

Vikings rookie Ponder familiar with Panthers' Newton **Sports**



BIG AND BOXY
Fashionable sweaters can be quite forgiving **Style**

The Charlotte Observer

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Alternative energy: 9,000 hogs plus a high-tech waste digester equals methane



"I was kind of curious myself how it was going to do," said farmer Loyd Bryant, 71. The paperwork's "not going to be no big thing. And it might bring my power bill down."

PIG WASTE PROVES POWERFUL



PHOTOS BY JOHN D. SIMMONS - jsimmons@charlotteobserver.com

Tatjana Vujic, director of Duke University's carbon offsets initiative, walks between the aeration basin, left, and an anaerobic digester on Loyd Ray Farms in Yadkin County. Nearly 9,000 hogs are in a pilot program with the university and Duke Energy to turn hog waste into electricity.

BY BRUCE HENDERSON
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YADKINVILLE — The old saw about using every part of a pig but the squeal now includes its droppings, which are producing electricity on a Yadkin County farm.

Duke University is a partner with Duke Energy and Google in testing a system that captures methane, a potent greenhouse gas, from manure. The gas fuels a small power plant that makes enough energy to run the waste-processing system and part of the farm itself.

Loyd Ray Farms joins a handful of North Carolina hog farms that have become energy innovators. They're prompted by state laws aimed at boosting renewable energy and phasing out open waste pits that can taint water and release harmful ammonia into the air.

"I was kind of curious myself how it was going to do," said farm owner



Bryant

Loyd Bryant, who at 71 is part of the old guard. Bryant first raised hogs in the 1960s. More than 8,600 now fatten up in his row of barns.

"There will be a few more records to keep, but it's not going to be no big thing," he said. "And it might bring my power bill down."

The powerful troika collaborating on the project will also benefit. The university and Google, which owns a data center in Lenoir, score credits to offset their carbon emissions. Duke Energy gets help in

SEE HOGS, 4A

HOG POWER

Watch a slideshow from the farm at charlotteobserver.com/photos.

IN BUSINESS

Apple quietly begins work on a solar farm in Catawba County. **3B**

Obama speeds student debt aid

The president will start a program that will help millions of borrowers two years earlier than planned.

BY DAVID PERLMUTT AND MEGHAN COOKE
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President Barack Obama unveiled a plan Wednesday that could give millions of young people, including thousands of recent N.C. college graduates, some relief on student loan payments.

Obama will accelerate a measure passed by Congress that cuts the maximum required payment on student loans from 15 percent of discretionary income annually to 10 percent. He will put it into effect in 2012, instead of 2014.

In addition, the White House says the remaining debt would be forgiven after 20 years instead of 25. About 1.6 million borrowers could be affected.

The move would help recent graduates such as Alison Wadsworth.

The 25-year-old set out on a job search after graduating this year from Campbell University with a law degree and an MBA.

But now the student loan bills are piling in, and Wadsworth, who's licensed to practice law, is working in retail in Charlotte to help pay off the crippling debt she racked up in school.

"It's kind of tragic when you've worked so hard for your future," she said.

An estimated 30,000 current students would be able to lower their monthly payments through the "pay as you earn" program, according to a state-

SEE STUDENTS, 4A

Romney joins GOP push to flatten tax code

Republican presidential candidates' plans would simplify taxes and benefit wealthy Americans.

BY STEVEN THOMMA
McClatchy Newspapers

WASHINGTON — The Republican Party is catching flat-tax fever — and setting up an epic election-year fight with Democrats over whether wealthier Americans should pay higher taxes or get tax cuts.

Republican presidential candidate Mitt Romney became the latest to punch the tax button Wednesday, telling a Virginia audience that he'll soon update his economic proposal to spell out ways to flatten the tax code.

His vow came just a day after rival Rick Perry grabbed headlines and talk-show chatter for a proposal for an optional flat 20 percent tax on income. Both followed Herman Cain's pitch for a flat 9 percent income tax as part of his 9-9-9 plan, which helped him jump to the top tier of candidates for their party's 2012 nomination. Newt Gingrich and Michele Bachmann endorse a flat

SEE TAX PLANS, 6A

Charlotte's ghost detectives are dead serious

Paranormal group uses scientific tools to prove or disprove your hauntings.

BY MARK PRICE
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The Charlotte Area Paranormal Society — yes, there is such a thing — says it has found proof of hundreds of area hauntings over the past six years.

That means its teams have recorded, observed or photographed what they believe to be

unexplainable sounds, sights, touches and smells.

This is their busy season, too, owing to publicity surrounding Halloween.

But hundreds of hauntings does not add up to hundreds of ghosts being evicted, says Tina McSwain, who founded the group.

It seems not all clients want their ghosts removed, so the society has only done about 60 of its "ghost rescues," where specialists acted as "mediators" to persuade the dead to move on.

"Some people are terrified of the unknown thing in their house," McSwain says, "and then there are the people that think it's the greatest thing since sliced bread."



McSwain

They bring us in to determine who it might be: a George or a Martha."

National polls in recent years have shown more than one-third

of Americans believe in ghosts, a statistic reflected in the popularity of TV shows like "Ghost Hunters" and movies like "Paranormal Activity 3."

When the Observer recently asked readers for their personal ghost stories, a few dozen sent in tales of hauntings. They included

SEE GHOSTS, 4A

GHOST STORIES

See tomorrow's Observer for the first in a series of reader experiences with the paranormal.

76° 50°

Today: Partly cloudy.
Friday: Mostly cloudy, chance of showers, high 54. 12A



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Ask Amy.....5D
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TODAY'S MUST-READS

Health: Hormones undermine dieters' struggle to keep the weight off. **9A**

Business: Real estate investment market will be erratic. **2B**

COMING FRIDAY

CLT: Your guide to Wells Fargo's free celebration day.



DAVID GOLDMAN - AP
Protesters link arms across Peachtree Street in Atlanta as police move in.

ATLANTA'S OCCUPY CAMP SHUT DOWN

Police arrested more than 50 protesters who had been there for about two weeks. They had been warned to vacate. **2A**

Official: Banks agree to 50% cut on Greek debt

Decision comes after marathon summit. **7A**

Moynihan fires off at BofA public critics

CEO Brian Moynihan said he's "incensed." **2B**

'Idol' winner releases new album

"Stronger" Kelly Clarkson belts out the hurt. **1D**



Clarkson



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JOHN D. SIMMONS - jsimmons@charlotteobserver.com

Hog farmer Loyd Bryant, far left, works near a micro turbine next to the aeration basin and one of his nine fan-ventilated "hog houses," at right. Duke Energy, Duke University and Google are involved in the project.

HOGS

■ from 1A

meeting a state mandate that, starting in 2012, utilities make electricity from swine waste.

The university and the utility also hope for insights in how to make such innovations more affordable – the Loyd Ray project cost \$1.2 million – and fit them into a slowly expanding menu of energy choices.

"This is a learning opportunity for us to get it on the ground, refine it and understand the benefits and the costs," said Tatjana Vujic, director of Duke University's Carbon Offsets Initiative. With the experience already gained, and use of off-the-shelf parts, Duke researchers believe they could build a similar system now for substantially less.

Beginning next year, North Carolina utilities have to get 0.07 percent of their electricity from hog waste. The figure rises to 0.20 percent by 2018. State law includes a similar requirement for poultry waste.

Learning how it works

The renewable energy credits that Duke Energy will reap from the Yadkin County farm will only partly meet its obligation in 2012, company spokesman Jason Walls said. Hitting the state's swine- and poultry-waste targets will be a challenge, he said.

"It's really driven by the immaturity of that market and technology," Walls said. "The real value for us at Loyd Ray Farms is that it helps us learn how this technology works with our system, how reliable it can be. We're really approaching this as a research project."

After three years of work,



The Loyd Ray Farms project, in the works for three years, uses hog waste to fuel a small power plant. Starting in January, N.C. utilities must make some electricity from swine waste.

Pig manure to energy

How it works at Loyd Ray Farms:

Wastewater flushed from the hog houses – 400,000 gallons a week – is piped into a 2 million gallon basin called an anaerobic digester. Bacteria break down wastes in an oxygen-free environment and produce biogas that is about 60 percent methane.

A dome of heavy black plastic that covers the basin bulges from the pressure of captured biogas. Gas is piped out of the digester, cleaned, and fed into a micro-turbine that makes electricity.

Water from the digester then goes to a second basin that is aerated periodically. Bacteria there convert the ammonia into a safer form of nitrogen. Ammonia air emissions from intensive livestock farms can form fine particles in the air that can cause health problems.

The treated water is used to flush out the nine hog houses on the farm. Because it's cleaner than the lagoon effluent previously used, researchers hope for a side benefit: healthier pigs.

the new project is up and running. Dignitaries will attend an open house on Friday.

They'll find a newly equipped swine farm that, although it opened in 1998, is now able to meet the state standards for odor, ammonia, nutrients, pathogens and metals that would be demanded of a new farm.

Bryant, like most hog farmers, previously sprayed effluent from an open waste lagoon onto fields of grass and millet to absorb its heavy load of nutrients. The new system will let him return the spray area to

growing corn and other crops.

Grants from the federal Natural Resources Conservation Service and North Carolina's lagoon-conversion program paid \$500,000 toward the project. Duke Energy and Duke University picked up the other construction costs and operating costs for 10 years. Google bought in last month, agreeing to help pay the university's costs for five years in return for a share of carbon offsets.

The project builds on research into lagoon alternatives that began in 2000, after large waste spills focused attention

on the lagoons' environmental costs. In 2007, state legislators adopted standards to begin shifting toward alternatives to open waste pits and spraying.

North Carolina remains a leading hog-producing state, with more than 2,100 permitted farms raising 9.4 million animals a year.

Loyd Ray's is the first system using an anaerobic digester, which decomposes waste, to be permitted by the N.C. Division of Water Quality as an innovative animal-waste management system. It uses readily obtainable parts but in unique designs by Wilmington-based Cavanaugh & Associates.

It's expected to capture methane – a greenhouse gas 21 times more potent than carbon dioxide – that is the equivalent of nearly 5,000 metric tons of CO₂ a year. A 65-kilowatt micro-turbine fueled by the gas produces enough electricity to power 35 homes for a year.

Mike Williams, director of N.C. State University's Animal and Waste Management Center, said he knows of only four other N.C. hog farms that use anaerobic digesters to produce energy. All four are in Eastern North Carolina.

The problem is that harvesting energy from pig poop is too expensive for most hog farmers to shoulder alone. Utilities won't pay enough for the electricity from such systems to make them economically viable, Williams said. Loyd Ray's energy never leaves the farm.

"We need to put more of these things on the ground to do value engineering to make them more efficient and affordable," Williams said.

Henderson: 704-358-5051

STUDENTS

■ from 1A

ment from the White House. More than 85,000 would be able to reduce their interest rates and simplify payments by consolidating loans.

The plan will also allow a borrower who has a loan from the Federal Family Education Loan Program and a direct loan from the government to consolidate them into one. The consolidated loan would carry an interest rate of up to a half percentage point less than before. This could affect 5.8 million borrowers.

The White House said the changes will carry no additional costs to taxpayers.

Tuition is up 8.3%

Student loans are the No. 2 source of household debt. The president's announcement came on the same day as a new report on tuition costs from the College Board.

It showed that average in-state tuition and fees at four-year public colleges rose \$631 this fall, or 8.3 percent, compared with a year ago. Nationally, the cost of a full credit load has passed \$8,000, an all-time high.

Wadsworth graduated from UNC Chapel Hill and began law school at Campbell University in 2008, just as the economy spiraled downward. Now highly educated but unable to find a job that would allow her to afford her six-figure student loans, she's struggling to find a way to pay up.

Many of her fellow graduates are in the same situation, Wadsworth said.

She has several government and private loans with interest rates ranging from 6.8 percent to 7.75 percent.

Students' debt loads

At UNC Charlotte, about 12,000 current undergraduates – nearly half the student body – receive federal student loans, said financial aid director Tony Carter.

Last year, about 10,500 UNC Charlotte students borrowed \$108.2 million in federal money, up 10 percent from the year before.

"It shows that more people are going into debt to pay for school," Carter said.

Much of the increase is a reaction to cuts in financial aid grants and raises in tuition at UNC System schools.

Last year, students borrowing federal money graduated

with an average debt of \$17,472, Carter said. Yet only 1.5 percent of 2009 graduates (the latest figures) defaulted on student loans, down from 2.1 percent two years before.

Appalachian State in Boone had similar numbers. About 48 percent of the university's 8,238 undergraduate and graduate students receive some form of student loans, said financial aid director Esther Manogin.

"It can be a whopping payment going out of college if they can't get jobs right away," she said.

The average Appalachian State student who has borrowed federal money graduates with a debt of \$16,153. Yet only 1.8 percent have defaulted on loans.

"It's a good investment for the country to educate students," Manogin said.

Between 78 and 86 percent of students at Queens University of Charlotte have federal loans, and on average 3.67 percent have defaulted on loans over the past three years, said Brian Ralph, Queens' vice president for enrollment management. The percentage of students relying on federal loans is at an all-time high, he said.

"Obviously, the economy has played into it substantially," he said.

Queens' tuition increases over the past three years have been relatively low – about 4.75 percent since 2008.

Obama's order, Ralph said, will be helpful for low-income students with federal loan debts.

"A rate cut could make a big difference, especially for students borrowing a big amount of money," Ralph said.

— THE ASSOCIATED PRESS CONTRIBUTED.

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GHOSTS

■ from 1A

one Cabarrus County man who said he recently called the paranormal society in desperation after "smoky white shadows" began transforming into spirits as the entire family watched.

"One thing is for sure: It is real and starting to destroy our well-being," wrote the husband and father in an email.

"The activity has increased to the point we are considering selling our home or moving in with friends until the earth bound spirits are removed."

Formed in 2005, the Charlotte Area Paranormal Society has about 20 members and is dedicated to using scientific methods to prove or debunk the presence of paranormal activity. McSwain – whose full-time job is as a purchasing manager for a heating and air company – says her research into the paranormal actually dates back much further, to 1989, when she says she saw a full-blown apparition in a Myers Park home.

Typical clients for the society these days include homeowners, businesses and even historic sites, all suspected of hosting human spirits that did not "pass on to the next realm."

Sensitive questions are asked in the investigation process, such as whether the client is abusing alcohol or drugs, or whether there is a family history of mental illness, says McSwain.

It's all confidential, she says. It's also free – most of the members have day jobs – but the group does take donations.

Coincidentally, it's not the only such group in the state, or even the county. Most of the groups operate on the same principles, promising to be objective in proving or disproving paranormal presence.

Their methods include still photography, meters to detect electromagnetic fields, thermal imaging cameras and audio recordings. The society

even has a team geologist, who studies geologic surveys and tests for radon gas.

Why? "Radon can make people unbalanced and see things," says Shannon Krasel, the society's geologist since 2008.

And quartz in the soil "is like a conduit for an entity to get power to be able to communicate with people."

More than half of the group's investigations turn out to be nothing other than coincidence, like rattling pipes that sound like footsteps.

Then there's the other half, like the 2009 case of a Charlotte woman named Kim, who prefers not to give her full name.

Kim says she called for help after years of living with music in the attic, muffled conversations and apparitions.

She first tried her own methods, including making the sign of the cross over the front door in olive oil, circling rooms in salt, and having two ministers bless the house.

Then something kicked the family dog down the driveway and she'd had enough.

The society came, discovered signs of multiple entities, she says, and did a "ghost rescue."

"There's no convincing a skeptic," Kim says, "but when you've had your Christmas tree shake like crazy on Christmas Eve, sending your grown children screaming into your bedroom, you start to see things differently."

"I don't care if you believe me or not."

Another client, Linda, in Stanly County, also needed a rescue after one spirit poked her husband in the back of the head and another scared her 6-year-old son.

"I still hear noises," she admits. "The paranormal society did ask the spirits to move on, and I'm waiting to see if it worked."

"As long they're not into scaring us, I don't care if they stay."

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