

From Climate Variability to Climate Change: Challenges and Opportunities to Extension

Clyde Fraisse

Climate Extension Specialist

Agricultural & Biological Engineering

University of Florida



National

And she called on farming organisations to urge their members to accept pig slurry as well.

Coughlan said it was important that farmers importing slurry should not be disadvantaged when it came to their participation in REPS or the Single Payment Scheme. "I will be seeking to ensure that record keeping and inspection regimes are kept to what is strictly necessary," she said.

While the nitrates regulations will require all larger pig producers to have storage for the maximum 26 weeks, Coughlan pointed out that they would be eligible for on-farm investment aid for the first time under the proposals she had put to the European Commission. They would also be eligible for grant aid of up to 70%, and a top-up was proposed for young farmers.

New technologies

The minister recently announced plans to introduce another grant scheme to support the demonstration of new technologies to help the agriculture sector meet the requirements of the EU Nitrates Directive.

The purpose of the scheme, details of which are currently being finalised, is to look at new and emerging technologies for the treatment and possible use of livestock manures in bio-energy production, in particular from the pig and poultry sectors. Department funding will also be provided for research projects with special relevance to their sectors, Coughlan said. (l)

Ireland starts single farm payments

The Irish department of agriculture has started making the first single farm payments, beginning the process on the

earliest possible date allowed under EU legislation.

It says payments of €970 million will reach farmers this month, representing 85% of applications, and other payments will follow as outstanding queries are cleared.

"I am delighted we were able to meet the challenge," said farm minister Mary Coughlan. "This represents the culmination of almost two years of work within my department." (rw)

UK

Climate change worries UK farmers

A new report from the British National Farmers' Union (NFU) says more than a third of their members see climate change as a threat to their livelihoods, far more than see opportunities in growing new crops.

The report said that adverse impacts included reduced yields for some crops, linked to lower summer rain, increased disease and pest problems due to warmer temperatures, and potential drying costs for late harvests caused by more winter rains.

However, the NFU also outlined possible benefits, including a lengthening of the growing season leading to a greater availability of British grown produce throughout the year, while a marked decline in the number of frosts may allow more farmers to grow crops like apricots, peaches and walnuts.

The report was released to coincide with the start of a United Nations conference on global warming in Montreal. The NFU survey showed that 36% of farmers saw climate change as a threat to their livelihood, while only 17% believed it provided an opportunity.

Opportunity for agriculture

The NFU pointed out that agriculture can play a key role in helping Britain cut greenhouse gas emissions with crops able to produce fuel and electricity with significantly less carbon dioxide than fossil fuels.

The union called this week for the government to appoint a dedicated, cross-departmental climate change minister to coordinate the fight against global warming.

NFU president Tim Bennett said the government should invest in dedicated research into how farming can adapt to cope with climate change. It should also look into how market mechanisms like renewable energy obligations and carbon trading systems could be used to help farmers and growers substitute renewable energy sources for fossil fuels and reduce their carbon footprint. Finally, he called for increased research and development in the area of energy efficiency. (l)

Northern Ireland to pay out £95m before Christmas

Northern Irish agriculture minister Jeff Rooker has announced that 68% of farm businesses in the province will receive an interim single farm payment by December 23, amounting to over £95 million. Some 75% are due to be completed by the end of January next year.

The interim payment will be based on 75% of a provisional payment made up from the historic reference amount, including any adjustments, and an area amount, based on a provisional area rate.

Agriculture and climate change

November 2005

<http://www.nfuonline.com/>



www.agra-net.com

Daily Online News Updates • Online Every Week • Agra Europe Online Archive

Will climate change your career?

Business Incubator Manager

Competitive salaries + benefits + bonus • London WC2

"The Carbon Trust will take the lead on low carbon technology and innovation in this country and put Britain in the lead internationally" The Prime Minister

At the Carbon Trust, we're making business sense of climate change. As we work to help organisations cut carbon emissions, we're supporting the development of new low carbon technologies through our growing Business Incubator Programme. Now we need you to drive this critical area of our work, as you assess the viability of early stage technologies and develop viable commercial enterprises.

Leading all areas of the programme, your role will include managing Carbon Trust funded incubators and acting as one of our main proposal reviewers. You will also bring a strong investor focus, ensuring that we accelerate the development of high potential start-up companies in the area of low carbon technology development.

With a degree and at least four years' commercialisation and/or investment experience, you could be from a consultancy, business or

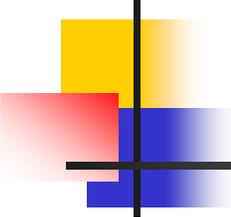
financial background. What's important is that you can bring strong leadership, project management and finance skills, together with a results-focused approach. A knowledge of engineering, energy efficiency or low carbon technologies would be ideal, though by no means essential.

To apply, please send your CV to Human Resources, the Carbon Trust, 8th Floor, 3 Clement's Inn, London WC2A 2AZ. Alternatively e-mail it to human.resources@carbontrust.co.uk.

Closing date for applications: 30 March 2006.

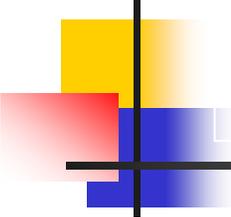
To find out more about us, go to www.carbontrust.co.uk





Goal

- How do we expand our existing climate variability extension program to handle climate change issues?
- Hypothesis: By developing adaptation strategies to help producers mitigate risks associated with seasonal climate variability we are already addressing climate change.



SECC Extension Program

- Focus on helping agricultural and natural resource managers mitigate risks associated with climate variability
- Based on:
 1. Climate change scenarios;
 2. Anticipating impacts;
 3. Suggesting adaptation strategies for the main crops in the SE USA

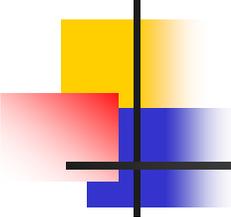
Climate Change Scenarios

(Southeast)

British Hadley Centre Global
Climate Change Model

- Temperature:
 - Max. summer increase by 1.3°C (2.3°F) on average and max. winter increase by 0.6°C (1.1°F) by 2030
 - Mean annual increases of 1°C (1.8°F) by 2030 and 2.3°C (4.1°F) by 2100
- Precipitation: slight increase (3%) in the next 30 years and a larger increase (20%) by the end of the century

In summary a slightly wetter and warmer future for the Southeast

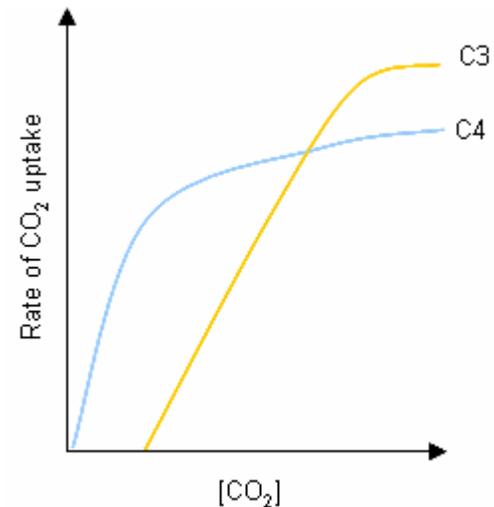


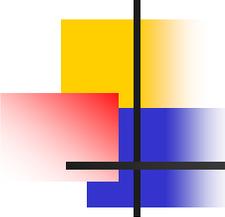
Climate Change Concerns for Agriculture

- Carbon dioxide levels
- Temperature
- Water availability
- Cloud cover
- Weather extremes

CO₂ Levels

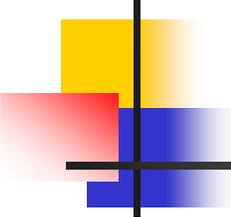
- Increase in CO₂ => photosynthetic rates (CO₂ fertilization effect, mainly C₃ plants such as wheat, rice, soybeans)





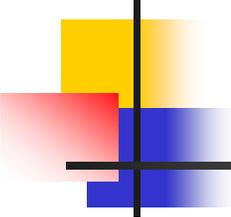
Temperature

- Higher temperature will lengthen growing seasons in higher latitudes
- May have adverse impacts in regions where temperature is already close to optimum
- Higher temperatures speed crop development



Weather Extremes

- Hurricanes
- Torrential rains
- Short periods of extremely high or low temperatures
- Droughts
- Strong winds



Potential Impacts

- The expected variability of temperature, precipitation, atmospheric carbon content, and extreme events are expected to have profound effects on plant growth and yields, crops, soils, insects, weeds, diseases, livestock, and water availability

Plant Diseases

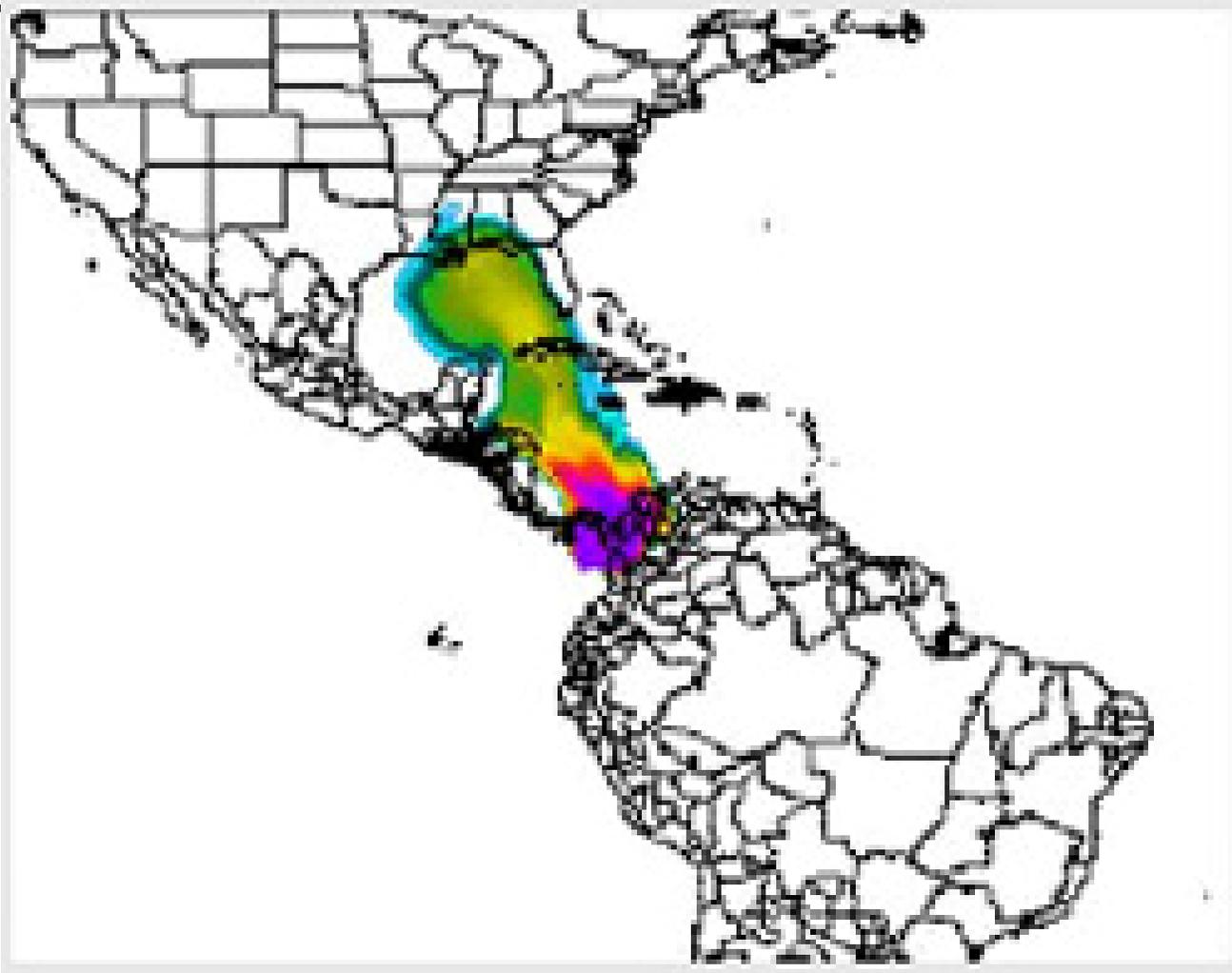
Asian Soybean Rust

- Caused by the fungus *Phakopsora pachyrhizi*
- Long known to occur in Asia, spread to Africa and S. America last 10 years
- Yield losses from 10 to 90% reported in other parts of the world



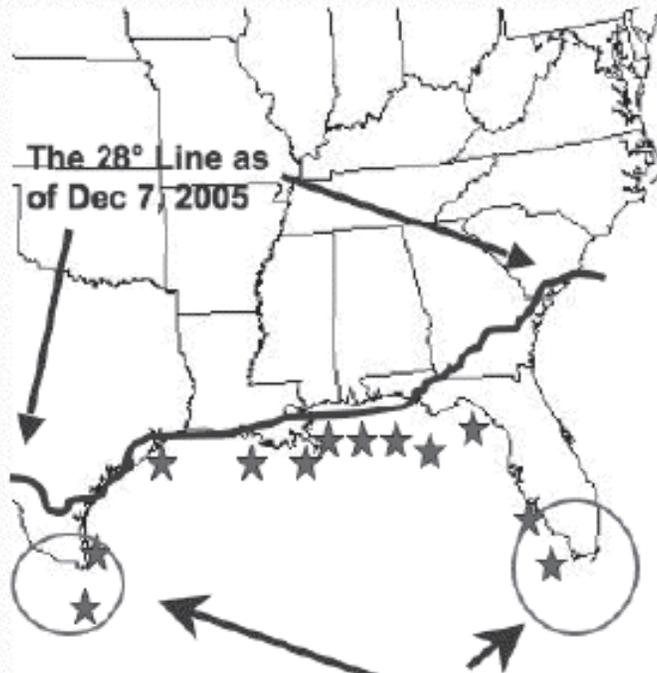
Source: Gregory Shaner

Hurricane Ivan, September 2004



Winter Survival

The Probability that the Temperature Will Fall to 28°F or Below During the Winter Season



	As of 12/07/05	Last Winter
Brownsville, TX: 25%	45°	28°
Corpus Christi, TX: 35%	41°	22°
Houston, TX: 83%	33°	28°
Lafayette, LA: 95%	33°	25°
New Orleans, LA: 84%	36°	25°
Biloxi, MS: 94%	??	26°
Mobile, AL: 100%	29°	25°
Pensacola, FL: 95%	33°	25°
Panama City, FL: 97%	37°	28°
Tallahassee, FL: 98%	33°	19°
Tampa FL: 35%	47°	31°
Fort Myers, FL: 11%	48°	36°

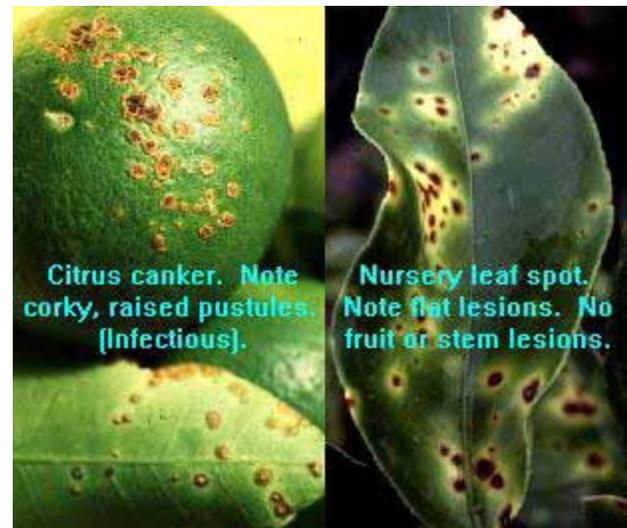
Climatologically, Soybean Rust would likely survive in Southern Texas or Southern Florida

Survives on green host plants

Source: X. B Yang
Iowa State University

Other High Impact Diseases

- Citrus Canker
USDA announced in January 2006 that eradication program would be canceled due to the large spread of the disease causing bacteria during the hurricane seasons of 2004 and 2005



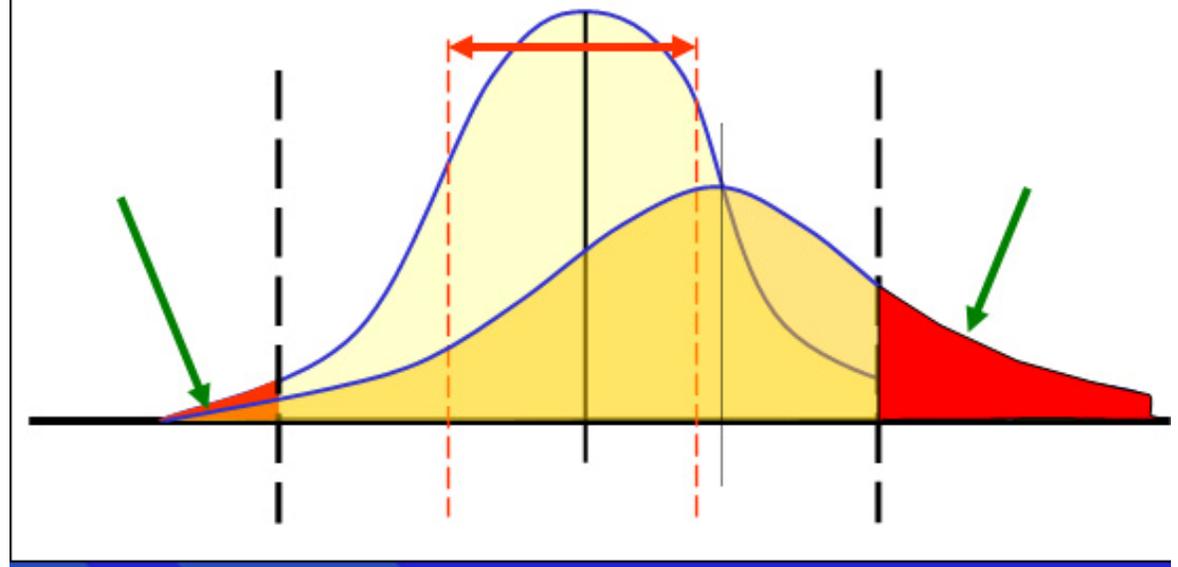
Livestock – Heat Stress

- Dairy cows are very sensitive, optimum milk production between 40 and 75F



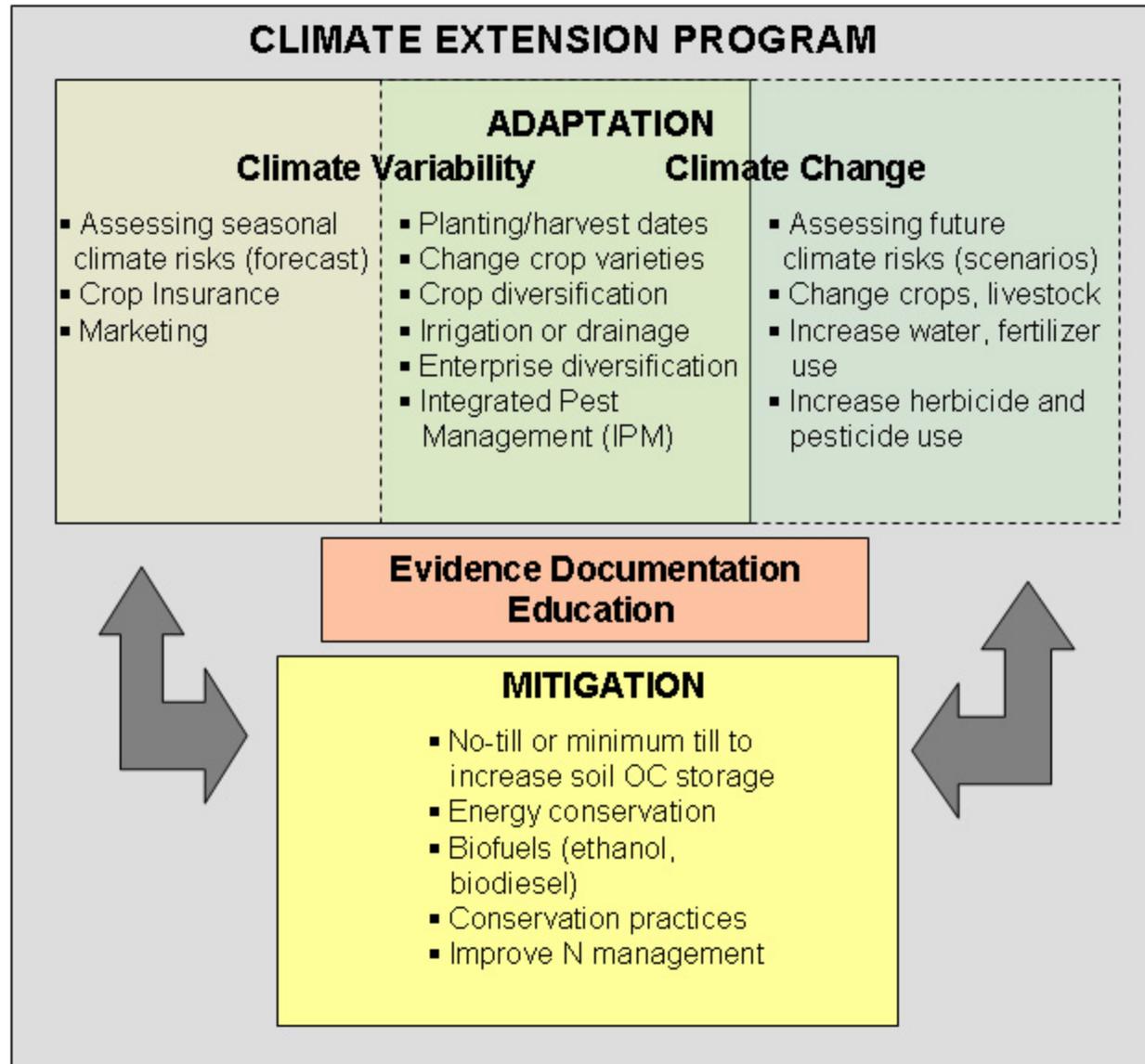
Climate Change Extension

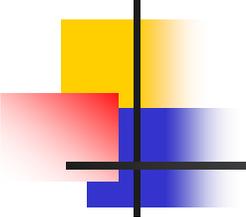
- Adaptation strategies
- Mitigation?



Adapted from Cunha, 2004

Vision For a Combined Program





Welcome to
AgClimateChange

A Service of the Southeast Climate Consortium

- Adaptation strategies
 - Replace ENSO-based forecasts with scenarios, evaluate strategies such as planting dates, varieties => to guide research and long term strategy
 - Document local evidence, National Phenology Network
- Mitigation
 - Stress education component, partner with extension programs on soil management, biofuels