.”

In 2000, the researchers evaluated the technology in large-scale grower trials and found it to be highly effective. The incidence of tomato spotted wilt virus was reduced from 45 percent in conventional black-mulched fields to 10 percent in fields with the UV-reflective mulch. The program also relies on the use of spinosad to further suppress western flower thrips and some late-season disease spread.

“One problem with the UV-reflective mulch is that it cooled the soil and resulted in reduced plant growth and yields when used for early planting,” Olson said. “Additional mulches are being evaluated with black strips down the middle to increase soil temperatures.”

The Quincy team recently received grants from the U.S. Department of Agriculture and private industry to conduct

Russ Mizell checks a trap for stink bugs, which are pests of most fruit, vegetable and seed crops. He developed the trap, which utilizes pheromones (chemical attractants and baits) to monitor and suppress different species of the pest. Mizell said the trap has potential application for homeowners and growers who cannot control stink bugs with conventional chemicals. He is seeking a patent for the trap. (Photo by Milt Putnam)



further research and implement IPM programs for tomatoes, peppers and other crops.

Regional Pest Management

Russ Mizell, professor of entomology at the North Florida Research and Education Center in Monticello, is co-director of a new regional pest management center, one of four in the nation. The Southern Region Pest Management Center was established at UF in September 2000 to strengthen connections between agricultural producers and research and education programs in 13 southern states, Puerto Rico and the U.S. Virgin Islands.

“It will improve the link between pest management researchers and farmers and ranchers in the southern U.S.,” said Mizell. “Our major objective will be to assist the U.S. Department of Agriculture and the Environmental Protection Agency in implementing the Food Quality Protection Act passed by Congress in 1996. We will focus on a full range of agricultural pests — from insects to rodents.”

Mizell, who directs the center with Norm Nesheim, professor and pesticide information coordinator in UF’s Department of Food Science and Human Nutrition, said the southern region has a wide diversity of fruit and vegetable crops, including citrus and tropical fruits.

“Florida’s warm, humid climate, coupled with our geographic location, makes the state particularly vulnerable to the accidental introduction of exotic pests from other areas,” Nesheim said. “This presents special issues for us.”

Mizell and Nesheim, who submitted a proposal for the center to USDA, were successful recipients of a \$4.1 million grant to initiate the UF program. The grant will underwrite operation of the center for three years.

Mizell also is developing integrated pest management (IPM) programs for deciduous fruits, pecans, ornamentals and landscapes. He is currently developing new monitoring and biological control methods for weevils, stink bugs and ornamental pests.

Stink bugs are very important pests of most fruit, nut and grain crops. Mizell invented a new trap to monitor stink bug species and has applied for a patent on it.

“It appears to have great promise as a monitoring and suppression tool for stink bugs. Under homeowner and organic grower conditions, the trap may adequately reduce damage from these pests,” he said.

The basis of any IPM program is knowing the seasonal abundance of the pests, which requires effective detection and monitoring tools. Mizell found that the Tedders trap will enable detection and monitoring of more than 110 species of weevils.

“The trap is particularly effective against weevil species that spend a portion of their life cycle in the ground such as plum curculio, the citrus root weevil complex and the forest pests, the regeneration weevils,” Mizell said.

“As a result of this work the adult emergence patterns for many important pest species can be determined as can answers to other questions concerning their biology, ecology and suppression. This line of research has great potential for homeowners and organic growers,” he said.

In cooperation with Peter Andersen, professor of horticulture at the Quincy center, Mizell is studying the feeding behavior and nutrition of the glassy-winged sharpshooter, a leafhopper vector of the pathogen, *Xylella fastidiosa*, which causes Pierce’s disease and many other diseases. Their joint research publications represent the world’s seminal literature on the nutritional ecology and behavior of xylem-feeding insects.



Gary Knox checks flower quality on mandevilla, a flowering vine. (Photo by Milt Putnam)

Florida Yards and Neighborhoods

Reaching millions of residents in 35 counties, the Florida Yards and Neighborhoods (FYN) extension education program teaches landscape practices that protect the environment and save time, money and natural resources.

“Purchasing and management decisions made by home owners, landscape professionals and builders affect a wide range of environmental issues,” said Gary Knox, professor at the Monticello center, who serves as team leader for the extension program. The team includes Christine Kelly-Begazo, state FYN coordinator in Gainesville, other extension specialists and county agents.

Knox said key issues include storm water runoff, loss of wildlife habitat, destruction of natural wetland and upland ecosystems, water and energy consumption, and generation of yard debris and solid wastes.

The education program provides alternative approaches and techniques that can significantly reduce unwanted environmental impacts generated by home development, landscape installation and maintenance, Knox said.

“Florida Yards and Neighborhoods differs from other landscape-oriented environmental education programs because it includes all aspects of landscape management,” he said. “It’s a comprehensive program that integrates site conditions, landscape design, plant selection, irrigation, fertilization, pest control, mowing, pruning and recycling.”

At the same time, he said, the program stresses the benefits of water conservation, pest control through integrated pest management, recycling of yard wastes, wildlife enhancement, energy conservation and abatement of non-point source pollutants.

For more information, visit the following Web site:
<http://hort.ufl.edu/fyn/>



Jarek Nowak, assistant professor of forestry at the Quincy center, examines a young loblolly pine plantation for signs of fusiform rust, the most troublesome pine forest disease in the U.S. Southeast. Although there is a lot of interest in restoring longleaf pine ecosystems, loblolly pine remains the most important wood producing pine species in the Southeast. In Florida, loblolly pine is best suited for more productive soils such as those in the Gadsden County area. (Photo by Milt Putnam)

Jeff Norcini examines Black-eyed Susan, a native wildflower commonly planted along roadsides in Florida. His research has shown that native wildflowers grown from seed derived from naturally occurring populations in Florida survive better than wildflowers grown from seed produced in other parts of the country. (Photo by Milt Putnam)



Native Wildflowers and Grasses

A growing interest in ecologically sound management of roadside vegetation, restoration of natural habitats, conservation and ecotourism is driving the demand for regionally adapted native wildflowers and grasses, especially seed, said Jeff Norcini, associate professor of environmental horticulture at the Monticello center. There also is a demand for native wildflowers and grasses that can be used in residential and commercial landscaping.

To help the ornamentals industry meet the demand for native plants, Norcini initiated a research program in 1996 to propagate, establish and maintain wildflowers and grasses in the Florida environment.

“We are emphasizing native herbaceous plant materials that are appropriate for Florida,” he said. “Our work supports those involved with native wildflower seed production, container production and establishment of sustainable populations.”

Norcini said information generated from his program will be useful to those involved in UF extension’s Florida Yards and Neighborhoods program as well as extension’s Environmental Landscape Management program.

George Hochmuth, gjh@mail.ifas.ufl.edu

Greener Pastures



Henry Grant, left, Gadsden County extension director in Quincy, and Ann Blount, assistant professor of agronomy at the North Florida Research and Education Center in Marianna, examine a pasture planted with a four-way blend of Florida cool season forage varieties. Blount and other UF researchers are developing forage grasses and legumes that are well adapted to growing conditions in the Florida Panhandle and other areas of the state. Grant said extension faculty are encouraging livestock producers to use the new forages. (Photo by Milt Putnam)

Agronomic and animal programs at UF's North Florida Research and Education Center in Marianna have a regional impact in the U.S. Southeast.

On more than 6 million acres of Florida pastureland, bahia grass is the principal forage or "backbone" of the state's \$2.1 billion beef cattle industry.

"The warm season forage grass has a remarkable adaptation to Florida and much of the Coastal Plain, but its growth just about stops with the onset of shorter days and cooler weather. This forces ranchers to use hay and expensive alternative feeds from October to April," said Ann Blount, assistant professor of agronomy at UF's North Florida Research and Education Center in Marianna.

"As a result, there's a real need to develop greener pastures during these months, and that's what our new forage program is all about," she said. "We want to develop forage systems for year-round grazing, with an emphasis on bahia grass breeding improvement. At the same time, we also are developing cool season forages — small grains, ryegrass and clover — that complement bahia grass."

Blount, who coordinates the bahia grass breeding program with researchers in Brooksville, Gainesville, Ona and Tifton, Ga., said incorporation of physiological traits, such as improved photoperiod response and better cold tolerance, offer great promise. Improvements also are being sought in seedling vigor, forage quality, and nematode and disease resistance.

"Our recent success with new bahia grass lines that are less sensitive to changes in light — or photoperiod response — will eventually extend the growing season of this popular grass," Blount said.

Working with her on this aspect of the bahia grass improvement program are Paul Mislevy, professor of agronomy at UF's Range Cattle Research and Education Center in Ona, and Tom Sinclair, agronomist with the U.S. Department of Agriculture in Gainesville. Other UF and USDA scientists are involved in the effort, including Richard Sprengel, professor of entomology at UF's North Florida Research and Education Center in Quincy, who is studying insect pests that feed on bahia grass.

Blount said the bahia grass breeding program also has a "turf side" to it. Improving bahia grass may lead to the development of cold-tolerant, long-season, pest-resistant turf for home and roadside use. With Florida's growing population, breeding a good bahia grass turf should have a bright future, she said.

She said collaborative research with other UF forage breeders in the state is a major part of the North Florida forage program. Blount works closely with Ron Barnett, professor and small grains breeder at the Quincy center; Gordon Prine, professor in the Department of Agronomy in Gainesville, who is developing new ryegrass varieties; and Ken Quesenberry, professor in the agronomy department, who is breeding new clover varieties.

Leonard Dunavin, associate professor agronomy at the West Florida Research and Education Center in Jay, also is

working on the forage program. "His work on forage evaluation in the Florida Panhandle is an important part of the program at Marianna, and he is actively involved in several collaborative projects between the two centers," Blount said.

Robert Myer, professor of animal sciences at the Marianna center, is working on grazing studies with new forages.

"Silvopastoral interest in the northern part of the state is growing," Blount said. "Many farms have diversified agronomic cropping with tree plantings and livestock. There is considerable interest in grazing under planted pines and also enhancing wildlife habitat."

Jarek Nowak, a new assistant professor of forestry at the Quincy center, is working with Blount on grazing livestock under various tree plantings. Nowak said diversifying farming in the area and integrating cropping, forestry and livestock are critical to farming's economic survival.

"Having many scientists involved in forage production statewide should lead us to greener pastures," Blount said.

Award-Winning Peanut Program

Peanut varieties from UF's breeding program have accounted for as much as 75 percent of the peanut acreage in the United States and are important in other nations around the world.

Improved yields, grades, disease resistance, oil chemistry, flavor and overall industry acceptance all reflect the high quality of UF's peanut breeding program headed by Dan Gorbet, professor of agronomy at the Marianna center.

With more than 30 years of experience in breeding some of the world's most successful commercial peanut varieties, Gorbet recently achieved a major breakthrough for the peanut industry and consumers with his new C-99R peanut.

"This cultivar has excellent yield, grade and disease resistance with normal oil chemistry," Gorbet said. "The foliar disease resistance of the cultivar will allow growers to reduce fungicide use and production costs."

He said C-99R is a new runner market-type peanut cultivar with good resistance to late leafspot, stem rot, white mold and TSWV (tomato spotted wilt virus). TSWV is the most troublesome disease problem for the peanut industry in the U.S. Southeast.

"The new peanut has essentially the same disease resistance as Southern Runner and Florida MDR-98, but with stronger TSWV resistance," Gorbet said. "Georgia Green is currently the leading peanut cultivar in the Southeast, and it received its TSWV resistance from its Southern Runner parent."

Prior to C-99R, Gorbet developed the highly acclaimed



Dan Gorbet examines new C-99R peanuts at his Marianna laboratory. His contributions to agriculture in the Southeast and the peanut industry earned him a “man of the year” award from The Progressive Farmer magazine in 1997. (Photo by Milt Putnam)

New Bull-testing Facility

The Marianna center’s new bull-testing facility — the only public program of its kind in the state — is helping cattle producers produce top-quality bulls.

“Testing provides commercial producers with a source of bulls that have passed strict health requirements and evaluations,” said Ronnie Hartzog, project coordinator. “Testing at the facility provides producers with important information about the genetic potential of their bulls and breeding programs.”

Hartzog, who is working with Bob Sand, associate professor in the Department of Animal Sciences, and Doug Mayo, Jackson County extension livestock agent in Marianna, said the facility includes an auction area, corrals, feed bins, shade structures and a watering system.

“Our bull sale in February 2001 was very successful, with the top-selling bull fetching \$15,000 for owners who will retain interest in the animal for one-third of future semen,” Hartzog said. “The second-highest selling bull was purchased for \$4,000, and 37 bulls were sold at the average price of \$1,851. Breeds included Angus, Brangus, Charolais, Limousin, Simbrah and Simmental.”

He said plans are underway for the next bull test sale in January 2002. Animals must be vaccinated, and they are fed a complete ration and hay. Cost to participate in the program is \$650. For more information, contact Hartzog at (850) 482-1252 or Sand at (352) 392-7529. — *Chuck Woods*

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Ronnie Hartzog, left, and Doug Mayo, Jackson County extension livestock agent in Marianna, discuss plans for the next bull-test sale scheduled for January 2002. (Photo by Milt Putnam)



SunOleic 95R and 97R peanuts, the world’s first commercial peanut cultivars with improved oil chemistry. Their cholesterol-lowering properties are similar to those of olive oil.

What gives SunOleic 97R its health-promoting qualities is its oil chemistry. It has more than 80 percent oleic fatty acid compared to about 50 percent in regular peanuts. Fatty acids are major components in all oils, but it is the oleic form (18:1) found mainly in olive and canola oils that makes them healthy. Gorbet said SunOleic 97R has more oleic acid than olive oil or canola oil.

“High oleic peanuts give retailers a three- to 15-fold increase in shelf life and offer growers better yields than Florunner, the former industry standard also developed by UF. TSWV has limited 97R production in the Southeast.

“The increase in shelf life alone translates into millions of dollars of savings on recalls due to outdated product. Longer shelf life also gives the new peanut an edge in taste,” Gorbet said. “Not only does it taste good, it holds its flavor longer.” The UF has three U.S. utility patents on this oil chemistry in peanuts.

The UF’s high oleic germplasm (F435-1) has been widely used in peanut breeding programs elsewhere in the U.S. and around the world, including Argentina, Australia, India, Malawi, South Africa and Zimbabwe. The high oleic chemistry is expected to be the dominant type of chemistry in peanuts in the near future, Gorbet said.

“Hurricane House”

A new building at the Escambia County Extension Service demonstrates how stronger construction methods can prevent or reduce storm damage along the Gulf Coast.

Since it opened in March 2000, the University of Florida’s Windstorm Damage Mitigation Training and Demonstration Center near Pensacola — also known as the “hurricane house” — has attracted more than 1,000 visitors.

The 3,100-square-foot facility, located at the Escambia County Extension Service office in Cantonment, is showing designers, inspectors, builders and homeowners how to minimize storm damage and increase survivability along Florida’s Gulf Coast.

“The building is helping demonstrate how new and existing homes can be made more wind resistant,” said George Rogers, Escambia County extension agent with UF’s Institute of Food and Agricultural Sciences (UF/IFAS). “Materials, products and construction methods in this building can be used in new homes or to retrofit existing structures. We are showing people how they can protect their homes and themselves during high-wind storms.”

Rogers said it’s the second hurricane house in Florida. The first was built at the St. Lucie County Extension Service in Fort Pierce in 1999, and a third facility is now under construction at the St. Johns County Extension Service in St. Augustine.

The structures are designed to comply with new state building codes that go into effect in July 1, 2001. The Florida Department of Insurance provided \$400,000 for construction of each center, and the UF Energy Extension Service is developing training programs for builders and homeowners.

He said many programs already have been developed and presented at the Escambia County building. Last year, two 4-H Hurricane Awareness Camps were conducted, attracting 94 young people who learned about the dynamics of hurricanes and the methods that are used in preparation, survival and recovery from these and other high wind events.

Other training programs have been conducted for contractors, construction inspectors and home designers. Many local homeowners and citizens planning to build new homes have visited the center to obtain information.

“A popular item of discussion is the incorporation of a ‘safe room’ into new homes,” Rogers said. “Evacuation is becoming less of an option and safe rooms are becoming an alternative for some people.”

Homeowners can save up to 70 percent on their insurance premiums if they use recommended measures to protect their homes, said Ron Natherson, public affairs manager with the Florida Windstorm Underwriting Association.

Reinforcing the roof, for example, could bring a 5 to 10 percent discount on insurance, while reinforced window shutters could save as much as 18 percent, he said.

Rogers said the UF windstorm damage mitigation centers provide homeowners and others with information



George Rogers said Escambia County’s new “hurricane house” has three types of window shutters, impact-resistant doors, a steel safe room and a garage door that will withstand winds of more than 120 miles per hour. (Photo by Eric Zamora)

about these and other reinforcing methods. Homeowners and builders can visit the center to see features such as three types of window shutters, impact-resistant doors, a steel safe room and a garage door that will withstand winds of more than 120 miles per hour.

Visitors also can see exposed sections of interior walls that show construction methods such as concrete, wood frame or walls built using an insulated concrete form — all showing how to build stronger and more energy-efficient homes.

“The insulated concrete form, for example, uses reinforcement bars and concrete sandwiched between plastic foam sheets. The method makes a substantially stronger wall,” Rogers said. “This method, used more often in the northern areas of the United States and Europe, is a little more expensive. But, on a beach where there is corrosion and storm surge, it would be worth the added cost.”

Although insulated concrete forms meet Florida building code requirements, not all craftsmen know how to work with the material, said Bob Stroh, director of UF’s Shimberg Center for Affordable Housing, who is overseeing hurricane house construction in the state.

Stroh is confident UF hurricane houses around the state will become magnets to educate the construction industry and the public on wind loss mitigation, energy efficiency and environmentally sensitive construction. One training program at the Escambia County center helped building craftsmen work with insulated concrete forms, which is now a popular construction method in the Florida Panhandle.

Rogers has plans for several educational programs during the 2001 hurricane season.

“In Florida, hurricane preparedness training is a year-round program,” he said. — *Chuck Woods*

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The Can-Do Man of Gulf C

*In the midst of rapid economic and social change, the Gulf County Extension Dir
sition from an industrial-based economy to one that is increasingly oriented towa*



Photo by Audrey S. Wynne

County

ector is helping residents make the transition to sustainable services and eco-tourism.

By Paul Kimpel

What do Angus cattle, Tupelo honey and farm-raised catfish have in common? The answer is Roy Carter, Gulf County extension director with the University Florida's Institute of Food and Agricultural Sciences (UF/IFAS).

Since 1979, when Carter assumed leadership of the extension program in Wewahitchka, this "one-man band" has helped people grow better crops, raise superior livestock and market their world-famous Tupelo honey.

Carter also provides services that range from helping farmers better use their resources to teaching children about horticulture and horses — valuable things to know if you live in that part of the woods.

And woods are a big part of Roy Carter territory. Tucked between Tallahassee and Panama City in northwest Florida, Gulf County covers 369,000 acres. The area — 80 percent forestry and 20 percent small farms — is home to 13,500 residents, and one-third of them produce a living from the land.

That's where Carter comes in. With a bachelor's degree in agricultural education and a lifetime of farming

experience, he is well-suited to deal with the challenges presented by his clientele of cattle farmers, garden club devotees, 4-H members and tourists. Not to mention county commissioners, hay farmers, homeowners and busy beekeepers.

"This is more than a nine-to-five job," Carter said. "It's based on the needs of the people, and sometimes that means working nights or weekends — whatever it takes."

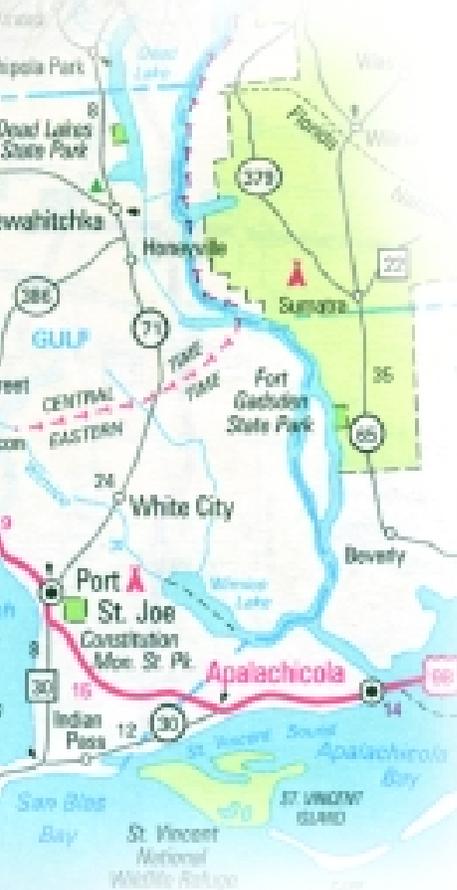
Carter's work-life has a rhythm that ebbs and flows with the seasons.

For example, each year from about April 20 to May 20, the banks of the Apalachicola River are literally swarming with bees that collect nectar from Gulf County's prized Tupelo gum trees. Local beekeepers bring 5,000 hives to the riverbank, and beekeepers from other parts of Florida bring another 5,000 hives.

Carter provides information on controlling Varroa mites — miniscule pests that destroy beehives — and he also has wholesale contacts that buy the honey. Each beehive produces about 90 pounds of Tupelo honey, which sells at wholesale for \$1 a pound. Altogether, the 10,000 hives produce \$900,000 each spring.

Although many of Carter's extension activities have a seasonal cadence, some — such as catfish farming — keep him busy year-round. Gulf County has five catfish farmers, each raising about 3,000 pounds of fish per acre. With the average fish farm consisting of four acres, the farmers produce 60,000 pounds of catfish annually. The fish sell for about \$1 a pound at wholesale.

Gulf County residents also benefit from workshops and other programs provided by visiting UF/IFAS faculty. By inviting these professionals to the county, Carter helps



Roy Carter, left, and Don Simmons, a beekeeper from Howard Creek in Gulf County, examine hives that produce the area's high quality Tupelo honeycombs. (Photo by Eric Zamora)

provide the latest information in animal science, aquaculture, pest management, soil science and other subjects. His own knowledge about agriculture also helps.

When Gulf County resident W.A. Jones bought his first hay farm, he was going to plant (sprig) Coastal Bermuda hay, but Carter advised him to sprig Tifton-85 Bermuda hay, a more productive strain with a high protein content.

“Roy tested the pH in the soil and advised us on what hay to sprig and which fertilizer to use,” Jones said. “Later, when we had trouble with Army worms, he helped us handle that problem too. He helps us in every way you can imagine.”

Economic and Social Change

The county, which is an economically depressed area, took a big hit in 1996 when the area’s biggest employer, the St. Joe Co. — formerly the St. Joe Paper Co. — sold its 60-year-old paper mill. New owners operated the mill until it closed in 1999, causing a loss of about 2,000 jobs. The mill is now being dismantled.

But, Carter said, the local economy received a boost in 1999 when construction was completed on Gulf Correctional Institution, a maximum security prison in Wewahitchka that houses 2,000 inmates. The prison created 700 new jobs for area residents.

The growth of eco-tourism is another plus for Gulf County, which includes world-class beaches on Cape San Blas. In cooperation with the Gulf County Chamber of Commerce, Carter is helping develop the local eco-tourism industry. In the fall, butterfly seekers, insect hunters and bird lovers descend on the county in search of exotic species along the Apalachicola River, and Carter directs them to farmers who provide wagon rides along the nature trails.

Youth Development

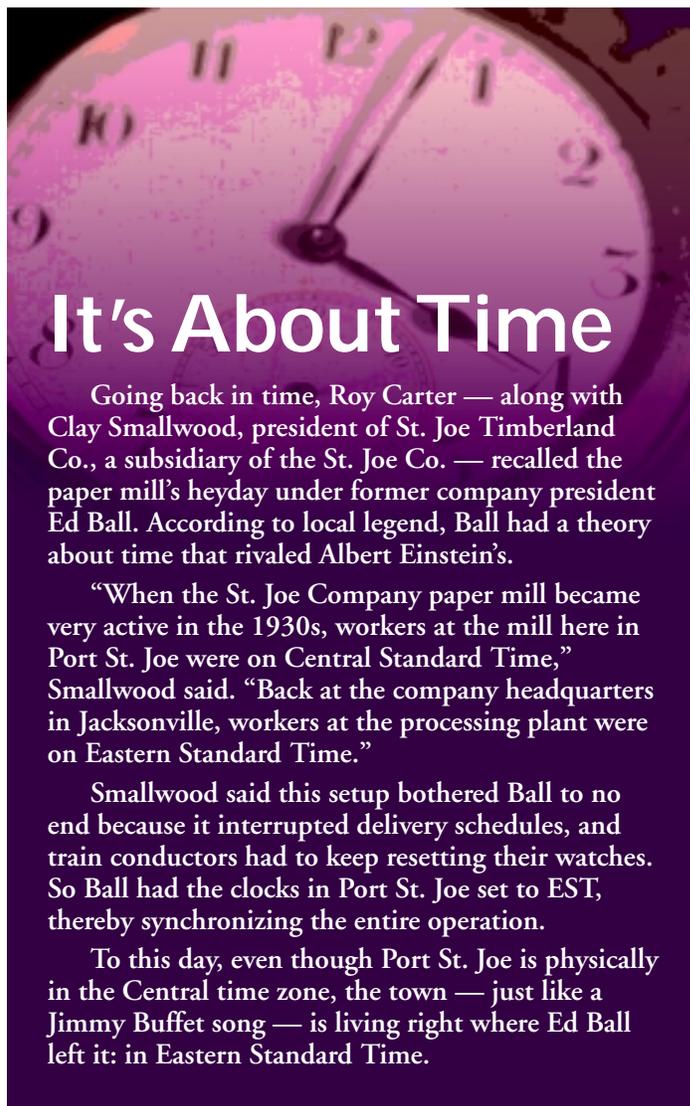
Other seasons hold interesting challenges for Carter. For instance, summer finds him administering 4-H summer camp programs, including horse, marine and forestry camps.

“The best part of my job is taking a group of young children and teaching them about responsibility through hands-on activities,” Carter said. “When they finish the 4-H gardening program, they can name all the vegetables. And they know you don’t just go to the local store and buy them.”

Jean McMillan, a 4-H leader for the Big River Riders horse club, said having Carter is as good as it gets.

“Somehow, Roy is always there for us,” McMillan said. “He sets up the camp, hires instructors, provides transportation for kids and does so many other things.”

Another one of Carter’s avid supporters is Clayton Wooten, principal of Wewahitchka Elementary School where Carter spends a few hours each week teaching 50 kids how to grow strawberries, potatoes, collards, cauliflower and broccoli.



It's About Time

Going back in time, Roy Carter — along with Clay Smallwood, president of St. Joe Timberland Co., a subsidiary of the St. Joe Co. — recalled the paper mill’s heyday under former company president Ed Ball. According to local legend, Ball had a theory about time that rivaled Albert Einstein’s.

“When the St. Joe Company paper mill became very active in the 1930s, workers at the mill here in Port St. Joe were on Central Standard Time,” Smallwood said. “Back at the company headquarters in Jacksonville, workers at the processing plant were on Eastern Standard Time.”

Smallwood said this setup bothered Ball to no end because it interrupted delivery schedules, and train conductors had to keep resetting their watches. So Ball had the clocks in Port St. Joe set to EST, thereby synchronizing the entire operation.

To this day, even though Port St. Joe is physically in the Central time zone, the town — just like a Jimmy Buffet song — is living right where Ed Ball left it: in Eastern Standard Time.

“We’ll keep him,” Wooten said jokingly, reflecting on the good rapport Carter has with his clientele. “He helps us a lot around here, from teaching the kids about gardening to giving us great advice about landscaping. The county is lucky to have him.”

Interestingly, before becoming an extension director, Carter worked for Wooten in the mid-1970s. Wooten was principal of Wewahitchka High School, and Carter taught vocational agriculture.

Carter’s teaching job gave him an unexpected benefit that is indispensable in his current job: He got certified to drive a school bus. Because school bus drivers are now unionized, it would be impossible for Carter to get certified today. And with all the kids he has to transport for various projects, Carter said being “grandfathered in” during the 1970s was a blessing.

“Being able to use a county school bus to transport the kids is a great advantage in a rural community,” Carter said. “Without the bus, a lot of children around here would miss out on extension activities because they don’t have transportation.”

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A New Management Strategy for Apalachicola National Forest

Researchers in the School of Forest Resources and Conservation, which is part of UF's Institute of Food and Agricultural Sciences, are testing alternative systems for managing Northwest Florida's longleaf pines.

By Paul Kimpel

If you walked from one end of the Apalachicola National Forest to the other, you would notice that most of the longleaf pine trees are about the same height and age. Occasionally, you would come upon a 50-acre stand of longleaf pines in which the trees are younger and shorter.

According to Eric Jokela, a professor in the University of Florida's School of Forest Resources and Conservation, that pattern is a result of the "even-aged management system."

He said that under an even-aged regime, 50-acre stands of mature longleaf pines are harvested and regenerated about every 80 years. Within 10 years of the harvest, the stands will regenerate saplings that range from five- to 15-foot high, which are the younger stands mentioned above.

Although this is the primary management system for longleaf and other Southern pine species, the U.S. Department of Agriculture's Forest Service recently designated 123,000 acres of even-aged longleaf pine and slash pine to be converted to a more diverse structure. This has led forest biologists such as Jokela to experiment with an alternate technique called "uneven-aged" management.

In this technique, small areas (gaps) of longleaf pines — ranging from one-half to two acres — are harvested. Then the gaps are either replanted, or naturally regenerated by seeds from mature trees that are left standing for that purpose. About every 15 years, a different set of mature areas are cut and re-seeded.

"The goal is to create three or four distinct age groups within each stand, thereby providing a more diverse habitat and a steady source of harvestable timber," Jokela said. "Longleaf pines are also valued as a source of pulpwood and cellulose, with the cellulose being incorporated into such diverse products as photographic film, cereals and vitamins."

To examine uneven-aged management, Jokela and UF graduate student Jennifer Gagnon conducted a "group-selection" experiment in the Apalachicola National Forest from



Jennifer Gagnon, left, who recently completed her master's degree in silviculture, and Eric Jokela measure the diameter of a longleaf pine tree in Apalachicola National Forest. (Photo by Eric Zamora)

January 1999 through August 2000. The project, which was jointly funded by USDA and Tall Timbers, a Tallahassee-based nonprofit forest research organization, was a first step in a long process, Jokela said.

“For the group-selection system to be applied within a longleaf pine ecosystem, we must obtain a better understanding of seedling regeneration dynamics,” Jokela said. “This experiment provided initial data on the effects of various site resources — such as water, light and nutrients — on the survival and growth of seedlings.”

Jokela said the study required the creation of four half-acre gaps in the tree canopy, each of which was divided into 24 subplots. Some subplots acted as controls, receiving no treatment, while others were hand-weeded and fertilized.

During the 1999-2000 growing seasons, the biologists measured soil moisture content and sunlight exposure within the canopy gaps. In addition, survival rates and stem caliper diameters of the seedlings were recorded.

Jokela said first-year seedling survival and growth was influenced by sunlight availability, which varied from the gap center to the gap edge. Moreover, when other site resources were increased, either by reducing competition from mature trees, or by fertilization and weed-control treatments,

seedling survival decreased yet seedling diameter increased by 44 percent.

That type of data is important, Jokela said, because longleaf pine seedlings can be very slow growers, sometimes remaining in a “grass stage” for five to 10 years when facing competition from other species.

Jokela said that in this study, seedling responses involved a tradeoff.

“We generally found that seedlings grew larger in gap areas that had higher resource availability but lower survival rates, such as the center of the gap,” Jokela said. “Before recommendations for the group selection system can be made, we need more studies on the optimal size of canopy gap openings.”

He said the uneven-aged management system, although more labor-intensive and more costly than even-aged management, has many desirable traits for forest managers and owners:

- Once the program is fully implemented, small groups of mature trees can be cut about every 15 years, providing harvestable wood and income on a regular schedule.
- Mature trees are always present in each stand, thereby advancing ecosystem sustainability. The small openings that are created, along with the spatial arrangement of trees of varying age classes, will lead to enhanced habitat for various faunal species.
- The variety of age groups within stands creates aesthetic superiority, which provides recreational opportunities for visitors.

According to Jokela, the longleaf pine ecosystem is the most bio-diverse of all Southern pine forest systems. It is highly resistant to damage from wind, fire, insect attack and fusiform rust, which are pernicious to slash and loblolly pines. Also, longleaf pine forests make an excellent habitat for animals such as the wild turkey, bald eagle and red-cockaded woodpecker. Additionally, the tree's tufted foliage and tall, straight trunk — which can grow as high as 115 feet — make it desirable for recreational, environmental and commercial purposes.

The increased focus on alternate management systems of longleaf pine forests has come about in part because of diminishing longleaf acreage in the Southeast. Longleaf pine forests have been reduced from 90 million acres of the prehistoric Southern landscape to about 3 million acres today.

Jokela said he is seeking more funding so he can recreate the experiment in various soil environments.

“Some questions remain unanswered, such as what is the best method to convert an even-aged to an uneven-aged stand, and what are the expected long-term timber yield and associated ecological benefits from an uneven-aged stand,” Jokela said. “We hope to be able to answer these and other important questions through future experiments.”

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Forest Biology Research Cooperative

The Forest Biology Research Cooperative, an interdisciplinary research team of academic scientists, government agencies and forest-industry corporations, has entered the second phase of its long-term research project, “*Clonal Biology and Performance of Elite Genotypes of Loblolly and Slash Pine.*”

Formed in 1996 within UF’s School of Forest Resources and Conservation, the research cooperative is dedicated to optimizing the productivity, health and sustainability of forests, especially in the intensively managed pine-forest ecosystem of the Southeast.

According to Tim White, a professor in the school and director of the research cooperative, the team’s primary goal is to combine the disciplines of tree physiology, plant genetics, pathology and silviculture to achieve fast-growing, disease-resistant loblolly and slash pine trees that produce quality wood.

White said single-discipline studies often are ineffective in dealing with the dynamics of pine forests, and the research cooperative’s team approach has resulted in a successful model for combining resources and expertise to maximize research productivity.

After finishing the first phase, which focused on breeding and propagation, the research cooperative team recently began the field evaluation phase, which uses traditionally bred clones to assess various environmental responses.

Shibu Jose, assistant professor of silviculture at UF’s West Florida Research and Education Center in Milton, is currently assessing root growth by testing 30 clones of genetically similar rooted cuttings of loblolly pines.

Jose said root growth is graded according to two criteria: the number of roots each clone grows in a given time period, with more being better, and the growth-orientation of roots — meaning horizontal vs. vertical — with vertical being preferred.

Following the rooting assessment period, the clones will be tested in a greenhouse in Milton during July-December 2001, and then out in the field by January 2002. Jose said the rooted cuttings would primarily be tested for responses to nutrient stress and drought.

Another team member, Eric Jokela, professor of silviculture in the school and associate director of the research cooperative, is examining the effects of intensive management systems on tree crown architecture, such as branching patterns. He also is studying the nutritional characteristics of the various genetic sources.

Jokela said a better understanding of these interactions would help define what factors contribute to growth superiority on various sites. He said the team is seeking clones that allocate more growth to the stem, while maintaining efficiency in overall growth.



Shibu Jose, who is a team member of the Forest Biology Research Cooperative, removes stem cuttings from a loblolly pine hedge for clonal propagation. The research is aimed at producing genetically superior trees that have identical characteristics for growth, vigor and disease resistance. (Photo by Eric Zamora)

The biologists expect to begin the next phase of their work by January 2002. In that phase, 900 different clones of loblolly pine rooted cuttings, which will be about six- to 10-inches high and in containers, will be field-planted on tracts of land belonging to various industry partners.

The scientists will plant the clones on six separate sites to assess the response of the seedlings to pests, various soil environments and low vs. high intensity resource management.

Jokela said the team is looking to identify the elite genotypes that will provide superior qualities in terms of growth performance and disease resistance, with the ultimate goal being increased forest productivity.

Other team members from UF’s Institute of Food and Agricultural Sciences will participate at various stages of the study. The research cooperative team, which received the IFAS Interdisciplinary Research Award in 2000, is comprised of nine faculty members.

In addition to Jokela, Jose and White, members include Tim Martin, assistant professor of tree physiology and associate director of the research cooperative, George Blakeslee, professor of pathology and forest health, Nicholas Comerford, professor of forest soils, Dudley Huber, associate professor of forest genetics, Don Rockwood, professor of tree improvement, and Robert Schmidt, professor of forest pathology. — *Paul Kimpel*

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New Mission Statement

***To further improve service to industry and consumers,
the Sam Mitchell Aquaculture Demonstration Facility
in Blountstown is expanding its horizons.***

By Tom Nordlie

Launched in 1988 to help establish and promote catfish farming in West Florida, the Sam Mitchell Aquaculture Demonstration Facility has offered a variety of extension education programs. Now, with the help of a new coordinator, the facility's mission statement includes research and teaching.

"Extension will remain a priority at the Blountstown unit, but we're also part of the University of Florida's Department of Fisheries and Aquatic Sciences, which increases opportunities for research," said Debbie Britt Pouder, facility coordinator. "We're one of the few facilities in UF's Institute of Food and Agricultural Sciences (UF/IFAS) equipped to handle big aquatic research projects."

Named for the Florida legislator who helped obtain state funding to establish the facility in 1987, it covers 40 acres and features 33 outdoor ponds, eight outdoor tanks, two greenhouses equipped with indoor tanks, a hatchery, a laboratory and living quarters for visiting personnel. Pouder said the unit emphasizes food fish and bait fish, unlike UF's Tropical Aquaculture Laboratory in Ruskin that specializes in ornamental fish.

“Integrating aquaculture with traditional agriculture will be a key objective here,” Pouder said. “Not only does it offer economic possibilities, some applications could solve difficult environmental problems.”

Phosphorus Removal

An integrated aquaculture/agriculture project underway may offer a viable method of removing phosphorus from dairy farm effluent, said Lance Riley, a UF fisheries and aquatic sciences doctoral student working with Ed Philips, Shirley Baker and Patrick Baker, faculty in the fisheries and aquatic sciences department.

“Because phosphorus is a nutrient, we can sequester or capture it using the aquaculture food chain,” Riley said. “We’re raising aquatic microorganisms in phosphorus-rich water, then feeding them to several crop species. In effect, the crop species act as phosphorus storage units.”

As part of the project, Riley is studying the freshwater clam, *Corbicula fluminea*, a filter-feeder used to remove particulate phosphorus from the wastewater stream. Once harvested, the clam’s meat can be used for fertilizer and its shell can be crushed to make building material.

“We want the phosphorus removal system to produce enough income to offset the operating costs,” Riley said.

As part of the project, Riley is helping construct large

wooden tanks or “raceways” that will be stocked with clams. Once the system has been tested, it will be demonstrated at dairy farms in the Lake Okeechobee area, he said.

Integrated Farming

Integrated aquaculture/agriculture could greatly benefit small family farms, said Frank Chapman, a reproductive biology specialist in UF’s fisheries and aquatic sciences department who works closely with personnel at the Blountstown facility.

“Highly diversified farming has been successful elsewhere, and Florida needs a proven approach. The farms are small, so it’s economically safer for them to diversify,” he said. “Aquaculture fits right into this scenario.”

Chapman believes that sturgeon is an ideal aquaculture crop. The huge, primitive fish are best known for producing caviar, but sturgeon meat commands \$4 per pound and is growing in popularity, he said. Moreover, sturgeon grow quickly and are very efficient feeders, meaning they provide a good return on production costs.

After several years of evaluating native sturgeon species, Chapman and other UF researchers have developed effective farming methods, he said. Now the Blountstown facility is helping educate Florida fish farmers on sturgeon culture.

“Historically, sturgeon was a staple seafood product but

*Debbie Britt Pouder, left, supervises the construction of “raceways” used for a biological filtration system using the freshwater clam *Corbicula fluminea*. Lance Riley, a graduate student in UF’s College of Agricultural and Life Sciences, operates the equipment. (Photo by Milt Putnam)*





Debbie Britt Pouder checks petri dish for a bacterial culture. If bacteria are found, further testing identifies the problem so it can be treated. She said the Sam Mitchell Aquaculture Demonstration Facility helps farmers and recreational pond owners identify and control fish diseases. (Photo by Milt Putnam)

today they're almost forgotten," he said. "Now that we have the technology to grow them efficiently, it's time for a comeback."

Recreational Fishing

As Florida's premiere freshwater gamefish, the largemouth bass needs no introduction. But in Dade and Broward Counties, a little-known South American fish called the peacock cichlid may be competing with the largemouth for food, said Jeffrey Hill, a doctoral student in UF's fisheries and aquatic sciences department.

To measure the competition, Hill and Charles Cichra, an associate professor in the department, are launching a new study at the Blountstown facility. By housing each fish species alone and together and offering a variety of prey, Hill and Cichra will determine if bass feeding habits change when the cichlid is present.

"Previous studies suggest that the peacock cichlid is not detrimental to largemouth bass populations, because the bass is not a picky eater," Hill said.

Hybrid striped bass have long been a favorite demonstration fish at the Blountstown facility, where they're being raised in cooperation with the Florida Fish and Wildlife Conservation Commission, said Andy Lazur, associate professor in UF's fisheries and aquatic sciences department. When mature, the bass are used for various children's fishing programs conducted by the facility, the commission and the department.

Twice a year, children's fishing programs take center stage at Blountstown, as 300 kids and almost as many parents gather on two half-acre ponds stocked with hybrid striped bass and catfish, he said. The young anglers take home their catch, along with a photograph, certificate and a "goodie bag" of fishing gear donated by a leading tackle manufacturer.

"We're crazy about this event," Lazur said. "The kids have a wonderful time and we introduce them to a wholesome activity that could become a lifelong pursuit."

Until now, children's fishing events at the facility have been a collaborative effort with the conservation commission. Beginning this summer, the facility will team up with UF's fisheries and aquatic sciences department, as part of the Fishing for Success program.

Debbie Britt Pouder, foreground, captures a young sturgeon as Dave Carpenter, left, and Randall Kent pull the fish net towards the shoreline. (Photo by Milt Putnam)



Predation Control

With so many fish living in outdoor ponds, it's only natural that fish-eating birds such as cormorants, egrets, ospreys and herons are attracted to the facility. To discourage predation, UF relies on John Dunlap, a U.S. Department of Agriculture wildlife biologist who maintains his office at the facility.

"Each bird may eat only a few fish per day, but when you have flocks visiting the ponds every day it adds up," said Dunlap, who works throughout Florida, Georgia and Alabama. "It's especially bad during winter when migratory species pass through."

Dunlap uses several humane methods to discourage the hungry birds. A device called a propane cannon creates loud explosions at regular intervals. For situations requiring immediate attention, Dunlap uses pyrotechnics, such as a pistol that fires exploding rounds high into the air.

Catfish Cooperation

The Blountstown facility is participating in a tri-state project to evaluate a hybrid catfish called the "channel x blue" that may benefit fish farmers throughout the Southeast, said Dave Carpenter, a UF aquaculture biologist. Spawned from a female channel and a male blue catfish, the hybrid is a more

aggressive feeder, better able to withstand stress and easier to harvest than its parent species.

"Researchers from UF, Auburn University and the University of Georgia will independently study production issues like growth, feed conversion rates and ease of harvest," he said. "We'll get together and compare notes, then issue joint findings."

Like many of the applied aquaculture projects at Blountstown, the hybrid catfish evaluation project was reviewed by an advisory committee, Carpenter said. The committee, which includes industry representatives from around the state, helps plan research and extension activities.

"They're the voice of the industry, and we're always going to listen," he said. "Whether we're doing research or extension, we want to help Florida farmers and consumers."

Debbie Britt Pouder, dcb@gnv.ifas.ufl.edu

*John Dunlap, a U.S. Department of Agriculture wildlife biologist whose office is at Sam Mitchell Aquaculture Demonstration Facility, helps keep hungry birds away from outdoor fish ponds.
(Photo by Milt Putnam)*



The Seal of Approval

Clean Marina flag rewards marinas that promote clean water.

By Dorothy Zimmerman

When the car with yellow state plates appeared at his Bay Point Marina, Scott Burt knew it probably meant trouble.

Quite simply, any visit from the state's Department of Environmental Protection was an unwelcome one. "It was a totally adversarial relationship," Burt said. "It was always negative. They'd march in and say, 'You do this, or else we'll close you down.'"

Burt and many marina owners throughout Florida think differently of the DEP these days, due to the success of the state's Clean Marina Program. The initiative puts owners and operators of Florida's \$1.7 billion marina industry at the helm of a rigorous effort to clean up and protect marina waters and shores.



The Pensacola Shipyard Marina Complex was recently named the state's first Clean Marina, and Bay Point Marina in Panama City quickly followed. The designation lets boaters and competing marinas know that the facilities voluntarily follow practices that don't pollute coastal waters.

The idea originated within DEP's law enforcement division in the mid-1990s to motivate the state's more than 2,000 marinas into compliance with state environmental regulations. But getting marinas to cooperate with the agency that policed them proved daunting. "I had been in business for more than 20 years," Burt said, "and I never, ever worked with DEP on anything."

Florida Sea Grant's marine extension service, a cooperative effort between the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) and the national Sea Grant College program, has played a key role in bringing together the regulators and those who are regulated.

Because Sea Grant serves as a clearinghouse of science-based information on clean water, it has helped forge a network of private marinas, public agencies and Florida's marine industry associations that gives the Clean Marina Program life.

"They view Sea Grant as an impartial party that doesn't advocate anything unless it's based on scientific research," said Don Jackson, the Clean Marina project coordinator with Sea Grant. "We're the go-between with the marine industry and DEP."

Early on, Sea Grant's extension program assisted DEP and its first few marine industry partners with identifying the key practices that could promote clean environments and translate them into profitable operations. This has evolved into the basis for individual marina operation plans covering everything from A-to-Z.

"Together, we discovered that a handful of leading marinas already understood that providing clean water made good business sense," Jackson said. "Many of the best practices were already in use. We didn't have to reinvent the wheel."

Burt at Bay Point Marina agreed. "If I see fuel floating on water, I don't need the state to tell me it's a problem," he explained. "My customers tell me that. If I don't provide clean water, docks and restrooms, they'll go somewhere else."

The job now, Jackson said, is to bring more of the state's marinas onboard to help reduce the amount of boating-



Christine Verlinde, left, is part of the Sea Grant marine extension network that provides technical assistance to marina owners and operators who wish to earn Clean Marina status. She is holding a Clean Marina flag with Keith Bellflower, shipyard supervisor at Pensacola Shipyard Marine Complex, the state's first Clean Marina. (Photo Eric Zamora)

related pollution. Florida's waters are navigated by more than 1 million boats each year. Marinas are the critical link between boaters and the support services they need, such as fueling, pumpouts and boat maintenance. The potential for pollution from boat sewage, spilled fuel, cleaning products and trash is considerable.

What sets the Clean Marina Program apart from many other environmental programs is that some of the toughest policies have come from the industry itself. It also sends a clear signal to owners and operators that DEP prefers to work with them to prevent pollution, rather than catch infractions after they've occurred and caused the most harm.

Sea Grant's extension program has helped write the curriculum that tells marina owners about the program and how to bring their marinas into compliance. Sea Grant extension agents located in Florida's coastal counties also are available to give marina owners technical assistance to complete their checklist and to outline a plan for becoming compliant.

Typically, marina operators interested in participating in the program must attend a Clean Marina workshop, where they're introduced to a step-by-step checklist that is used to assess whether their facility meets or exceeds government standards for pollution prevention.

It's then up to the marina to conduct its own self-assessment. Are the marina's dockside facilities and harbor waters clean, without signs of oil, sewage or litter? Is there an employee trained in environmental policies who can provide customers with information? Is there access to clean restroom facilities and pumpouts?

If operators discover shortcomings, they're given an 18-month grace period to make corrections. During that period, DEP withholds fines for violations, freeing up funds that marinas can then invest in improvements.

The Florida Department of Environmental Protection maintains comprehensive Clean Marina information through its law enforcement Web site. <http://www.dep.state.fl.us/law/>. Marina owners and operators interested in participating in the Clean Marina program can contact DEP through the site or call Florida Sea Grant at (352) 392-5870.

"It means the responsibility for cleaning up the marina is shared by the owner and DEP," Jackson said. "Marinas now work in partnership with the DEP, rather than as an adversary."

Moreover, some incentive grants are available from programs such as Florida's Clean Vessel Act to get non-compliant marinas back on the right side of the law. In the marina business, thanks to a complicated array of regulations that change depending on local, state or federal jurisdictions, it's sometimes not easy.

"The important thing is for a marina not to become discouraged if it initially has trouble meeting program criteria," Jackson said. "We want to succeed at this thing, not fail. The idea is to get the dialogue going and the process underway."

Marinas that meet the standards established by the industry and DEP become eligible to fly the Clean Marina flag, increasingly seen as more than token recognition for a job well done. "The testimony we're hearing from operators indicates the flag gives them prestige," Jackson said.

"Customers look for it. Where there is competition, market pressures favor the Clean Marinas. Eventually it will be the boaters themselves who are driving this thing."

To date, more than 250 marina facilities have asked DEP for assistance with the Clean Marina Program. Jackson says at least 14 now fly the flag; another six to eight are near completion, and more than 100 are in the compliance process.

Encouraged by the response, Jackson said that Sea Grant extension is now assisting DEP with plans to take the clean marina concept ashore with a similarly structured Clean Boatyard Program.

Meanwhile, the flagship Clean Marinas in the Panhandle hope their achievements are duplicated in other marinas along the coast.

Burt put it this way: "I love the flag. It flies every day of the year. I'm very proud of it."

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Food For Thought

In partnership with other government agencies, the University of Florida's Extension Service provides a variety of nutrition education programs to residents across Northwest Florida.

By Tom Nordlie

The more we learn about nutrition, the more we appreciate its critical role in good health. For this reason, UF's Institute of Food and Agricultural Sciences (UF/IFAS) brings nutrition education to all 67 Florida counties.

The 15 West Florida counties in Extension District I present a special challenge to county faculty, said Pamela Allen, an extension agent in Escambia County.

"Because the area is largely rural, residents may have few information resources available," she said. "The population is so spread out that we have to make a special effort to reach people."

One solution is networking. By forming partnerships with other agencies, UF extension delivers nutrition education through existing government programs. The strategy provides UF extension with ready-made audiences and allows partnership agencies to offer their clients added benefits.

In Escambia County, for example, Produce Pointers helps clients in the Women, Infants and Children (WIC) nutrition-assistance program select and use locally grown fruits and vegetables that WIC provides.

"Produce Pointers has done so well for us that several other counties have picked it up, and we encourage that," Allen said. "Our extension offices have a great cooperative relationship. Personnel from neighboring counties often develop programs together — in fact, Produce Pointers was a collaborative effort between Escambia and Santa Rosa Counties."

Extension agents Dorothy Lee of Escambia County and Linda Bowman of Santa Rosa County recently collaborated on an elder nutrition program called Heart-to-Heart: Delicious Decisions. Offered at congregate meal sites, the three-part program identifies risk factors for heart disease and teaches heart-healthy cooking, Lee said.

To help Okaloosa County employees maintain healthy weight levels, extension agent Elaine Courtney partnered with the Okaloosa County Board of Commissioners and a local hospital to offer Healthy Employees 2001. The yearlong program emphasizes gradual lifestyle adjustments for improved weight management and overall health, she said.

The curriculum for Healthy Employees 2001 was modeled on a statewide program called Toward Permanent Weight Management, developed by Linda Bobroff, associate professor in UF's Department of Family, Youth and Community Sciences.

"We extension agents rely a great deal on state extension faculty at the UF campus to provide us with scientifically based



Dorothy Lee, left, and Pamela Allen review information sheets used in Produce Pointers, which educates clients of the Women, Infants and Children (WIC) nutrition assistance program. (Photo by Thomas Wright)

programs," Courtney said. "From there, it's easy to custom-tailor the material to local needs."

In Walton County, extension agent Becky Young used the statewide program Choices: Charting a Positive Future for Teen Parents to help develop the Teen-age Parenting Program, part of an alternative high-school curriculum for pregnant girls.

"Every year, extension agents receive in-service training from UF nutrition specialists, in the Food, Nutrition and Health Update," Young said. "Extension faculty in Gainesville help us stay current on trends and emerging issues in this field."

At the Association of Retarded Citizens day program in Chipley, adults from Washington and Holmes Counties receive lessons on food identification, safety and preparation. Washington County extension agent Judy Corbus said the program helps participants become more self-reliant.

Busy families can avoid the drive-thru and save time and money with Jackson County's Eating on the Run program, said extension agent Joan Elmore. After examining their scheduling needs, families can use one-pot or one-dish meals to cut preparation time.

“It’s much easier to eat healthy when you control what goes in the meal,” Elmore said.

Marjorie Moore, the new extension director in Bay County, is working with the local African-American community to test a blood-pressure maintenance program called Keeping the Pressure Down, developed by state extension faculty at UF.

“Several counties are testing the program, and I wanted to work with African-Americans because we’re more at risk for high blood pressure and related problems like heart attack and stroke,” Moore said. “Once it’s fine-tuned by state faculty, the program will be made available to all county extension offices for use in local programs.”

Bay County also boasts a successful Family Nutrition Program (FNP), headed by extension agent Mildred Melvin. The program educates children and adults in low-income communities throughout the Florida Panhandle. Part of the federal Food Stamp Nutrition Education Program, Florida’s FNP is funded by the U.S. Department of Agriculture and the communities FNP serves.

In Calhoun County, extension agent Monica Brinkley and program assistant Shellie King are proud of their monthly FNP presentations to senior citizens at congregate meal sites. They use materials developed by state extension faculty for the statewide Elder Nutrition And Food Safety program.

King also is an FNP program assistant in Liberty County, where she teaches a six-week class for inmates awaiting release from Liberty Correctional Institution in Bristol.

Elementary school students are among FNP’s primary audiences, and Gulf County program assistant Marie Jones gets their attention with in-class demonstrations on healthy foods. “I love helping kids stay healthy,” she said.

Franklin County Extension Director Bill Mahan agreed. “Far too many children are overweight today, and poor diet is a big part of the problem,” he said. Elementary, middle and high school students participate in Franklin County FNP.

Children in Gadsden County get nutrition education from UF extension in two ways: a 4-H after school program and a summer day camp. Extension agent Yolanda Goode said both programs are designed to provide youth with a way to use their time wisely and learn while having fun.

In Leon County, the UF Expanded Food and Nutrition Education Program (EFNEP) helps Tallahassee parents in difficult situations. Extension agent Jo Shuford-Law said EFNEP helps parents stretch their food budgets using meal planning and shopping strategies.

A 19-year veteran of EFNEP, Shuford-Law says innovation has always been the hallmark of UF extension programs.

“I’ve seen a lot of changes,” she said. “Years ago, EFNEP went door-to-door to reach people, and now we save time by networking. We’re always looking for a better way to carry out our mission, but the mission itself never changes — helping people to help themselves.”

On May 30, 2001, Extension District I hosted a multistate planning conference for county extension faculty from the Florida Panhandle, southern Alabama and southwestern Georgia. The conference, held in Fort Walton Beach, explored ways for extension agents to cooperate across state lines in developing and sharing programs.

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Marjorie Moore, facing camera, discusses nutrition with 4-H’ers in an after school program at Martin Luther King Center in Panama City. In the program, Bay County Master Gardeners and 4-H agent Paula Davis teach students about gardening. (Photo by Thomas Wright)



Dining With Diabetes

To help Northwest Florida residents with diabetes enjoy a fuller life, family and consumer sciences extension agents Elaine Courtney of Okaloosa County and Becky Young of Walton County have launched Dining with Diabetes, a three-part diet management program offered in both counties.

“This is much more than a food preparation class,” Courtney said. “We have guest speakers at each session to address medical issues related to diabetes.”

She said speakers include a diabetes educator who provides an overview of the disease, a pharmacist who discusses diabetes medication and a podiatrist who explains how diabetes can impair blood circulation and lead to foot ailments.

Courtney and Young present much of the program, which consists of three weekly classes covering different meal components. Courtney said the first class concerns desserts and use of artificial sweeteners, the second covers main dishes and the link between fat and complications of diabetes, while the final class addresses side items such as fruits, vegetables and grain products.

“We hope to offer the program at least once a year in each county,” Young said. “There’s a real need for it — we get information requests constantly.”

In Okaloosa County, the program is held at the extension office in Crestview, while in Walton County the site is Healthmark Regional Medical Center in De Funiak Springs.

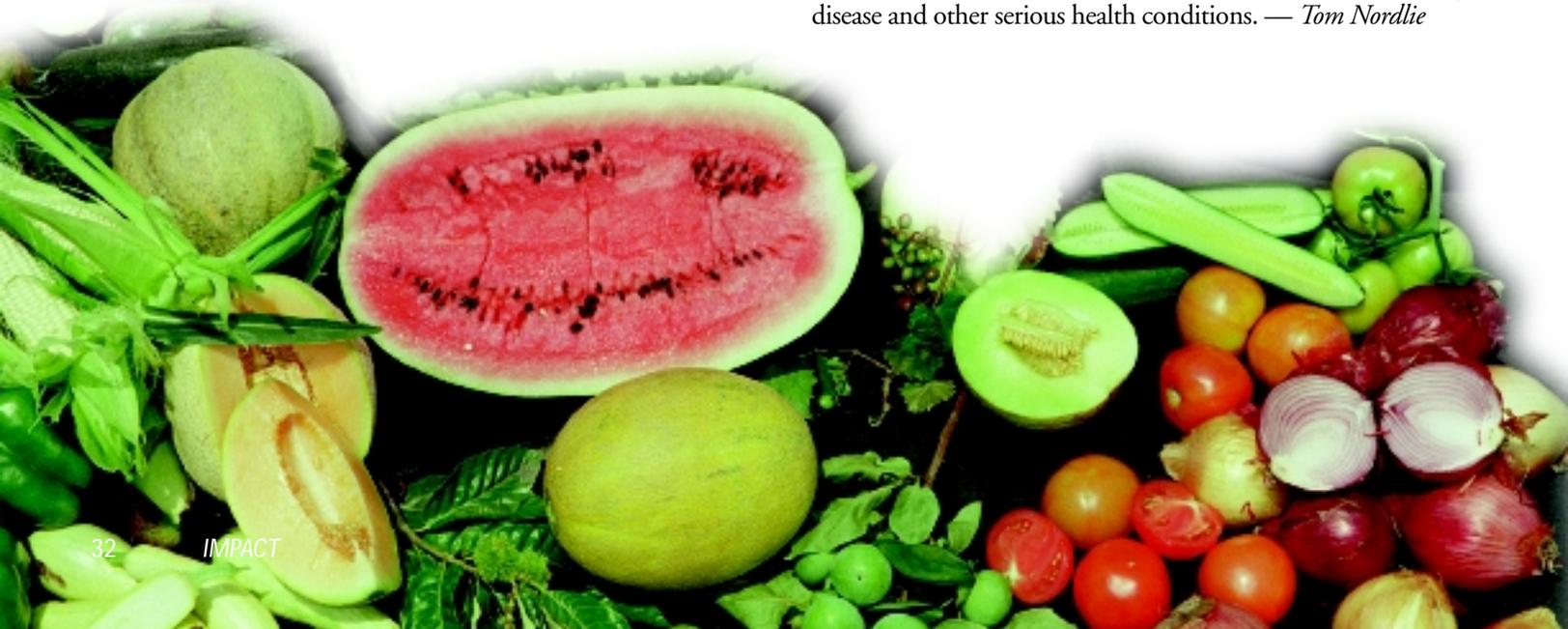
“We are targeting some high-risk groups, although most of the participants have already been diagnosed with diabetes,” Young said. “We encourage families to attend the program together, so everyone can understand the needs of diabetic family members.”



Elaine Courtney, left, and Becky Young teach Dining with Diabetes, an educational program that includes demonstration of healthy food preparation techniques. (Photo by Thomas Wright)

Young said the program was developed and modified by extension personnel in West Virginia and Georgia. Young and Courtney adapted the program with assistance from UF state extension faculty and used diabetes information provided at annual in-service training sessions.

Diabetes is a disorder in the body’s ability to use blood sugar, she said. It affects 10 million to 20 million Americans. Left untreated, diabetes can lead to heart disease, stroke, kidney disease and other serious health conditions. — Tom Nordlie





4-H After School Programs Reach Out

By Ami Neiberger



4-H after school educational programs for at-risk youngsters might go by names such as the “Gee Whiz Kids 4-H Club,” or have fancy acronyms like “4-H ASAP,” but underneath they are 4-H.

“These programs focus on sustained educational involvement with young people by adults and volunteers,” said Damon Miller, assistant dean for the University of Florida’s statewide 4-H Youth Development Program. “They use hands-on learning. Amazing things are happening with CYFAR grants in some of our county 4-H programs.”

CYFAR stands for Children, Youth and Families at Risk, an initiative funded through the U.S. Department of Agriculture’s Cooperative State Research Education and Extension Service. The 4-H program is part of UF’s Institute of Food and Agricultural Sciences (UF/IFAS).

In the Gee Whiz Kids 4-H Club, youngsters introduce themselves with names like Jumping Jeremy, Confident Katie, Jolly Jonathan, Skating Samantha and Athletic Ashley. The boisterous fourth- and fifth-graders gather around the flagpole outside their school in rural Holmes County to plant a flower garden. They’re learning the 4-H pledge and how to be successful in life.

According to Holmes County 4-H agent Suzanne Wilson, they picked the name “because these kids are going to astonish the world with what they can do.”

They do typical 4-H club activities. They have watched butterflies blossom out of pretzels and chocolate, and used glowing “fake” germs to learn about food safety.

There are leadership lessons too. Club president Kristy Palmer, 10, said, “We had an election and had to write a speech and read it in front of everyone. It’s like being a president like George W. Bush.” Palmer takes her duties seriously and when asked about the club’s flowerbed project to beautify the school, she said matter-of-factly, “Of course, we are 4-H’ers and we’re supposed to help the community.”

Several of the club members will attend 4-H Camp Timpooshee near Niceville this summer for a week. “It thrills my mind to think of what will happen this summer. It’s going to be fun,” said vice president Dillon Skipper, 11.

An observer watching the club’s energetic banter would never guess these children are at-risk for problems and challenged academically, scoring in the 30th percentile on the FCAT, the standardized exam the state uses to assess student achievement.

“There are the kids who don’t achieve — who are not told often that they are doing OK,” said Wilson, who is doing the program at Bonifay Elementary School with a



Ingrid Farrow, 4-H program assistant, left, helps Shaunte Bronson, 11, with her homework during the 4-H after school program at Bonifay Middle School. (Photo by Tara Piasio)

CYFAR grant. She said all of the children in the club are from low-income families and live at or below the poverty line.

According to school principal Lorna Rapper, one-third of the students in the school need remediation programs to help them catch up, but the school district can only afford it for students scoring below the 20th percentile on the FCAT. Consequently, these low-scoring students fell into a no-man’s land between average achievers and very poor achievers.

Administrators say the program works. “Their success in 4-H is bleeding into academics,” said Rapper, who would like to expand the program so it can reach more kids. The school is tracking the grades and office referrals for the children to evaluate its success.

Holmes County 4-H: Legos & Computers



There is a similar 4-H after school program four days a week during the school year at Bonifay Middle School for at-risk youth with an emphasis on science and technology, as well as homework tutoring. The CYFAR grant paid for a site license for a set of Lego kits with a teaching curriculum that focuses on science, and the program includes frequent trips to a computer lab for hands-on keyboard time.

“It takes a lot of brainpower,” said Allen Waddell, 12, as he assembled a conveyor belt with the Legos. “You have to figure out what parts go where.”



Allen Waddell, 12, left, and Trevor Austin, 13, get a lesson with Holmes County 4-H agent Suzanne Wilson, right, about mechanical science using a Lego software package that helps kids design their own creations. (Photo by Tara Piasio)

“Ms. Suzanne says I should be an architect,” said Brandi Couch, 13, a seventh-grader in the program who is talented with Lego projects. “But I want to be a child psychologist or a lawyer so I can help kids.”

Like the elementary school club, the middle schoolers are participating in other 4-H activities, such as service learning opportunities and the 4-H dairy poster contest. The students raised funds to sponsor a 4-H team in the American Cancer Society’s Relay for Life, where they won the best team spirit award and raised more funds than any other youth group participating.

Couch said she especially likes getting her homework finished and the tutoring provided by the older teens from the high school who come to help.

Megan Hanson, 15, is in the ninth grade and volunteers with the program. “When we help them, they understand things more,” said Hanson, who has only been involved with 4-H for one year.

Another CYFAR-initiated program is Leon County 4-H’s After School Activity Program, designed for sixth-graders at Fairview Middle School by 4-H agent Elaine Shook and Family and Consumer Sciences agent Betty Miller. The program focuses on developing life skills such as conflict resolution, how to get along with others and how to communicate.

“We wanted to find a way to get them to cooperate better, so we did a ropes course,” said Tammy Coleman, the program assistant for the project. Coleman started as a volunteer with the program in 1999 and became the program assistant this year. She is assisted by eight volunteers, several of them from Florida A&M University in Tallahassee.

“I learned how to treat others with respect,” said Christopher Loyd, 12, who said he enjoyed the field trips and had fun while he was learning.

To help everyone get along, Coleman helped the students draft a “civil rights” proclamation that is read at the start of every class to prevent students from picking on each other.

A small store with t-shirts and key chains where the students earn “dollars” for attendance and good behavior has been used to teach them how to write checks, manage savings and learn deposits. They also used the Dreamcatchers curriculum, which is designed to help young people think about careers.

The sixth-graders learned to fill out a job application and give a speech in front of an audience. Almost all of the 4-H ASAP members participated in county 4-H events, giving presentations about cake decorating, babysitting, fashion design and first aid.

In the program’s first year, 78 percent of the students improved or maintained their academic progress and 77 percent prepared speeches for county 4-H events. Teachers noted that 38 percent of the ASAP students had improved their attitude toward school and 48 percent improved their homework quality and study skills.

“This program definitely makes an impact,” said 4-H agent Elaine Shook. “They have a positive role model in Tammy to look up to, and they are becoming good citizens.”

For more information and some additional photos, visit the Florida 4-H Web site. <http://4h.ifas.ufl.edu/>

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Youth In Action

Learning about the environment and how to take action on issues they care about was the focus of the Youth in Action teen retreat this past spring at Whiting Field Naval Air Station in Milton.

The topic for the retreat was suggested by the teens themselves, and more than 60 of them from across 4-H District I attended the retreat, including youth from Bay, Escambia, Holmes, Santa Rosa and Washington counties. The retreat was supported by a grant from the Florida 4-H Foundation.

Water sampling, wildlife observation and conservation management were a few things they learned while on the base.

A common problem teens face is not being taken seriously by adults, said Vickie Mullins, Santa Rosa County 4-H agent. "Their idealism can seem impractical to older people," she said. "Sometimes they're not given credit for their intelligence, desire and ability to do positive things."

The teens got plenty of encouragement to speak up from a panel discussing wetlands issues. Guests ranged from a wildlife biologist and a government official to private citizens active in both conservation and development.

A mock town hall meeting closed out the event, with teens enacting a case study where they debated the impact of putting a mall near a wetlands area in a community that needs jobs.

Jeremy Hall, 17, of Santa Rosa County and Danielle Metz-Andrews, 18, of Washington County lobbied for the mall and squared off against their opponents, who said that the mall should find a new location because it would damage the surrounding wetlands areas. At the end of the meeting, the group voted against the mall by a narrow margin.

State 4-H Council president Mamie Wise, 18, said that 4-H'ers left feeling empowered to be active in the community, whether that was organizing a clean-up or being informed enough to speak out and vote responsibly. In her keynote address at the banquet she said, "The future is not always tomorrow, often it is today." — *Ami Neiberger*

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4-H members inspect a wetland area and contemplate taking action on environmental issues during the Youth in Action 4-H District I Teen Retreat at Whiting Field Naval Air Station in Milton. (Photo by Tara Piasio)



4-H members Richard Sunday, 13, and Sarah Mullins, 16, inspect a tree trunk and learn about environmental science during the retreat. The event taught environmental science and delved into the public debate around environmental issues. (Photo by Tara Piasio)

You can visit Florida 4-H
online at:

<http://4H.ifas.ufl.edu>



Angela Jakes, research associate at Florida A&M University, examines a Boer goat, one of more than 100 meat goats at FAMU's Research and Extension Center in Quincy. Jakes helps supervise a statewide goat program designed to teach and demonstrate sound production practices to small and limited resource farmers. FAMU and UF's Institute of Food and Agricultural Sciences — working through the Center for Cooperative Agricultural Programs — are helping develop a sustainable goat industry in Florida. (Photo by Eric Zamora)

All programs and related activities sponsored for, or assisted by, the Institute of Food and Agricultural Sciences are open to all persons regardless of race, color, age, sex, handicap or national origin. Information from this publication is available in alternate formats.

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