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Book Examines Rise Of Religious Marketing

Time was when a religion was something people were born into, grew old with in comfort and died with in glory.

How quaint.

Move over, pastor. Make room for “pastorpreneur.” The old-school church of days gone by has given way to marketing magic. In his latest book, *Shopping for God: How Christianity Went from In Your Heart to In Your Face*, University of Florida English professor James B. Twitchell explains not only how and why it happened but also what it means for America’s churchgoers.

In his book, Twitchell examines today’s megachurch movement as well as how today’s religious leaders have used media — from books and movies to radio and blogs — to build a competitive marketplace that rivals the cream of corporate America.

The book, Twitchell says, “has nothing to do with belief. It has to do with the people who deliver the service structure of religion. It’s not surprising that these churches seek ways to differentiate themselves, because what they’re selling are very similar products.”

Church, Twitchell writes, has become something people simply try on for size — and it fits only as long as the pastor keeps them happy.

The most visible manifestation of religious marketing phenomenon is the megachurch.

“Inside church proper there are all the technologies men appreciate: the sound system, the JumboTron screens and the comfy seats,” he writes. “Best yet, there are none of those grayhairs of Route 21 threatening to pray for this and that, including you.”

Leading people in worship, he says, has taken a back seat to giving people a reason to come and, in turn, grow church membership.

Today, he writes, “Successful churches have one thing in common: They are entertaining. Fun! ... Not only is God alive, He rocks.”

While churches recruiting new members is hardly new, Twitchell writes, the concept of religious marketing is a relatively recent event that can be traced back to the mid-1950s. He recounts the story of Pennsylvania entrepreneur Mel Stewart, who built a business out of making and selling the now-familiar lighted signs with changeable plastic letters and pithy sayings so common in front of houses of worship.

From those humble roots, Twitchell writes, come religious blogs and other modern forms of religious marketing. But rather than promoting ways to address pressing problems such as poverty and world hunger, church blogs have become vehicles to advance political agendas with “hot-button” issues such as abortion and homosexuality.

So what does the future hold? For the megachurches, Twitchell predicts an implosion that already shows signs of being under way. For one thing, megachurches, by virtue of their expansion, are becoming part of the very thing they started out trying to avoid: the mainstream.

For another, he says, they have become too involved in politics, which can backfire when

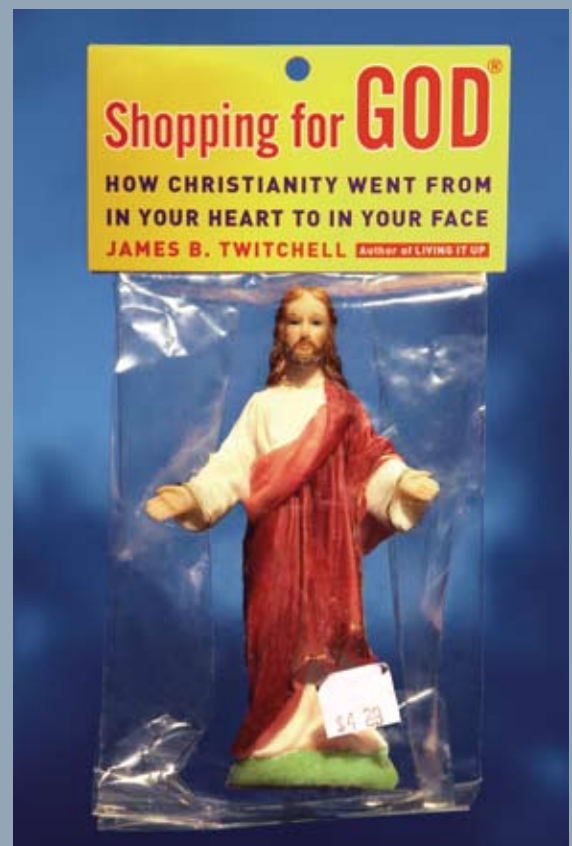
politics go awry. Then there’s the matter of celebrity pastors falling by the wayside either by scandal or retirement.

Finally, he writes, the biggest threat is market saturation. When a church ties its value to growth, sooner or later it will hit a brick wall. “In old-time denominations, growth was not proof of value; stability was,” he writes. “But the megachurch has no cushion to absorb that inevitable day when they have reached the last available seeker, and the balloon deflates.”

Incidentally, Twitchell considers himself a “cold Christian” or an “apathist,” a term he borrowed from *Atlantic Monthly*. It means, in Twitchell’s words, someone who thinks religion has an important place in every culture but if its members believe they should proselytize, they should do so “very quietly and politely. Knock first.”

James B. Twitchell, jtwitch@english.ufl.edu

Steve Orlando



New Clues Found To Sea Turtles' 'Lost Years'

Biologists have found a major clue in a 50-year-old mystery about what happens to green sea turtles after they crawl out of their sandy nests and vanish into the surf, only to reappear several years later relatively close to shore.

In a paper published in the online edition of the journal *Biology Letters*, three University of Florida sea turtle scientists say they found the clue by analyzing chemical elements ingrained in the turtles' shells. Their conclusion: The turtles spend their first three to five "lost years" in the open ocean, feeding on jellyfish and other creatures as carnivores. Only after this period do they move closer to shore and switch to a vegetarian diet of sea grass – the period in their lives when they have long been observed and studied.

"This has been a really intriguing and embarrassing problem for sea turtle biologists, because so many green turtle hatchlings enter the ocean, and we haven't known where they go," said Karen Bjorndal, a professor of zoology and director of UF's Archie Carr Center for Sea Turtle Research. "Now, while I can't go to a map and point at the spot, at least we know their habitats and diets, and that will guide us where to look."

The discovery is important not only because it's a first, but also because it may aid in conservation of the turtles — which, like all sea turtles, are classified as endangered.

"You can't protect something," said Bjorndal, "if you don't know where it is."

The paper's lead author is Kimberly Reich, a UF doctoral student in zoology who did the work as part of her dissertation research. The other authors are Bjorndal and Alan Bolten, a faculty member in zoology and associate director of the sea turtle center.

Famed sea turtle biologist Archie Carr first discussed the mystery of the green sea turtles' "lost years" in his 1952 book, *The Handbook of Turtles*. Half-dollar-sized hatchlings trundle off subtropical and tropical beaches worldwide, then vanish, only to reappear, dinner-plate-sized, over continental shelves in depths of less than 650 feet. Only a tiny number of green turtles between the half-dollar and plate sizes have ever been spotted.

To solve the problem, Reich, Bjorndal and Bolten turned not to scouring the ocean but rather to a technique that over the past two decades has become increasingly important in questions related to ecological origin: stable isotope analysis.

The higher an animal is on the food chain, the more heavy isotopes it accumulates. As a result, the technique, which measures the ratios of heavy to light isotopes, can distinguish samples from herbivorous versus carnivorous creatures and where on the food chain they lie.

The researchers captured 44 turtles off a long-term study site near Great Inagua in the Bahamas. The sample included 28 that had been tagged in previous years, indicating they were residents of the site, and 16 untagged turtles assumed to have recently arrived.

They cut off tiny pieces near the center of the turtles' shells in a harmless process that Bjorndal likened to trimming one's fingernails. The biologists used a mass spectrometer, a machine that separates isotopes according to charge and mass, to analyze the oldest, or earliest-grown, portions of the shell sample versus the newest portions.

The analysis revealed that with the new arrivals to the site, the ratio of light to heavy nitrogen isotopes in the older versus new shell samples was "significantly different," as the paper said. The ratios were very similar to ratios observed in oceanic-stage loggerhead turtles known to be carnivorous. For these reasons, among others, the researchers concluded the turtles spend their first three to five years in the open ocean.

Green turtles nest on subtropical and tropical beaches worldwide. That suggests the young turtles are widely distributed in the oceans during their oceanic stage, but Bjorndal said further study is required to confirm that.

Karen Bjorndal, kab@zoology.ufl.edu

Aaron Hoover



Archie Carr with a green turtle at Tortuguero, Costa Rica.

UF, IBM Pursue “Smart” Health-Care Blueprint

Always on, connected, cheap and on sale everywhere.

What people have come to expect in cell phones and personal communicators may soon become common in health-care devices and products at home and in medical offices, thanks to new technology announced today by the University of Florida and IBM.

The technology creates the first-ever roadmap for widespread commercial development of “smart” devices that, for example, take a person’s blood pressure, temperature or respiration rate the minute a person steps into his or her house — then transmit it immediately and automatically to doctors or family.

That could eliminate the need for many doctor’s visits, which are often difficult for the elderly or sick. By enabling regular updates via text message or e-mail, the technology also could pave the way for people to share real-time information on their health or well-being with absent loved ones. And it could prove useful for doctors who need to keep tabs on many patients at one time by helping the doctors to prioritize whom to treat first.

“We call it quality-of-life engineering,” said Sumi Helal, professor of computer engineering and the project’s lead UF researcher. “It’s really a change of mindset.”

The idea of using technology to provide medical care at a distance is nothing new. Doctors have relied on “telemedicine” to communicate with specialists for years. More recently, telemedicine has been expanded to include, for example, surgeons performing robotic procedures on distant patients.

But the UF-IBM advance goes a step further: It provides the technological “stepstones” to make it easy for any company to manufacture and sell smart networked devices — while also making

them more user friendly for consumers.

“UF and IBM both see the need and the opportunity to integrate the physical world of sensors and other devices directly into enterprise systems,” said Richard Bakalar, Chief Medical Officer for IBM.

Helal has devoted the past several years to developing smart devices for the elderly in a model home known as the “Gator Tech Smart Home” in Gainesville.

With \$60,000 in research funding from IBM, Helal designed “middleware,” or software and hardware that glues together different systems, that can give his and any similar health-aid devices this independence and connectivity.

The hardware component of the system is an inexpensive sensor platform about half the size of a business card. Developed at UF and licensed to Pervasa, a Gainesville-based UF spinoff company headed by Helal, the “Atlas” platform makes it easy to create a network of sensors and make their information available on a computer network.

The advance is crucial, given the increasing number of elderly Americans. The number of people 85 and over is expected to rise from 4.2 million in 2000 to 6.1 million in 2010 and 9.6 million by 2030, according to federal government statistics. Meanwhile, the percentage of older Americans living alone will either remain high or continue to grow: About half of women and nearly a quarter of men aged 75 and older currently live alone.

But the UF-IBM technology may also prove useful in many other medical settings. For example, Helal said, it could help emergency rooms operate more safely. Rather than a standard waiting list, patients could be equipped with networked wireless monitors of their vital signs, allowing doctors to determine who in a waiting room needs the most immediate care.

Sumi Helal, helal@cise.ufl.edu

Aaron Hoover



A cell phone displays a patient’s health information in this photo illustration of new technology for providing smart health care.

UF Research Funding Hits Record \$583 Million

The University of Florida received a record \$583 million in research funding in 2007, thanks in part to a 92-percent increase in state funding.

The total for the fiscal year that ended June 30 represents a 12.5-percent increase over last year's \$518 million. Research support from the state grew from \$48.6 million in fiscal year 2005-06 to \$93.4 million in 2006-07.

The state support included \$8.5 million for two new Centers of Excellence — the Florida Institute for Sustainable Energy and the Center for Bio-Nano Sensors.

“The Centers of Excellence program is a great example of how Florida is promoting targeted, interdisciplinary research centers to address problems unique to our state,” said Win Phillips, UF’s vice president for research. “While support from the federal government still represents the largest piece of the pie, the state commitment continues to grow in significance.”

Despite tight budgets in Washington, federal awards grew 11 percent to \$361 million. The National Institutes of Health remains UF’s largest sponsor, funding nearly \$138 million in projects, most in the six colleges of the Health Science Center.

Overall, the Health Science Center attracted \$316.8 million, including \$259.5 million to the College of Medicine.

“This significant increase in research funding to the faculty in the Health Science Center is even more impressive when you consider that the federal research budget has essentially flat-lined,” said Douglas Barrett, senior vice president for health affairs. “UF faculty are out-competing others for a relatively fixed pool of research dollars at NIH.”

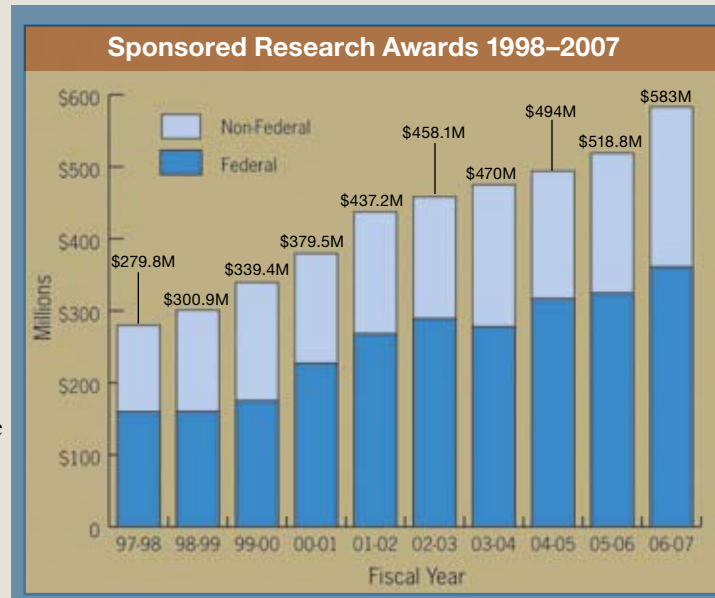
The Institute of Food and Agricultural Sciences earned \$93.5 million and the College of Engineering \$69 million. The College of Liberal Arts and Sciences brought in \$48 million. Other campus units

brought in the remaining \$55.6 million.

UF also is a national leader in training the next generation of scientists and engineers. The prestigious Howard Hughes Medical Institute funded two innovative science education projects last year led by Lou Guillette in the zoology department and Randy Duran in the chemistry department.

Win Phillips, wphil@ufl.edu

Joseph Kays



UF Establishes EU-Funded Jean Monnet Centre

The University of Florida has become the first American institution to receive funding from the European Union to establish a Jean Monnet Centre of Excellence on campus.

The center, named after one of the most influential supporters of European integration throughout most of the 20th century, will be entirely dedicated to EU topics and will support an annual visiting scholar program, additional special-topic classes and a yearly workshop. It will be housed within the UF Center for European Studies.

The visiting scholars, who will spend a minimum of two weeks in Gainesville working with UF faculty and teaching a

special two-week intensive course, can be either academics from European Union universities or current practitioners in the field of European integration, such as EU government officials.

There are currently 107 such centers at universities worldwide, and the vast majority are in EU member or candidate countries. This year, Japan was the only other non-European country to receive a grant from the EU to create a new center, said Amie Kreppel, director of the UF Center for European Studies.

The grant will provide the university with approximately \$205,000 over three years and present the possibility of future grants and center renewals.

The Jean Monnet center is proof of the increasing international recognition of the strength of UF’s European

studies programs, Kreppel said. Growing student interest, the efforts of the Center for European Studies and the strength of other Europe-focused groups such as the France-Florida Research Institute and the Center for Greek Studies are the driving forces behind the rapid growth of EU scholarship at the university, she said.

The center’s mission of educating non-Europeans about the EU is vital for Americans and Floridians in today’s world, Kreppel said.

“The EU is America’s largest trading partner and our most important political ally,” she said. “And for Florida, the EU is our biggest foreign direct investor. Their investments account for more than 145,000 jobs.”

Amie Kreppel, kreppel@ces.ufl.edu

Jay Goodwin



Barrett Ross, 9, receives an infusion of stem cells removed from his umbilical cord blood. Barrett is one of 12 children with diabetes who are participating in a nationwide study to determine if cells from their own cord blood could help slow or even stop the progression of diabetes. UF pediatric endocrinologist Michael Haller (right) monitors each child for two years after the infusion.

Sarah Kievel

Cord Blood May Preserve Insulin Levels

Umbilical cord blood may safely preserve insulin production in children newly diagnosed with type 1 diabetes, according to findings from a small national pilot study presented in June at the American Diabetes Association's 67th Scientific Sessions in Chicago.

University of Florida researchers sought to determine whether it is feasible to use a patient's own cord blood stem cells to neutralize the body's autoimmune attack on the pancreas and help restore the organ's ability to make insulin, which regulates how the body uses sugar and other nutrients for energy.

"This is the first attempt at using cord blood as a potential therapy for type 1 diabetes. We hope these cells can either lessen the immune system's attack on the pancreas or possibly introduce stem cells that can differentiate into insulin-producing cells," said pediatric endocrinologist Dr. Michael Haller, an assistant professor of medicine at UF's College of Medicine.

"While this is a relatively small study we can confidently say this is safe, and we have seen metabolic and immunologic

changes to suggest there may be benefit," Haller said. "It's not curing diabetes, but this is a first step to help us learn more and get us moving in the right direction."

Cord blood is rich with cells that help regulate the immune system but until now has typically been used to restore a patient's immune system after treatments for leukemia or lymphoma.

UF researchers identified children recently diagnosed with type 1 diabetes whose families banked their umbilical cord blood at birth. Most were still producing a small amount of insulin. The researchers then gave seven patients ages 2 to 7 intravenous infusions of stem cells isolated from their own cord blood. (They have since treated an additional four children.) The patients were evaluated for the next two years to measure how much insulin they were making on their own and to assess blood sugar levels and the function of key immune system cells.

In the first six months, they required significantly less insulin — on average 0.45 versus 0.69 units of insulin per kilogram per day — and maintained better control of blood sugar levels than children of comparable age with

type 1 diabetes who were randomly selected from the clinic population. The researchers also noted that the children who received cord blood infusions had higher levels of regulatory immune cells in their blood six months after the infusion, on average 9 percent of the total cell volume compared with 7.21 percent at the time of infusion.

"This isn't a cure-all. We think that giving these cells is essentially providing some immunotherapy and downregulating the autoimmunity these patients have," Haller said. "Realistically, we hope to protect what's left of their insulin-production for an extended period of time."

The idea would be to intervene and repair any early damage during the "honeymoon period" many patients enjoy — the first several months after diagnosis during which insulin needs are minimal, he added.

The Juvenile Diabetes Research Foundation and the National Institutes of Health funded the study, with support from UF's Clinical Research Center.

Melanie Fridl Ross



Sarah Kievel

Dr. John Wingard

UF Leads Research On Life-Threatening Fungus

Hear the word fungus, and mushrooms and mold might leap to mind. But the University of Florida is about to house the nation's first research repository for one species that has nothing to do with pizza toppings or marbling blue cheese: *Aspergillus*, which increasingly poses a major health threat to cancer patients and transplant recipients.

The National Institutes of Health has awarded \$9 million over the next seven years to the effort. UF researchers are collaborating with colleagues at Duke University, Brigham and Women's Hospital in Boston and the Dana-Farber Cancer Institute, who will

funnel patients' respiratory, urine and blood samples to UF. The repository will support research aimed at learning more about the fungus and efforts to develop more accurate tests to detect it in patients.

"*Aspergillus* is everywhere, particularly in the air we breathe; all of us breathe it in all the time," said principal investigator Dr. John Wingard, director of UF's blood and marrow transplant program and deputy director of the UF Shands Cancer Center. "On a windy day, especially in a dusty environment or every time some dirt gets moved around, lots of these organisms get aerosolized."

The number of people contracting *Aspergillus* infections jumped enormously in the 1990s, Wingard said, and those with weakened immune systems are particularly susceptible. Aspergillosis is the leading cause of death from infection in bone marrow transplant and leukemia patients, as well as among those who receive certain other solid organ transplants, he said. About 15 percent of all bone marrow transplant patients, for example,

will develop aspergillosis, an infection from *Aspergillus*; of those, about two-thirds die.

"We haven't had good treatments, we haven't had good prevention methods and, most importantly, we haven't had good diagnostic methods to identify which patients have these infections," Wingard said. "Since we often don't recognize that patients have aspergillosis until very late in the course of the infection, by the time we try to treat the infection it is often so advanced we have very poor prospects of bringing it under control."

Officials are hoping to collect samples from about 200 patients a year for the next seven years to better characterize the fungus and improve the diagnostic accuracy and speed of tests used to detect aspergillosis. The repository will include samples from patients with confirmed infections that will be compared with samples from patients whose diagnosis is less clear and with samples from patients who are at high risk but not infected.

John Wingard, wingajr@medicine.ufl.edu

Melanie Fridl Ross

UF Establishes Pepper Center With \$3.9M Grant

The University of Florida's Institute on Aging has received a multimillion-dollar grant from the National Institutes of Health to establish the Claude D. Pepper Older Americans Independence Center.

UF is one of 10 centers in the country to receive the prestigious award, which provides \$3.9 million over the next five years to fund aging research and career development.

Created and named in honor of Pepper, a former U.S. senator and state representative from Florida who dedicated his legislative career to improving the lives of older Americans until his death in 1989, the nation's Pepper Centers target research on one common fear

people have about growing older — loss of independence.

"With the award, UF's Institute on Aging has joined the ranks of the most prestigious programs on aging in the nation," said Dr. Marco Pahor, director of the institute and chairman of the College of Medicine's Department of Aging and Geriatrics. "This grant will provide a foundation for our ongoing research endeavors, as well as support our efforts to train the next generation of leaders in aging research, education and health care."

UF's central mission addresses the problem of muscle loss, a process called sarcopenia. Research programs at the UF Pepper Center are organized around several core areas that bring together an interdisciplinary team of researchers, geriatricians and educators to prevent

and rehabilitate physical disabilities resulting from muscle loss.

"Over time, muscle shrinks as fat expands," Pahor said. "We are looking for novel ways to slow this process, but right now nothing beats the benefits of physical activity."

The grant also provides highly anticipated seed money to initiate large-scale clinical trials. Such trials will evaluate physical activity and hormone replacement therapy as a means to improve function in seniors.

Pepper was known in his lifetime as a spokesman for older citizens. Not only was he a recognized advocate of the elderly, Pepper, who lived to be 89, also embodied vital, successful aging.

Marco Pahor, mpahor@ufl.edu

Ann Griswold

Extracts

Canary Islands Telescope Sees “First Light”

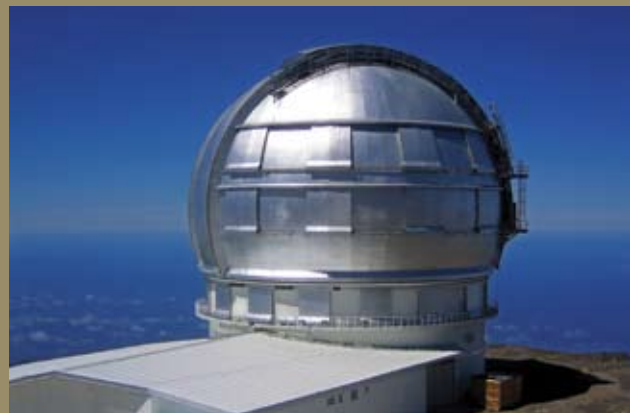
The world’s largest telescope took its first peek into the heavens in July, ushering the University of Florida into the top ranks of the “big observers,” as one astronomy professor put it.

The Gran Telescopio Canarias, or GTC, under construction in Spain’s Canary Islands for the past seven years, held its “first light” opening ceremony in July. UF, which contributed \$5 million to the project and owns a 5-percent share, is the only U.S. institution with a stake in the massive telescope.

“This is one of the largest international projects that the university is involved in, and first light is certainly a big step for a small department,” said Stan Dermott, astronomy department chairman.

The Spanish government is the main owner of the GTC, with UF and two institutes in Mexico as partners. As a result of its participation, UF astronomers will be allotted 20 nights of telescope time annually for observations.

The Gran Telescopio Canarias in Spain’s Canary Islands with its 34.1-foot mirror, is scheduled to be completed next year.



A UF-designed and built infrared imager and spectrometer, meanwhile, will be one of the first instruments mounted on the telescope when it opens for scientific observation next year.

“We are not just passive partners in this project,” Dermott said. “We are the world’s leader in developing astronomical instruments, and our instrument, CanariCam, will be one of the first instruments used on the GTC.”

Dermott said UF’s participation in the GTC effectively makes it one of a handful of institutions with guaranteed access to the world’s most powerful telescopes. That will open the door to a wide range of research not only at the GTC but elsewhere as well.

“Already we are forming scientific teams that will involve other telescopes to take part in surveys of the distant universe,” he said. “For example, Rafael Guzman is leading a team that will investigate the origin of galaxies. In a sense, we have joined the club of big observers now.”

Funded in part by the Spanish government with a \$6.5 million grant, Guzman’s team of 40 astronomers from the U.S., Spain, France and England is conducting a survey called GOYA, or Galaxy Origins and Young Assembly. Other UF astronomers are also participating or heading GTC-related projects.

Stan Dermott, dermott@astro.ufl.edu

Aaron Hoover



New Grass Is Slow-Grow, Low-Mow Variety

Imagine life with fewer Saturday afternoons stuck behind a noisy lawn mower.

The University of Florida’s Institute of Food and Agricultural Sciences has released a new slow-growing turfgrass that you may be able to buy as early as next year.

And you can put down that fertilizer bag: The new St. Augustinegrass variety’s finer leaf blade and dark-green hue make for a prettier lawn and it’s far more resistant to sap-sucking, lawn-killing chinch bugs than current varieties.

“We are quite pleasantly surprised by this grass,” said Paul Grose, general manager of King Ranch, a company testing the grass in Belle Glade, Fla.,

and Texas. “It seems to have a lot of benefits. Besides being a chinch bug-resistant variety, it’s got real good color, good density and a good root system.

“And from what the consumer sees, we feel like it’s going to be a kind of grass that’s going to require less mowing,” he said.

Although IFAS officials recently approved the public release of the new grass, what’s now known as NUF-76 won’t be on the market until next year. The grass is being grown by 17 sod farmers and several homeowners around the state, including one in Gainesville. It’s expected to grow well in any subtropical climate.

Growers are quickly expanding acreage of NUF-76 to ensure there’s enough sod to create a buzz for the as-yet unnamed brand they hope will compete

Turfgrass researcher Russell Nagata (right) discusses NUF-76 — a new St. Augustinegrass variety — with homeowner Ken Buhr, who’s been growing the grass at his northwest Gainesville home.

Huge Wind Machine Simulates Hurricanes

It will huff, and puff, and blow the house in — but only for research purposes.

University of Florida wind engineers have unveiled the world's largest portable hurricane wind and rain simulator. Mounted on a trailer, the industrial-sized behemoth is composed of eight 5-foot-tall industrial fans powered by four marine diesel engines that together produce 2,800 horsepower. To cool the engines, the system taps water from a 5,000-gallon tank aboard a truck that doubles as the simulator's tow vehicle.

UF civil and coastal engineers are using the simulator to blast vacant homes with winds of up to 130 mph — Category 3 on the Saffir-Simpson Hurricane Scale — and high-pressure water jets that mimic wind-driven torrential rain.

The goal: to learn more about exactly how hurricanes damage homes, and how to modify them to best prevent that damage.

with Floratam, a turfgrass released by UF in the early 1970s that now covers some 750,000 acres around the state.

And where the turfgrass is being tested on residential lawns, it's attracting envious neighbors' attention, said Russell Nagata, a UF horticultural sciences associate professor who tested the new grass.

"They say 'what's that?' And 'where can we get some?'" he said.

Finding NUF-76 was part lucky break, part good observation, said Nagata.

He was evaluating more than 100 varieties of St. Augustinegrass for darker-green and finer-leaf blades when chinch bugs — destructive insects that suck the juice and life from grass — moved in. Nagata consulted fellow IFAS researcher Ron Cherry about

"This simulator also gives us the ability to test home retrofits and new building products aimed at preventing hurricane damage," said Forrest Masters, an assistant professor of civil and coastal engineering and the leader of the project.

The simulator, which cost about \$500,000 in parts and labor, was designed and constructed entirely by Masters, lab manager Jimmy Jesteadt and a team of undergraduate students.

At full power, the fans turn at about 1,800 revolutions per minute, producing wind speeds of about 100 mph. A custom-built duct reduces the space available for the air to flow through, ratcheting up the wind speeds to a potential 130 mph. Steering vanes allow

treating the grass to get rid of the pests, but the entomologist persuaded Nagata to let the infestation run its course.

After the chinch bugs were done, four grasses were intact, but only one of them had dark-green, small leaves, Nagata said.

Wondering if the undamaged patch was some kind of mistake, Nagata said he thought to himself, "this might be interesting."

"Everything around it was dead, but this one variety was still alive," he said. "So we did lab tests to be sure, and it was actually resistant."

In Nagata's world, NUF-76 is merely one step closer to the perfect grass. To a breeder, perfect might mean a pest-proof variety that never needs mowing, water or fertilizer.

But to consumers, NUF-76 may be

the engineers to direct the air wherever they want it to blow.

Implanted in the vanes, the water jets can simulate the most extreme rainfall of up to 35 inches per hour, although 8 inches per hour is more typical, Masters said.

Forrest Masters, masters@ce.ufl.edu

Aaron Hoover



Kristen Bartlett Grace

Wind researcher Forrest Masters stands atop an industrial-sized simulator whose eight 5-foot-high industrial fans can simulate winds of up to 130 mph. The machine also has high-pressure water jets that mimic torrential wind-driven rain.

close enough because it's attractive and doesn't seem to need as much mowing or fertilizer as grasses now on the market.

"We can, with confidence, probably eliminate every other mowing," Nagata said.

Nagata likes the reduced environmental impact of less water, gas and chemicals being used for lawn maintenance.

"With more than 5 million acres of managed turfgrass around the state, if we can eliminate just one mowing per year, that could lead to substantial savings in fuel," he said. "And it's possible the darker-green color will prevent some people from applying as much fertilizer."

Russell Nagata, nagata@ifas.ufl.edu

Mickie Anderson