THE SENTINEL
NEWSLETTER OF THE FLORIDA STATE AGRICULTURAL RESPONSE TEAM

UN Climate Change Report – Not Optimistic

Vol. 10, No. 4
April 2014

Climate change is already having sweeping effects on every continent and throughout the world's oceans. That was the summary of a March 31 report from the Intergovernmental Panel on Climate Change funded by the United Nations. The problems associated with climate change are likely to grow substantially worse unless greenhouse emissions are brought under control, they warned.

The report concluded:

- ice caps are melting and sea ice in the Arctic is collapsing,
- water supplies are coming under stress,
- heat waves and heavy rains are intensifying,
- coral reefs are dying, and fish and many other creatures are migrating toward the poles or, in some cases, going extinct,
- oceans are rising at a pace that threatens coastal communities,
- ocean water is becoming more acidic (absorbing some of the CO2 given off by cars and power plants) killing some creatures or stunting their growth and
- organic matter frozen in Arctic soils since before civilization began is now melting and decaying into greenhouse gases that will cause further warming.

The worst is yet to come. The world's food supply is at considerable risk (many crops respond poorly to increasing heat, decreasing water) with probable damage to public health, displacement of people and potential mass migrations within our lifetime. The report cites the possibility of violent conflict over land or other resources, to which

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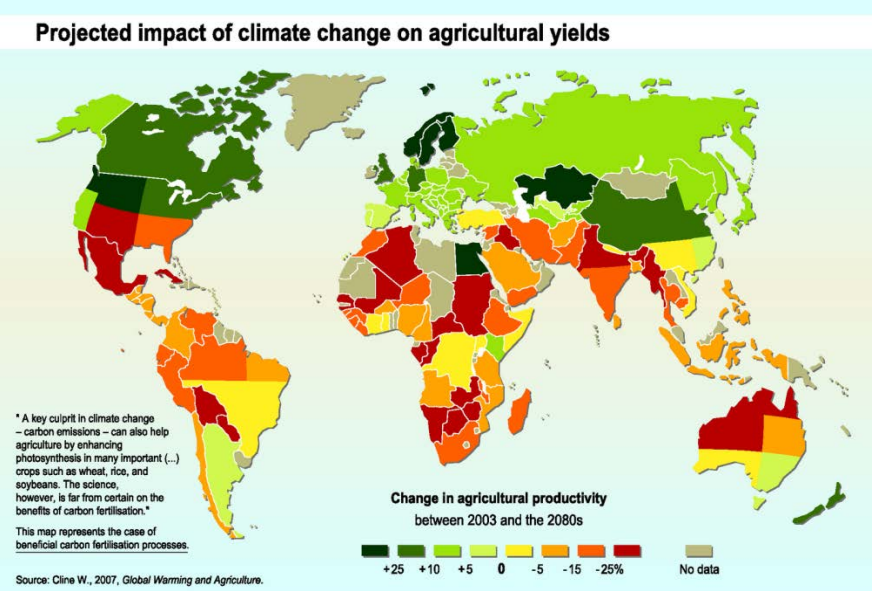
The scientists emphasized that climate change is not just some problem of the distant future, but is happening right now. For instance:

- In much of the American West, mountain snowpack is declining, threatening the region's water supplies. The snow that does fall is melting earlier in the year, so there is less melt water to ease hot summers.
- In Alaska, the collapse of sea ice is allowing huge waves to strike the coast, causing erosion so rapid that it is already forcing entire communities to relocate.
- Reacting to blackouts caused by Hurricane Sandy, New York ordered Consolidated Edison to spend $1 billion upgrading its system to prevent damage from flooding and other weather disruptions. Con Ed will raise flood walls, bury some vital equipment and study whether climate risks require even more changes. Other utilities face similar requirements, and utility regulators across the U.S. are discussing whether to follow New York's lead.



But with a global failure to limit greenhouse gases, the risk is rising that climatic changes could overwhelm efforts to adapt. In a hotter climate, farmers will not be able to keep up with the fast-rising demand for food. "When people don't have food, you get starvation. Yes, I'm worried," said Michael Oppenheimer, a Princeton University climate scientist who helped write the new report.

Two decades of international efforts to limit emissions have yielded little result, and it is not clear whether the negotiations in New York this fall (2014) will be any different. While greenhouse gas emissions have begun to decline slightly in many wealthy countries, including the U.S., those gains are being swamped by emissions from rising economic powers like China and India.
(Read the full report at http://www.ipcc-wg2.gov/AR5/)

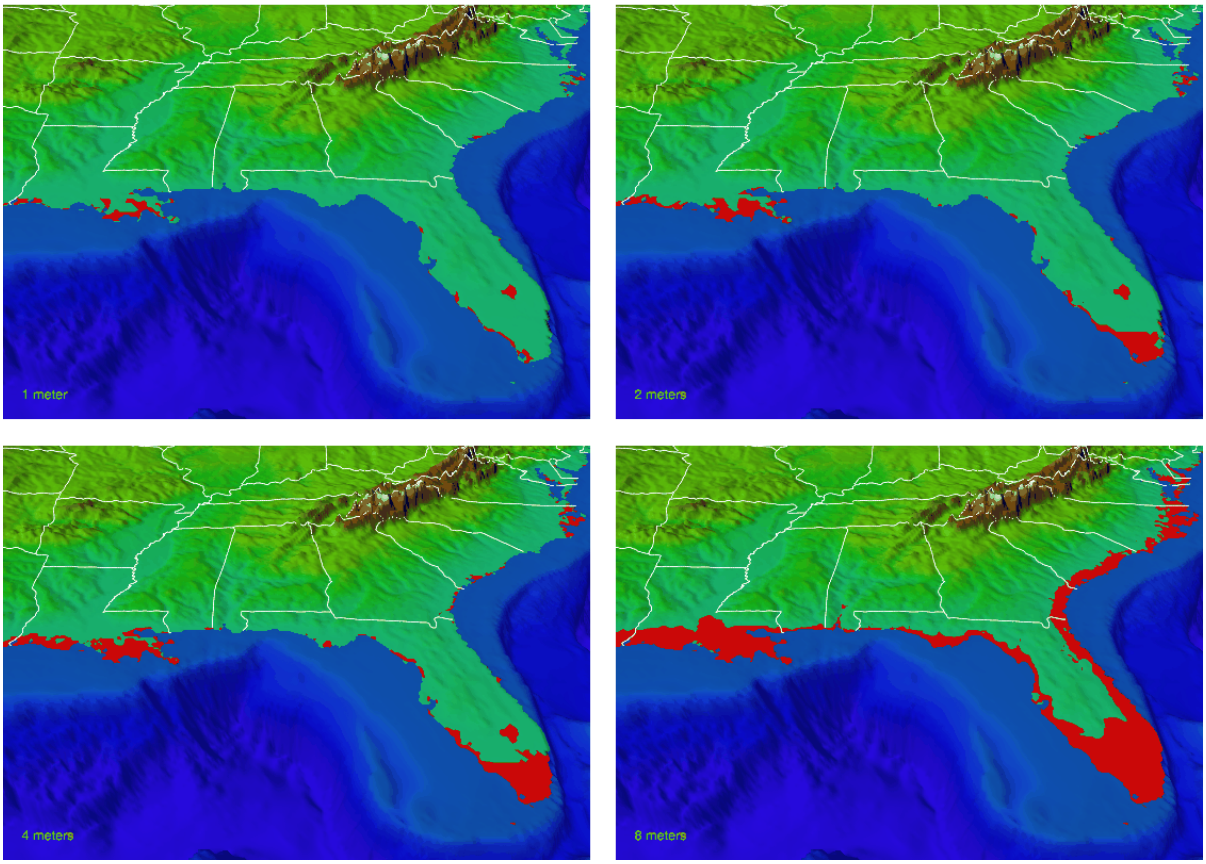
Climate Change Risks in Florida

STATE UNIVERSITY SYSTEM of FLORIDA
Board of Governors

http://floridaclimate.org/

Climate variability and change pose significant economic and environmental risks to Florida. The Florida Climate Change Task Force focuses on identifying current State University climate change expertise, research and curricula; enhancing cooperation with state and federal agencies to bring science into climate change-related decision making; and developing a climate change information system and portal that will connect State University System assets with these agencies, private industries, and other groups to facilitate communication.

Sea Level Rise



http://planetsave.com/2007/12/03/climate-change-could-leave-florida-hotter-smaller/
Based on studies by the University of Arizona.

Animal Carcass Disposal

By Dr. Greg Christy D.V.M., FDACS/DAI

Animal carcass disposal can create some of the greatest logistical and health related problems in managing large-scale disaster events affecting animals. It is especially challenging in Florida where our shallow water table and extensive Karst*(see below story) formation prevent burial as a means of disposal in most instances.

Burning thousands of carcasses, such as the Brits did after a 2001 hoof-and-mouth outbreak (photo above), may create more environmental problems that it solves. In the photo at left, members of the Animal Depopulation and Carcass Disposal Exercise work the problem inside the state EOC in Tallahassee.

To addresses these issues, on Wednesday, February 26, an Animal Depopulation and Carcass Disposal Exercise was held at the State Emergency Operation Center in Tallahassee. The exercise addressed the difficult issues of euthanasia, transport and disposal of a large number of animal carcasses due to an animal disease incident in Florida. The exercise was divided into the following four modules.

Module 1 - Depopulation and Biosecurity
Module 2 - Disposal Options Identified
Module 3 - Transportation
Module 4 – Disposal

More than 50 representatives from the following agencies participated:

Florida Department of Agriculture & Consumer Services
Florida Department of Health
Florida Fish and Wildlife Commission

Florida Department of Environmental Protection
Florida Geological Survey
Florida Department of Transportation
Florida National Guard
Florida Division of Emergency
United States Department of Agriculture
Private Industry

This exercise was a project of the Animal Carcass Management Working Group, formed in 2006 to address large scale animal carcass disposal issues in Florida. Representatives from the FDACS, FDEP, FDOH, USDA (APHIS/VS, NRCS) and FL Geological Survey serve on the working group. Private industry partners assist in an advisory and technical support role. Information about the working group and carcass disposal resource information is found at: http://www.flsart.org/acmwg. FDACS/DAI is the lead for this working group and for the exercise.

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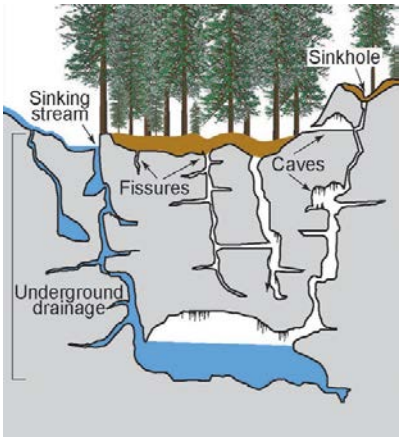
*About Karst Topography

Karst is a landscape formed from the dissolution of soluble rocks including limestone, dolomite and gypsum. It is characterized by sinkholes, caves and underground drainage systems.

1. Rainwater becomes acidic as it comes in contact with carbon dioxide in the atmosphere and the soil.
2. As it drains into fractures in the rock, the water begins to dissolve away the rock creating a network of passages.
3. Over time, water flowing through the network continues to erode and enlarge the passages; this allows the system to transport increasingly larger amounts of water.

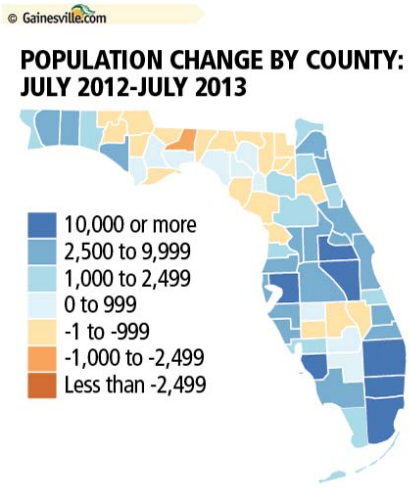


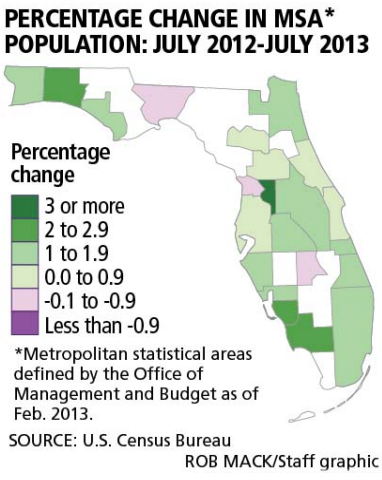
Courtesy UT-Austin

Dissolution associated with karst development limestone creates a complex underground water flow network, including caves large enough for humans to access. Rainwater travels through the network until it reaches the water table where it acts as an aquifer, storing water for human use.

Millions of people in Florida get their drinking water from the karst aquifer. This resource is especially important as the Sentinel State becomes more urbanized.

With more people, Florida faces a higher demand for water, but pollutants can also pass through the spongy limestone. Plus, streams and surface runoff entering the aquifer via sinkholes and caves bypass the natural filtration produced by seeping through soil and bedrock. This direct recharge quickly replenishes the water supply, but it also leaves the aquifer vulnerable to contamination.





How Many Farm/Ranch Animals Reside in Florida?

Poultry	26.0 million
Beef Cattle	1.5 million
Horses	500,000
Dairy Cows	123,000
Swine	100,000
Goats/Sheep	40,000

Statistics from FDACS/DAI (http://www.freshfromflorida.com/Divisions-Offices/Animal-Industry) and UF/IFAS (http://edis.ifas.ufl.edu/aa216).

Ebola Again In The News

African Recipe: Fruit Bat Soup

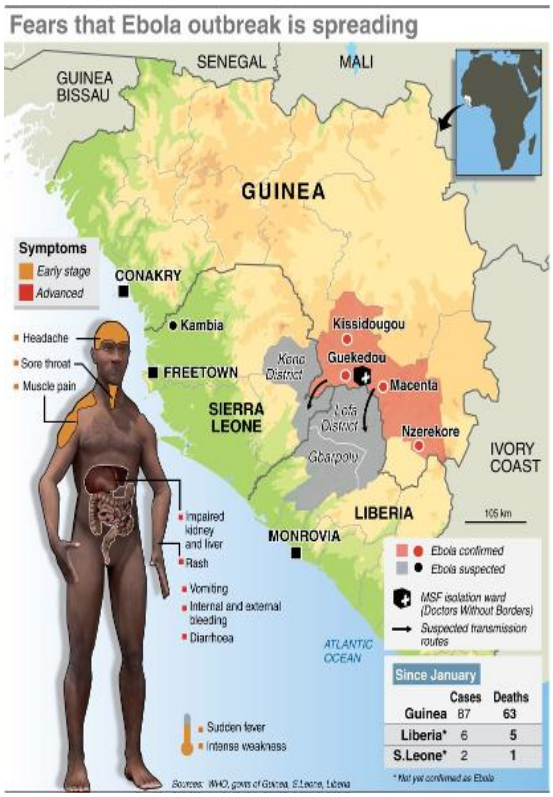
- 3 Fruit bats, well washed (but neither skinned nor eviscerated)
- Water
- 1 tablespoon finely sliced fresh ginger
- 1 large onion, quartered

Micronesia: Fruit Bat Cooking Instructions

1. Place the bats in a large kettle and add water to cover, with ginger, onion and salt. Bring to boil and cook for 40 minutes. Strain broth into a second kettle.
2. Skin the bats and discard the skin. Remove meat from the bones and return meat, plus any of the viscera you fancy, to the broth. Heat.
3. Serve liberally sprinkled with scallions and further seasoning with soy sauce and/or coconut cream.

Fruit bats, or flying foxes, are furry, fruit and nectar eating bats about the size of small rabbits. It is reported that they make "very affectionate" pets, but they are also widely eaten. The Micronesian recipe was reported from Jean Hewitt's 1971 *The New York Times Natural Foods Cookbook* (out of print).

Fruit Bat: the "spectacled flying fox" *Pteropus conspicillatus*.

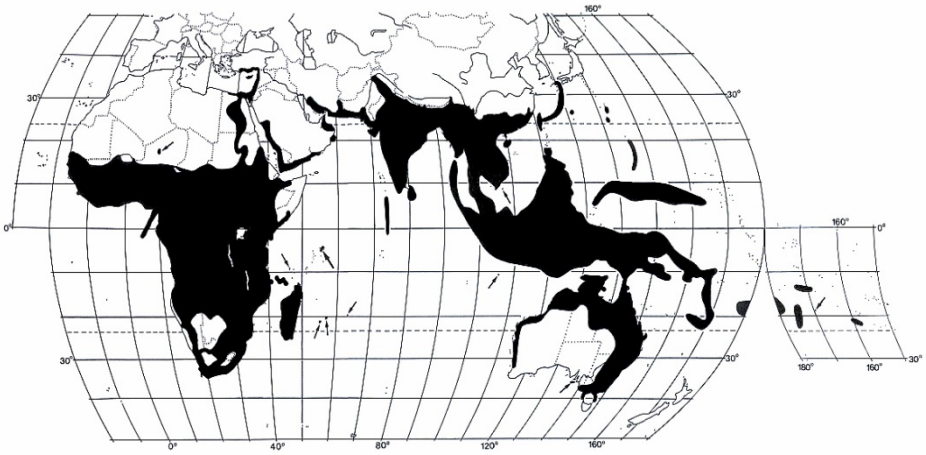


Map of West Africa charting the spread of the Ebola outbreak as of late March, 2014.

In late March, Guinea banned the sale and consumption of bats to prevent the spread of the deadly Ebola virus which has, to date, killed nearly 100 people in neighboring West African nations of Guiana and Liberia. In all of these countries, bats are a "local delicacy." Unfortunately, they are also the principal agents for the spread of Ebola, according to Rene Lama, Guinea's Minister of Health. Senegal has closed its borders.

In 2005, researchers found evidence of Ebola in three fruit bat species. According to the published findings and confirmed by the CDC (http://www.cdc.gov/vhf/ebola/) the bats are only vectors and show no symptoms of the disease. Other species, monkeys, for example, may also harbor the virus.

In countries where eating bats – or dogs or insects – seems odd, responders should note that if they are called to a foreign country or even to another U.S. neighborhood (we are, after all, an ethnically diverse nation), they may encounter unusual foods and manners. "People from my lineage as Kwawus (in eastern Ghana) are typically known as people who enjoy this delicacy [fruit bats] most. And so this is a matter which is dear to my heart," said Seth Acheampong, a Guinea Member of Parliament. What Acheampong is saying is that food is not just a matter of preference or of availability, but has, over time, developed deep emotional connections. So, sample the local delicacies, but understand that some of them – the fruit bat is one – come with risks.



World-wide distribution of fruit bats: large eyes, excellent sense of smell, but generally without the bat's usual ability to echolocate.

Under the Radar

Florida SARC Schedules Courses

The Florida State Animal Response Coalition is teaching "Small Animal Emergency Sheltering – Awareness Level" to promote effective response for animals during disasters. Registration is required, but due to grants from Florida Emergency Management and U.S. Homeland Security, no fee is charged for attendance. This course is certified by FDEM as course code FL-003-RESP.

Date & Time: Monday April 21, 8:00 am – 6:00 pm
Location: Clay County Division of Emergency Management, 2519 SR 16 West
Green Cove Springs 32043

Date & Time: Saturday April 26, 8:00 am – 6:00 pm
Location: Suncoast Hospice Foundation, 5771 Roosevelt Blvd, Clearwater 33760

Date & Time: Sunday April 27, 8:00 am – 6:00 pm
Location: Humane Society of Greater Miami, 16101 West Dixie Highway, North Miami Beach 33160

For information and registration go to http://www.flsarc.org/Training.html or contact Melissa Forberg training@flsarc.org (352) 658-1224, Pam Burns pamburnssarc@gmail.com, Andy Bass training@flsarc.org or Consie Von Gontard training@flsarc.org.

Dr. Paul Gibbs on "One Health"

Sometimes retirement is only an opportunity to work harder on the things that drive one crazy, grab one's imagination (not the imagination of the boss) … the things one believes must be said, must be studied, argued about and ultimately … funded.

Dr. Paul Gibbs, BVSc, PhD, FRCVS, Professor Emeritus, College of Veterinary Medicine, University of Florida, now officially retired, finds that his passions still include widening the scope of the veterinary One Health initiative. His January 25, 2014 article in The Veterinary Record [Click here to read a pdf of the Veterinary Record editorial about Dr. Gibbs article.] "The Evolution of One Health: A decade of progress and challenges for the future" is challenging reading, but in his concluding paragraphs he writes: "The question central to this review is whether One Health represents a short-lived response to a spate of emerging diseases that threatened to engulf the world in the first few years of the 21st century …."

If that particular word choice, "threatened to engulf the world," does not get your attention and force you to read his article, well, you might be in the wrong business! [Click here to read a pdf of Dr. Gibbs article.]

[P.S. We had an appropriate photo to go with this little story, but decided that in good taste it had to be censored. *The Editor*]

Ag News: Dairy Note: Cow milk and … flatulence

Wait on it. It's in the news so it has to be true, right? As part of its plan to reduce U.S. greenhouse gas emissions, the Federal government is targeting the dairy industry to reduce methane emissions in their operations, 25 percent by 2020. Even though U.S. agriculture only accounts for about 9 percent of the country's greenhouse gas emissions, according to the Environmental Protection Agency, it makes up a sizeable portion of methane emissions, and methane is a potent greenhouse gas. Although all livestock release methane, a healthy cow – with farting, exhaling, belching – may expel (experts disagree) between 100 liters and 500 liters a day. And that's not just a lot of bull.

Housecats Pass along TB to Humans

Public Health England reports that two people have developed tuberculosis after contact with a domestic cat. The human cases are linked to nine cases of *Mycobacterium bovis* infection in cats in Berkshire and Hampshire (west and southwest of London) last year.

M. bovis is the bacterium that causes tuberculosis in cattle, known as bovine TB, and other species. Transmission of *M. bovis* from infected animals to humans can occur by simply breathing in or ingesting bacteria shed by the animal (cleaning a litter box and inadvertently touching one's lip or eye) or through contamination of unprotected cuts in the skin while handling infected animals or their carcasses.

PHE says both infected people have responded to treatment and that the risk of cat-to-human transmission of *M. bovis* remains "very low." Dr. Dilys Morgan, Public Health England, said these are "the first documented cases of cat-to-human transmission..."

UF VETS Team – Let's Review …

The Veterinary Emergency Treatment Services (VETS), created in 2004, is spearheaded by the University of Florida College Of Veterinary Medicine and made up by UF faculty and staff. The team's multipurpose is to help with assessing veterinary infrastructure, to provide logistical support, to assist practices in coordinating mutual aid, to deploy a field hospital for patient care and to perform technical rescue and treatment.

The University of Florida College Of Veterinary Medicine is a lead member of the Florida State Agriculture Response Team (SART). As a state resource, the veterinary college was given the task to assist the state Emergency Support Function 17 response to animal and agricultural disasters. In partnership with the FVMA and the Florida Division of Agriculture and Consumer Services, the Veterinary Emergency Treatment Services was created.

The VETS team is a quick strike resource with the following key objectives:

- Providing a quick assessment of the veterinary infrastructure
- Assisting operational practices with logistical support and mutual aid
- Establishing a self-contained veterinary care triage and aid station
- Providing advanced technical rescue for large animals

The formalization of a team was the result of several ad hoc missions assigned to the veterinary college during the 2004 Hurricane season. The VETS team is an "all hazards, all animals, all the time" disaster response unit composed of volunteer veterinarians, technicians and students who are based at the college. The team is capable of deploying up to 12 team members and has enough supplies to last several days, being self-contained for food, fuel and medical items.

The VETS team equipment and training has been funded primarily through grants, public and private donations as well as the generous support of the FVMA Foundation.
http://www.fvma.org/fvma/Disaster_Preparedness/Vets_Team/FVMA/Disaster_Prep/Vets_Team.aspx

Don't Pack a Pest

Ready to greet attendees at the 2013 Miami boat show are (left-to-right) Nury Marrone and Phellicia Perez, FDACS-DPI, and John Caruso and Meg Raabe, USDA.
(Photo courtesy Gordon Bonn, FDACS,-DPI)

"Don't Pack a Pest" was launched by FDACS in 2011 to increase awareness of the importance of declaring agricultural products brought by travelers into the U.S. Products that should be declared include fresh fruits, vegetables, cut flowers, plant material, animal products and firewood, among others.

Billboard and video advertisements featuring the message can be seen in 20 of the busiest airports across the continental U.S., including Miami, Orlando, Houston, Atlanta and San Francisco, as well as airports in Puerto Rico, Jamaica, the U.S. Virgin Islands, and now the Dominican Republic. A recent survey of more than 400 travelers in Miami International Airport showed awareness of declaring agricultural products was up from 37 percent in 2012 to 60 percent in 2013, a more than 60 percent increase.

More Ag News – Pass the bacon, please.

When was the last time you cooked a pound of bacon – now between $7 - $8 for high quality meat – for the family breakfast table? More than 5,000 cases of porcine epidemic diarrhea (PED is called "a piglet-killing virus") have been reported as the deadly virus spread to at least 27 states in the U.S. According to the National Animal Health Laboratory Network, America is the world's largest pork exporter by volume. American pork production may drop by the most in three decades this year as the number of hogs available for meat processors shrinks.

"The expectation in the industry is that we have lost a lot of pigs," says Ron Plain, a livestock economist at the University of Missouri. Plain has studied the market for three decades. "We're expecting the year-over-year decline in hog slaughter this summer to be greater than anything we've ever seen in a very long time." The U.S. inventory of hogs farmers plan to sell for slaughter was 3.7 percent smaller on March 1 than a year earlier as PED contributed to the smallest total herd in 7 years.

About the SART Sentinel

The SART Sentinel is an e-mail newsletter prepared monthly by the members of the Florida State Agricultural Response Team. Past issues of the **Sentinel** are archived on the Florida SART Web Site *www.flsart.org*.

If you have a story or photo that you would like to have considered for publication in **the SART Sentinel**, please contact the editors.

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