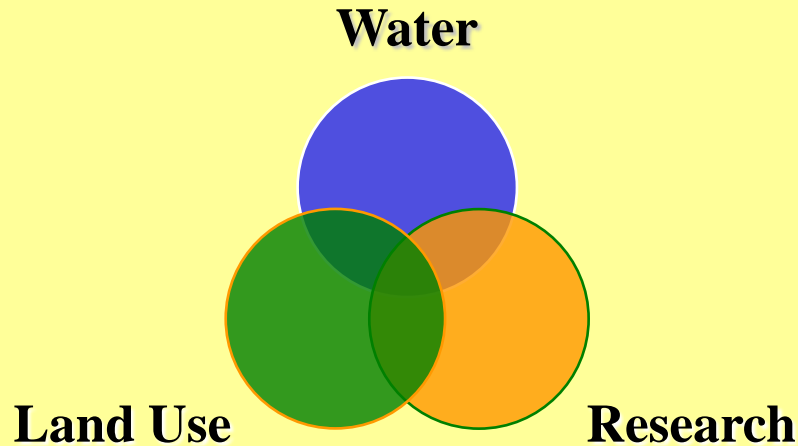




# Indian River County Agriculture Forum



**A public gathering to discuss the current situation and future of land use, water supply and research efforts as they pertain to the sustainability of agriculture in Indian River County**

Friday, November 20, 2009 from 9:00 AM to 12:00 PM  
The Richardson Center at Indian River State College  
Mueller Campus  
6155 College Lane  
Vero Beach, FL

# **Indian River County Forum on Agricultural Sustainability**

- Moderator – Frank “Sonny” Williamson is a fifth generation Floridian and President of Williamson Cattle Company, a family owned citrus and cattle operation.
- Facilitator – Rafael A. Montalvo, MSP, is an Associate Director with the Fla. Conflict Resolution Consortium (FCRC). He is nationally and internationally respected for his facilitation and training in a variety of cultural settings. He has facilitated and mediated numerous large and small scale processes to build consensus around controversial public policy issues, as well as trained hundreds of individuals who participate in public policy discussions and consensus-building.

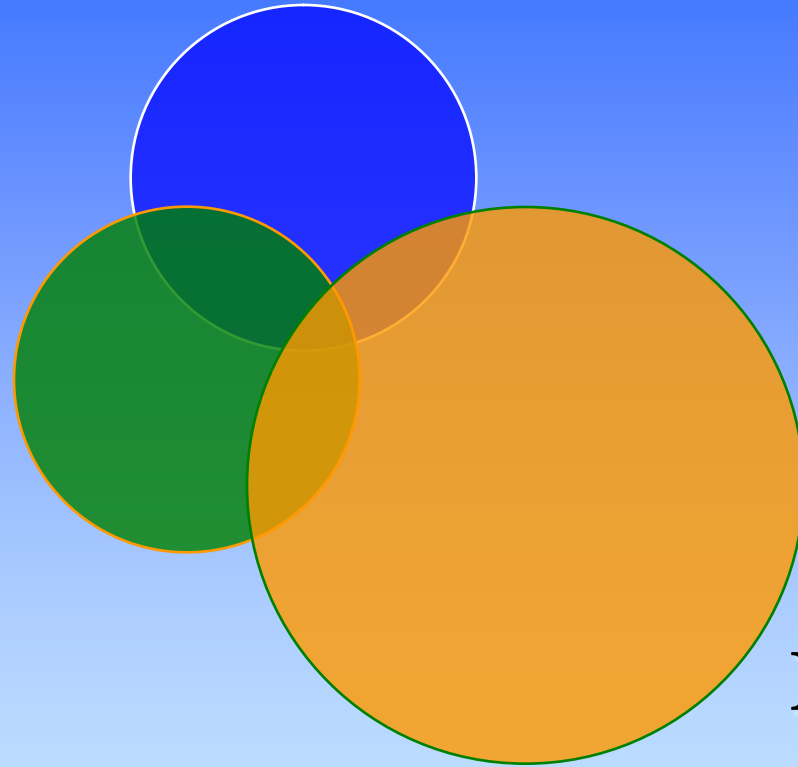
**Benefits of Agriculture-**  
**We all enjoy the beautiful vistas**  
**provided by our County's agricultural lands**



# Agriculture requires very modest public services

- Nationally – public services for residential development require \$1.24 for every dollar generated by tax revenues, farmland costs \$.38.

# How Research Can Provide For Agricultural Sustainability?



**Research**



# Research Resource Providers

- Joe Joyce - Exec. Assoc. VP for Ag. & Natural Resources, IFAS
- Dan Chellemi -USDA Researcher Topic: Back to the future: total system management (organic, sustainable ag)

# The Challenges Facing Ag:

- Increased Fertilizer and Labor Costs
- Increased Harvesting Costs
- Urbanization
- Meteorological Impacts
  - Freezes
  - Drought
  - Hurricanes
- Pests and Pathogens
  - Diaprepes Root Weevil
  - **Canker**
  - ***Huanglongbing (HLB) or Citrus Greening Disease***

---

↓ **Economic Profitability**

# Citrus Canker







## Symptoms of Citrus Huanglongbing (HLB) or citrus greening



Asian citrus psyllid, *Diaphorina citri*,  
the vector for HLB

HLB is the single greatest threat to citrus  
that the industry has ever faced.

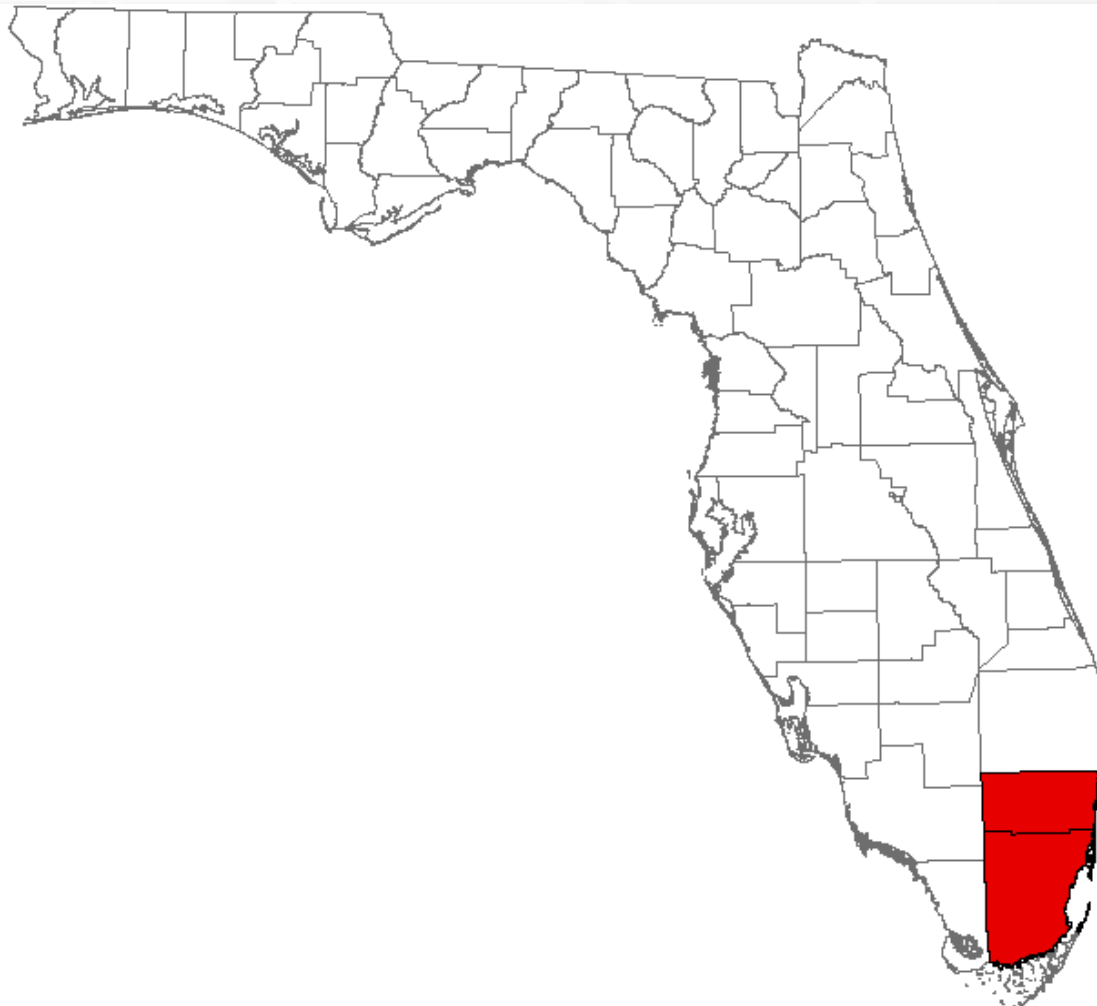


Adult psyllid with nymphs-  
Psyllids have a prolific  
reproductive capability



**The following six slides  
illustrate the speed in which  
Citrus Greening Disease (HLB)  
moved through the citrus  
growing region in Florida**

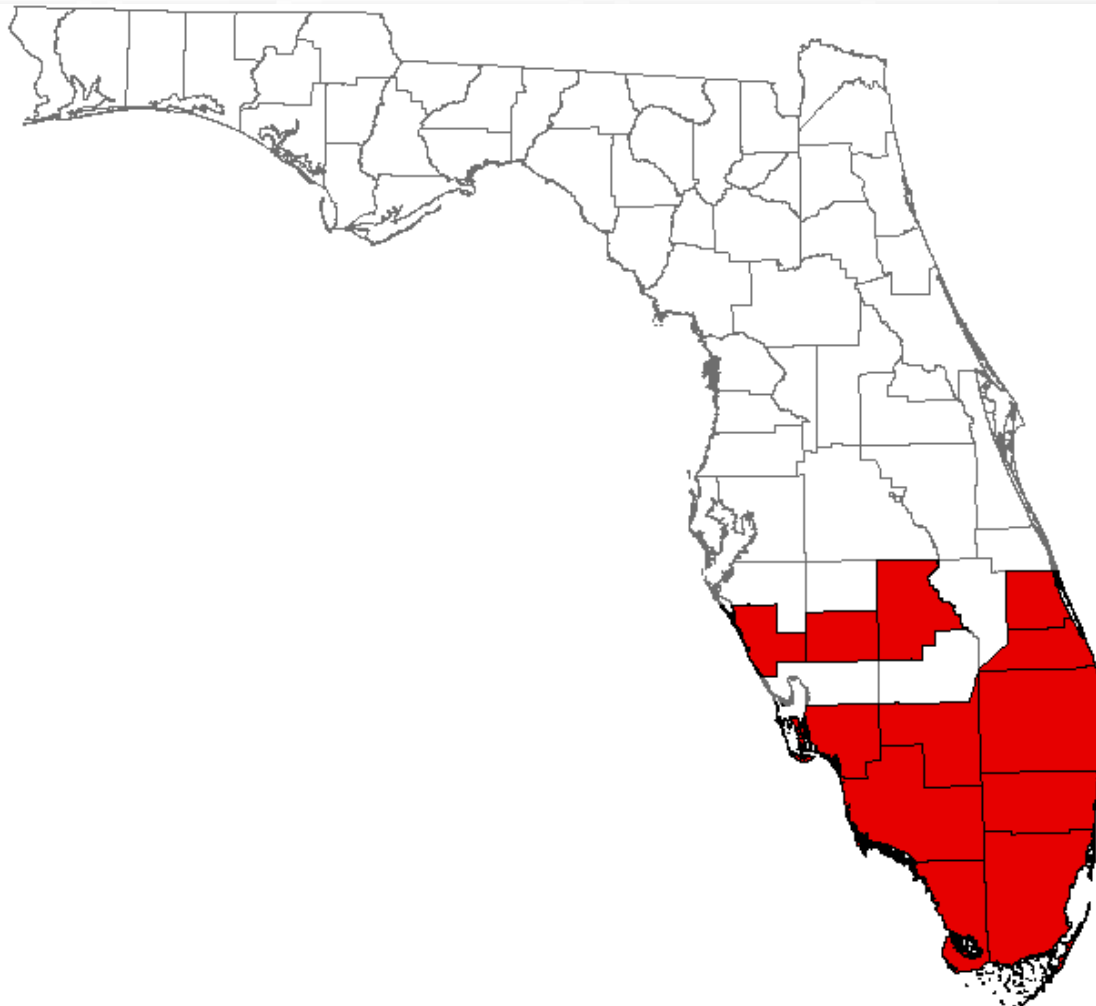
# HLB Increasing Throughout the State October, 2005



2 counties

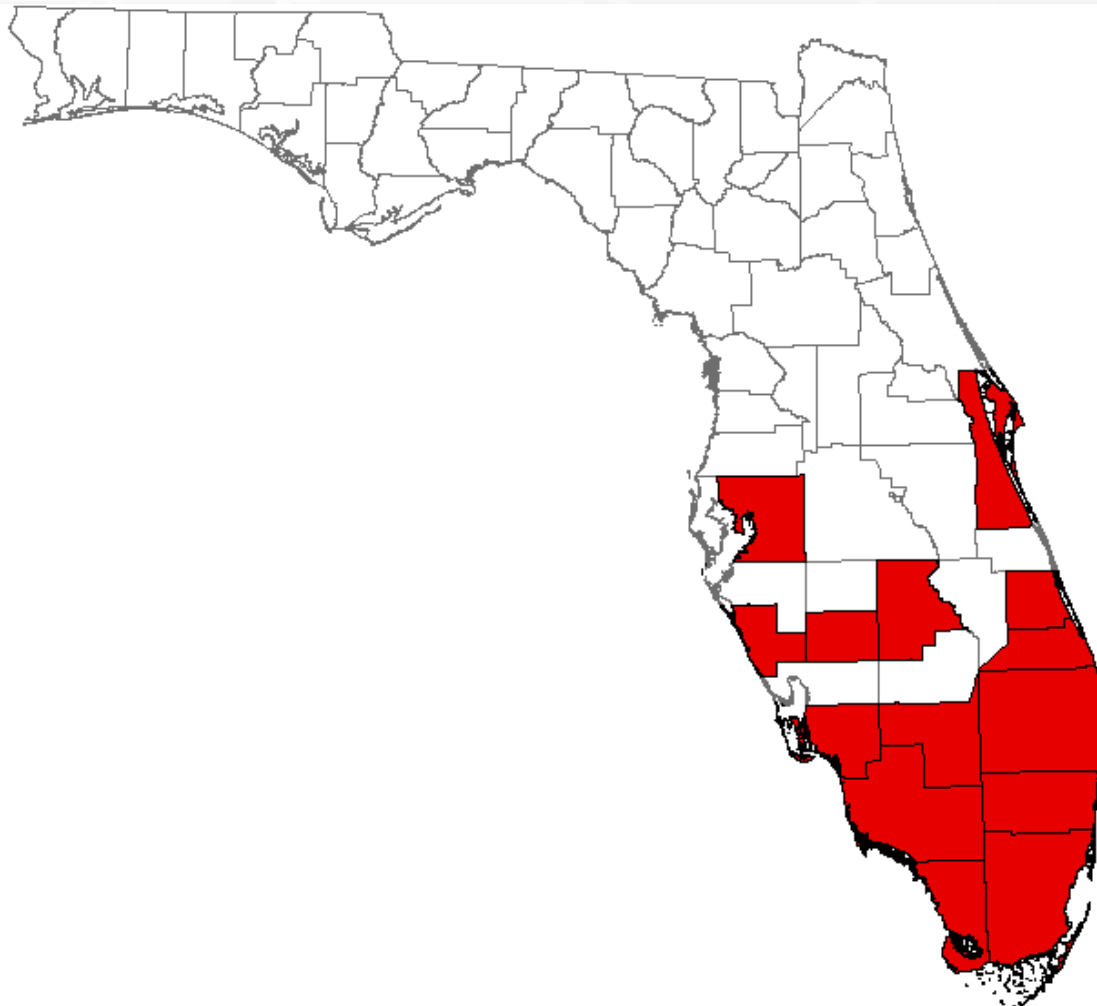
# HLB Increasing Throughout the State

## April, 2006



12 counties

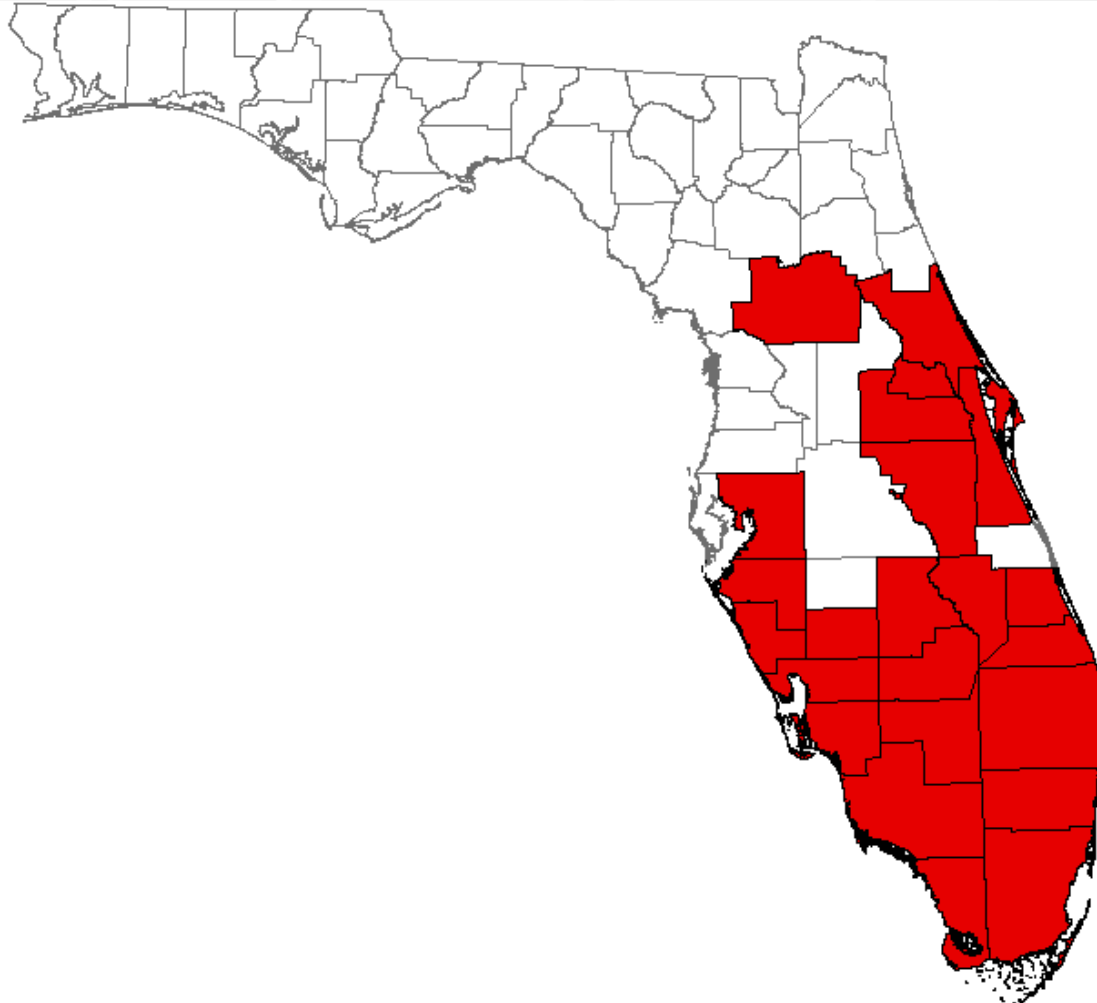
# HLB Increasing Throughout the State January, 2007



14 counties

# HLB Increasing Throughout the State

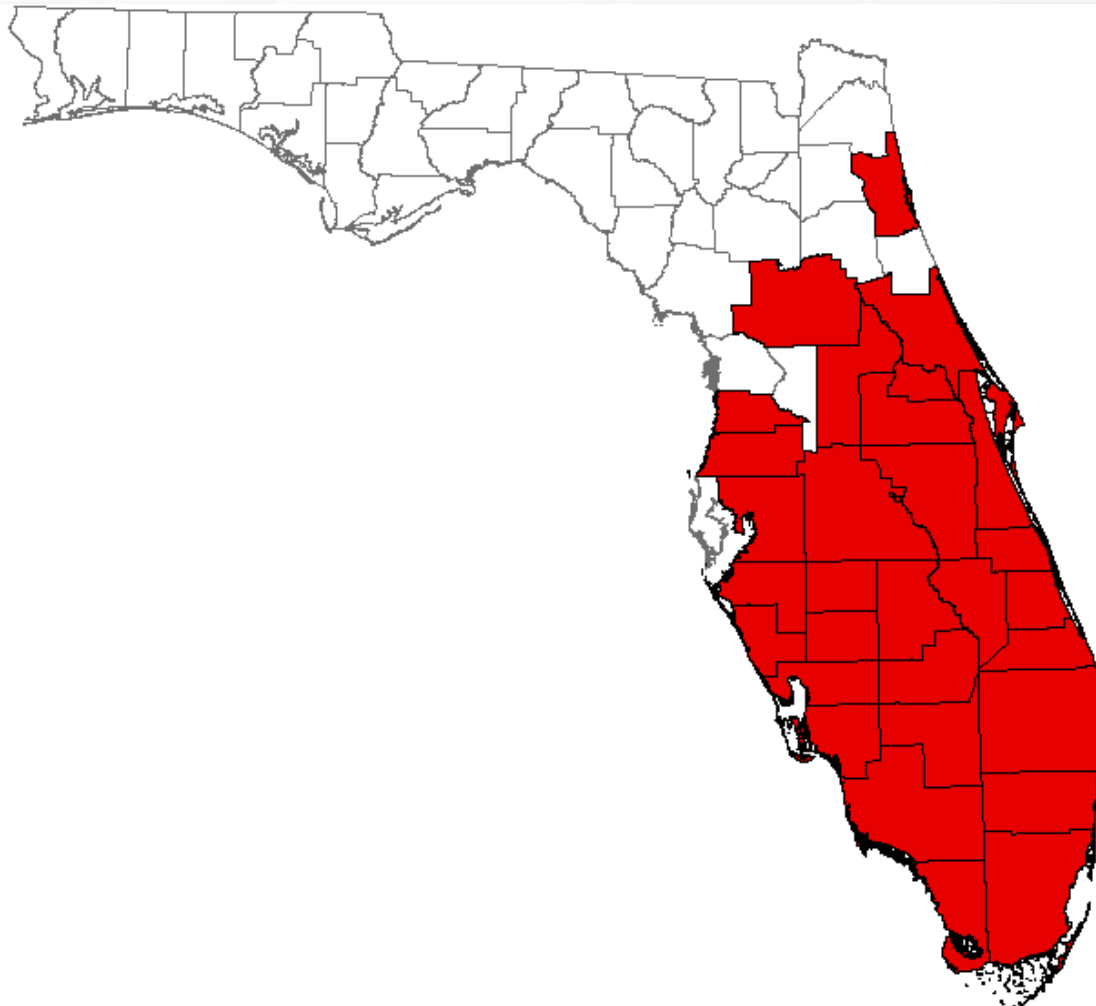
## June, 2007



24 counties

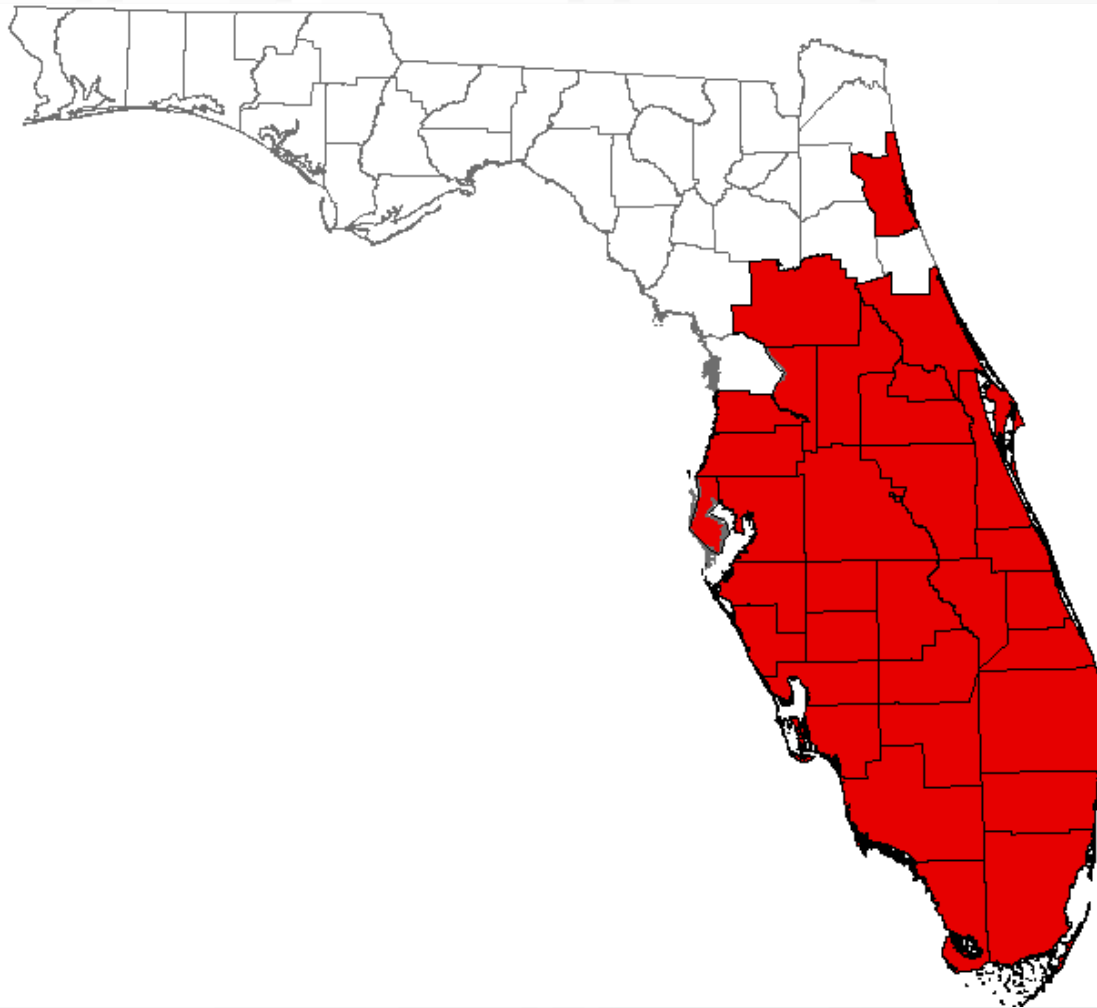


# HLB Increasing Throughout the State February, 2008



30 counties

# HLB Increasing Throughout the State August, 2008



32 counties

**The next five slides demonstrate  
the speed in which**

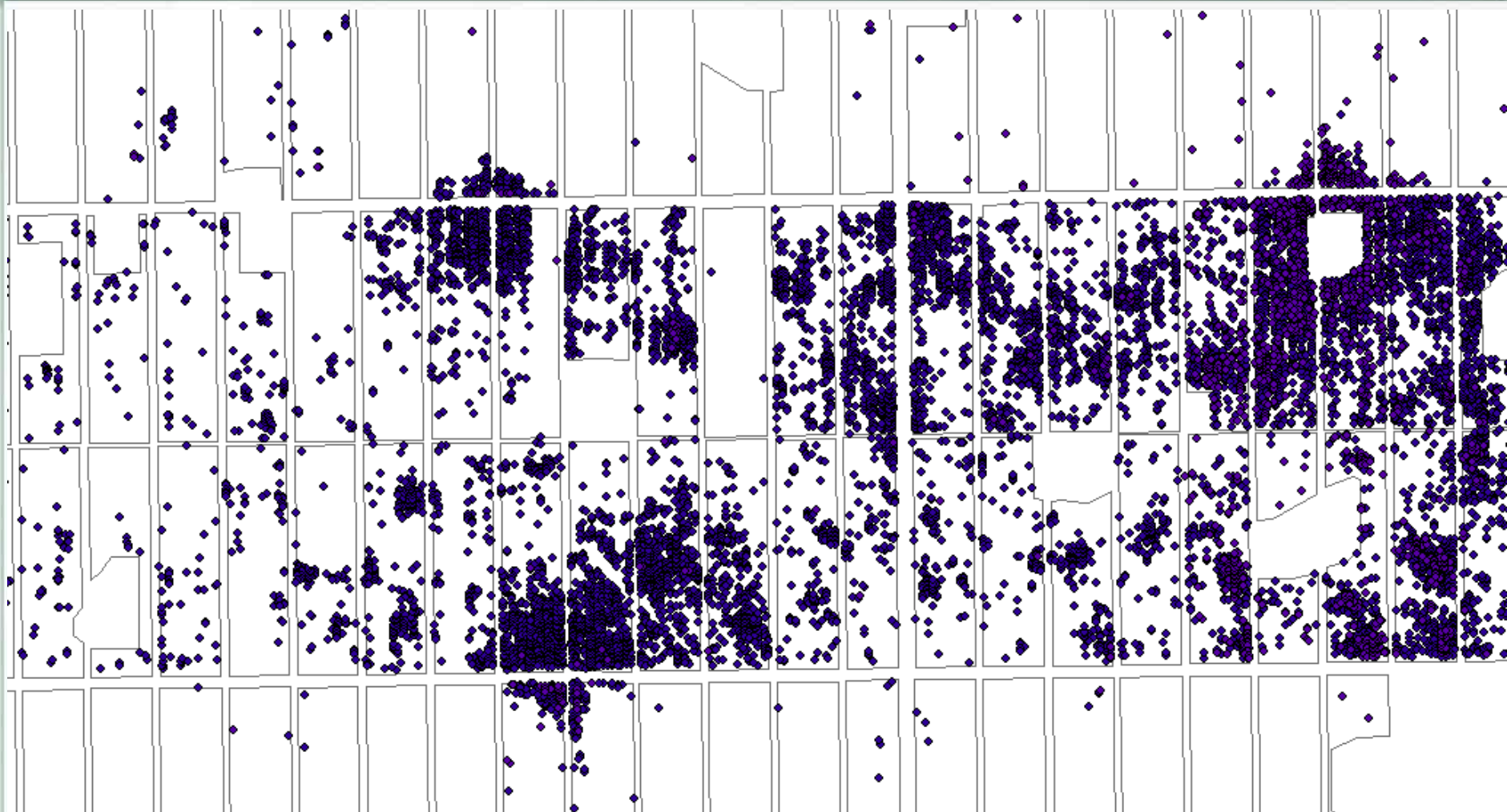
**Citrus Greening Disease can  
move through a citrus grove**

**Note: Each dot represents an infected  
tree that was removed due to CGD  
and each rectangle is a 10-acre block.**

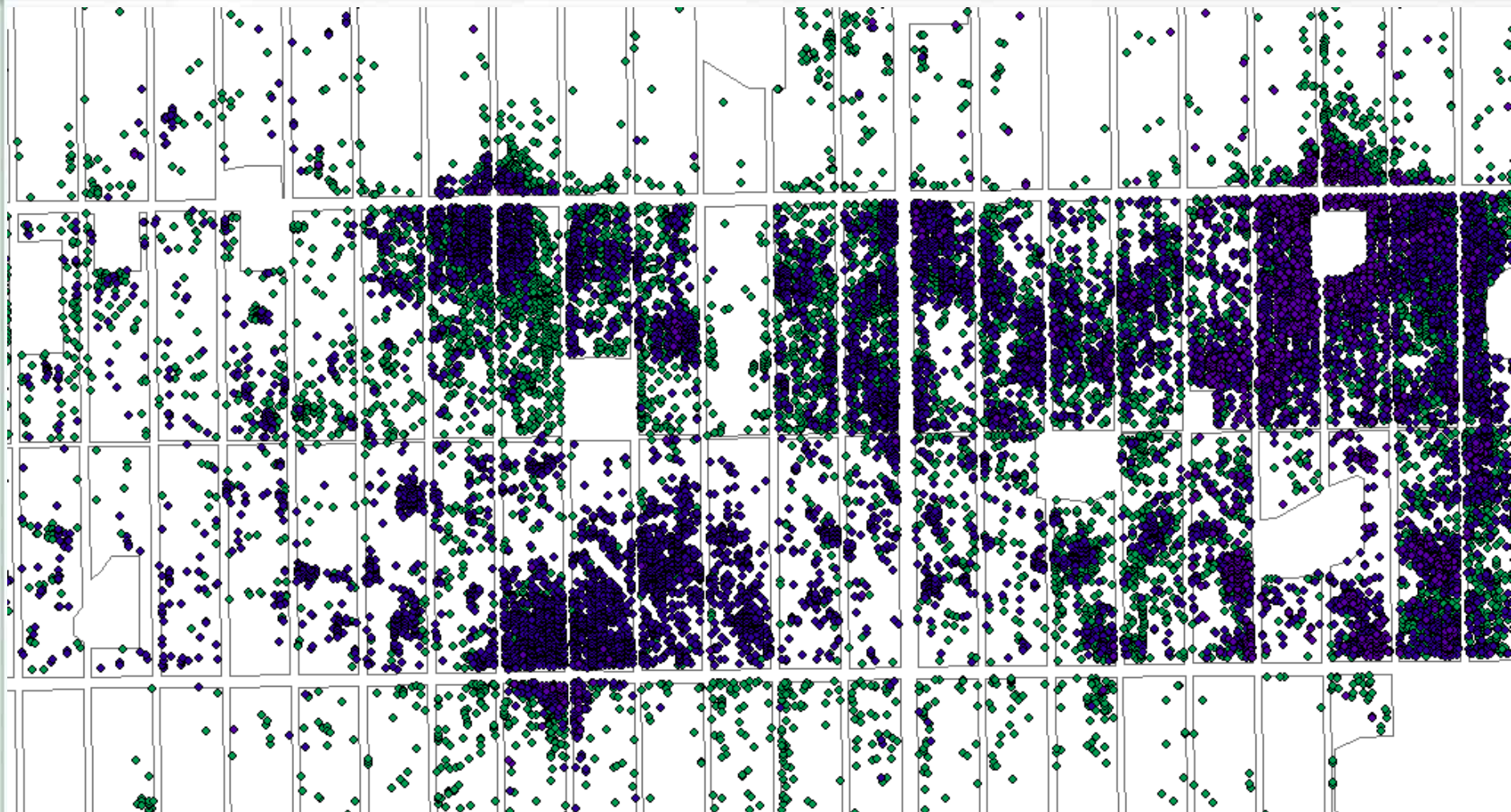
# How Fast Does it Spread? Oct05-Mar06



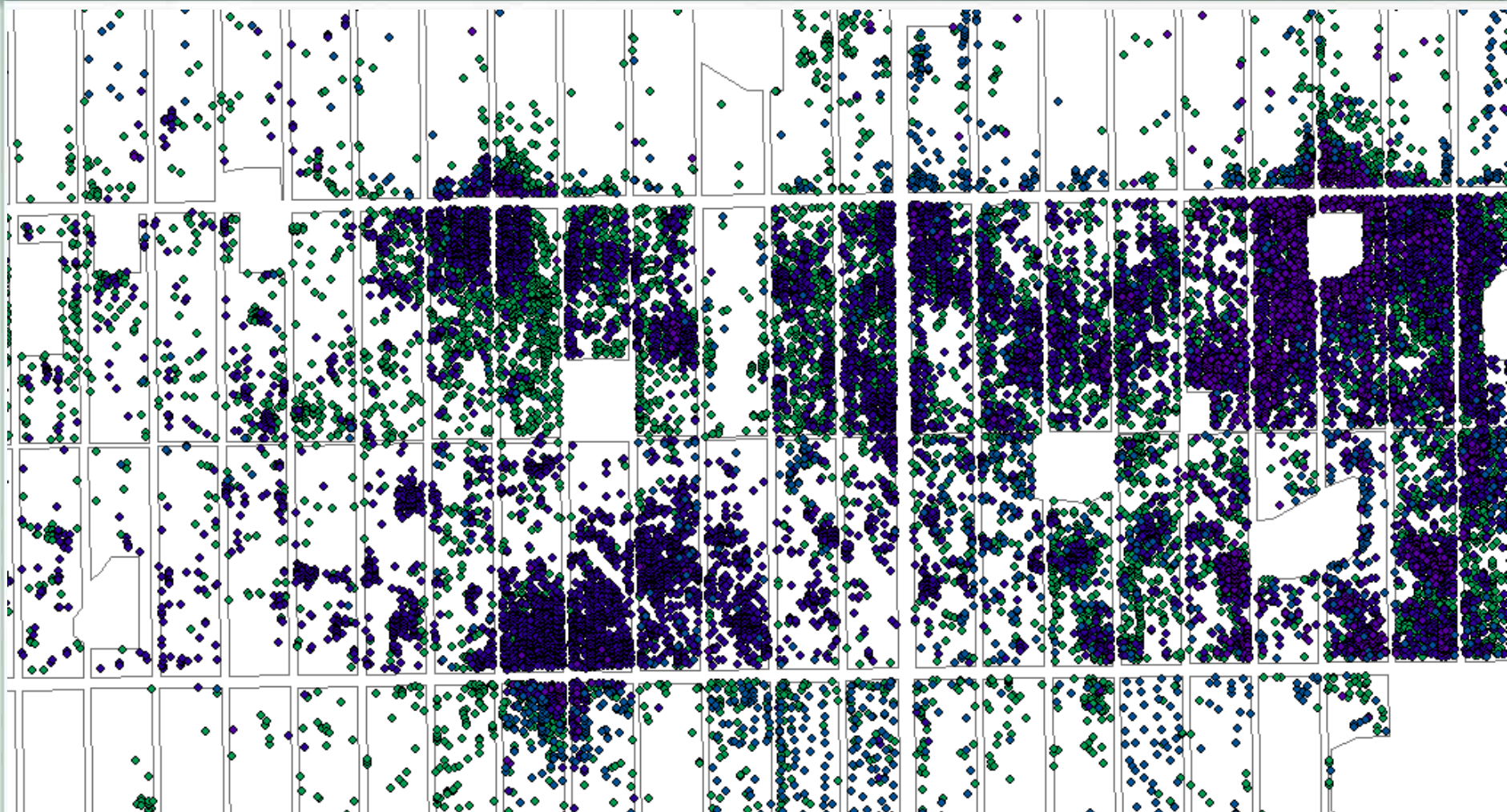
# How Fast Does it Spread? Apr06-Sep06



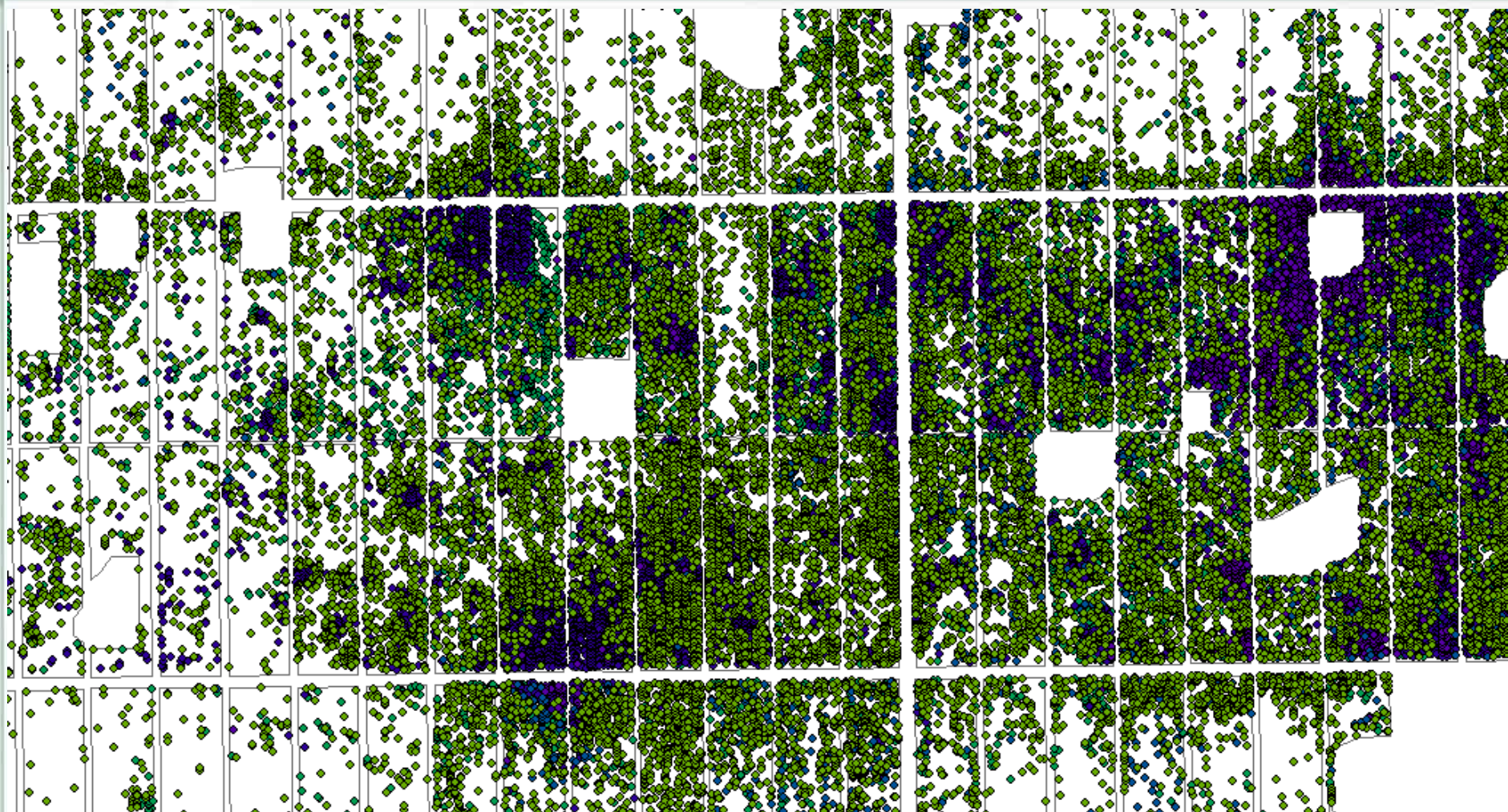
# How Fast Does it Spread? Oct06-Mar07



# How Fast Does it Spread? Apr07-Jul07

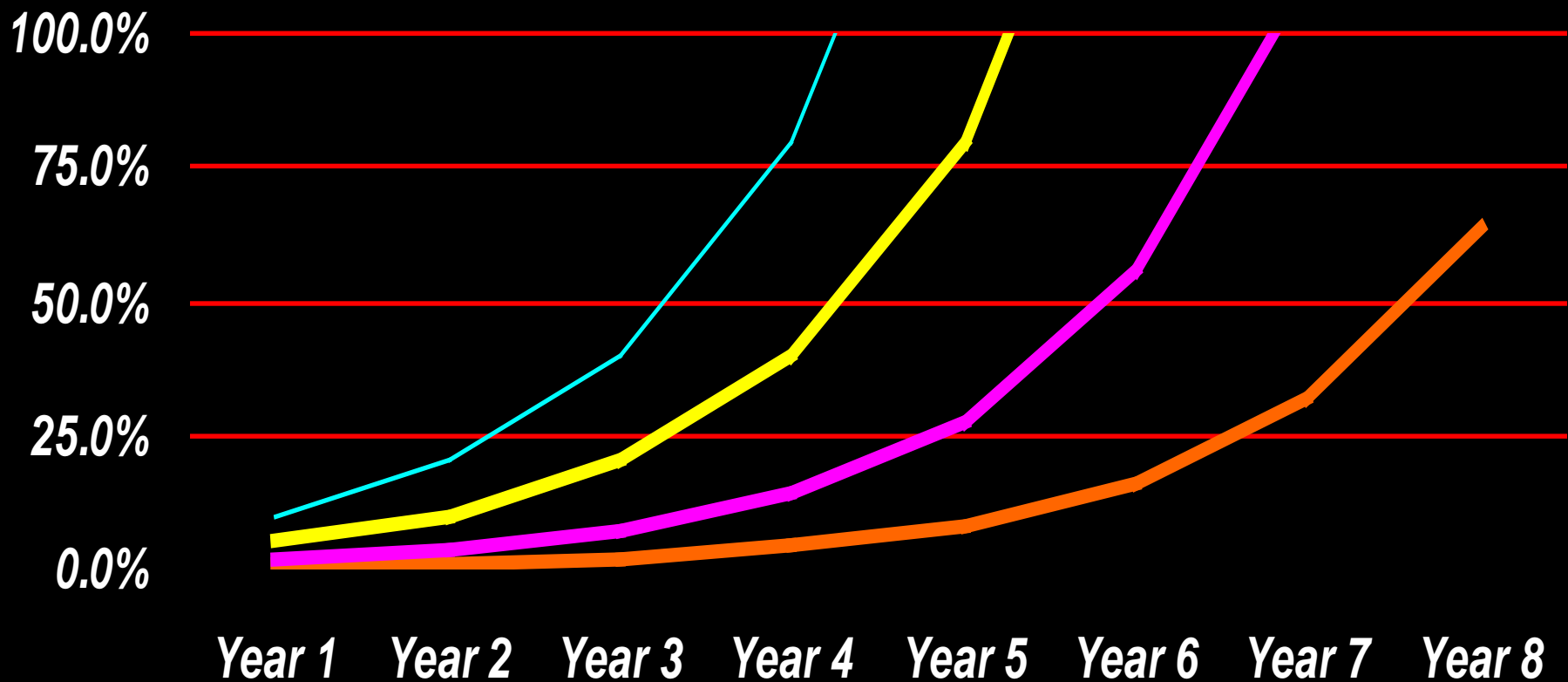


# How Fast Does it Spread? Aug07-Oct07



The Final Impact in In Two Years Wiped Out the Grove

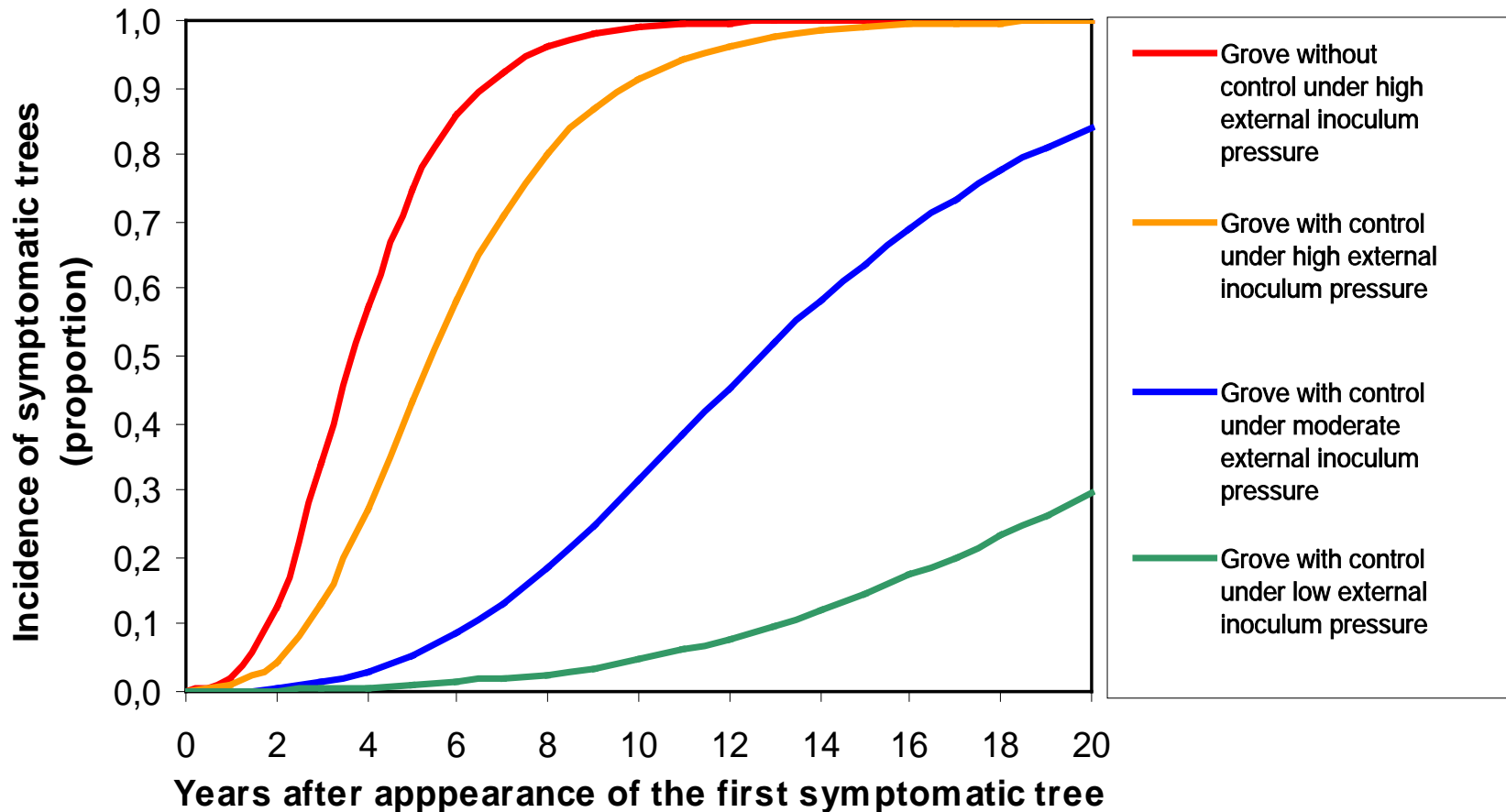




**0.5% HLB   Evans Actual   5% HLB   10% HLB**

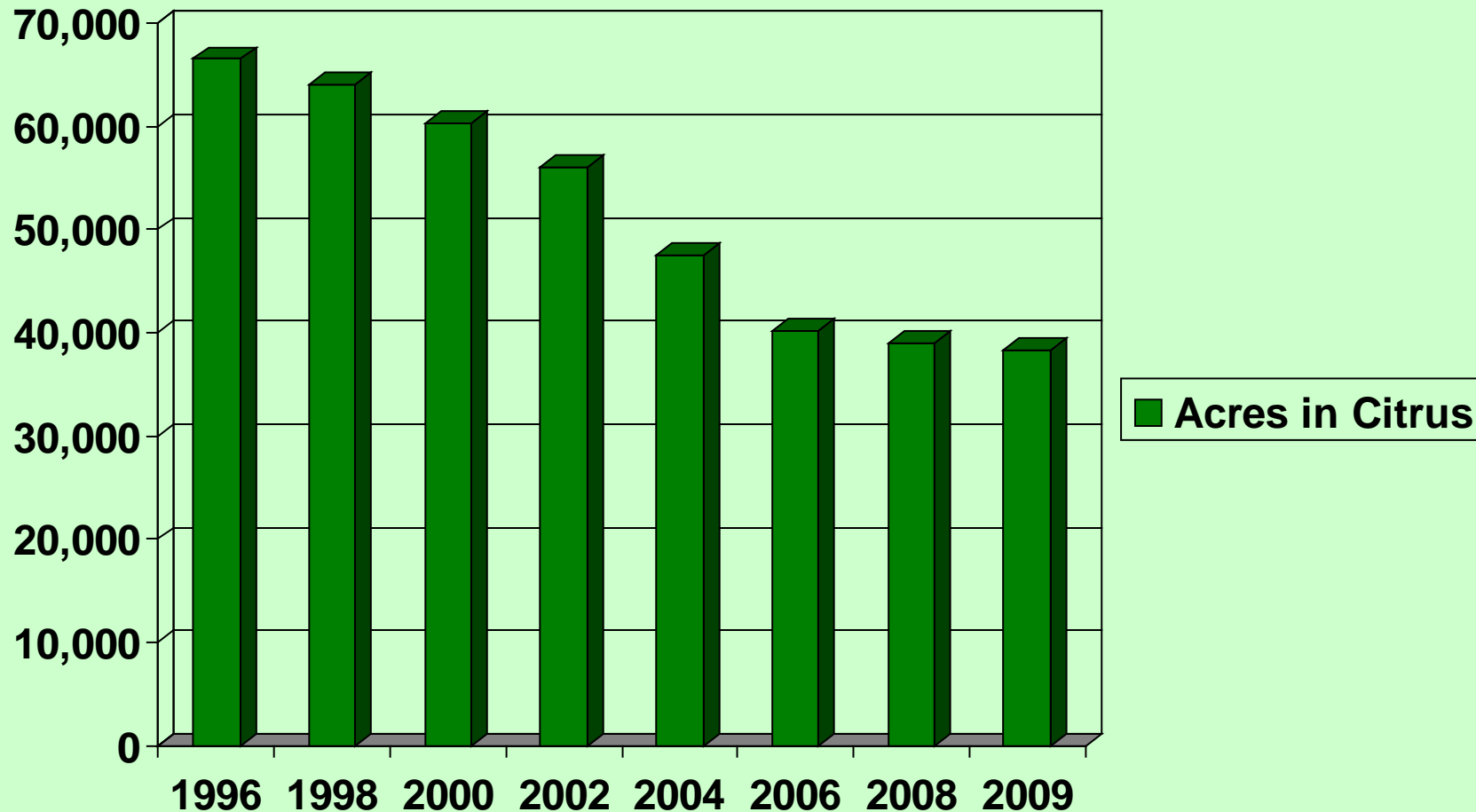
These slides demonstrate that HLB can wipe out the economic profitability of a citrus grove in 3-5 years. No cure is known.

**HLB progress curves in groves up to 5 years old**



Control: monthly inspections and eradication + vector control when present

# Change in Citrus Acreage For Indian River County



# Western View From The Citrus Tower in 1960 Clermont, Florida



# **Western View From The Citrus Tower in 2007 Clermont, Florida**

## **The Citrus Tower became the Tower of Sprawl**

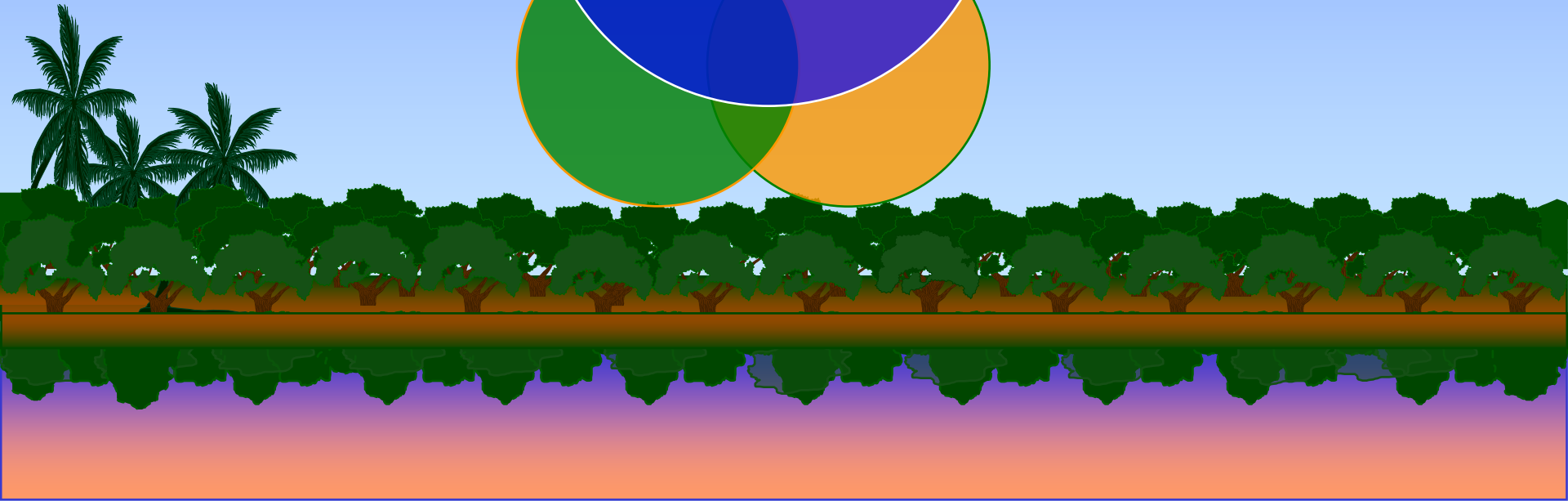
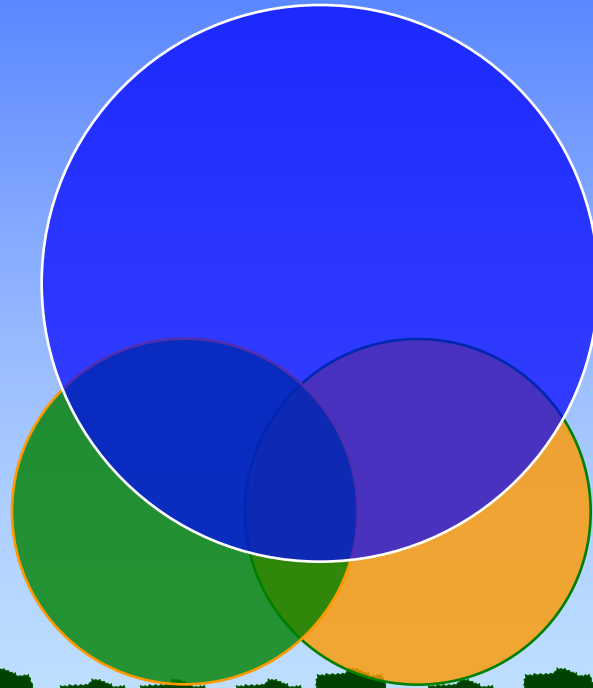
The conversion of citrus land to urbanization was largely due to the impact of three devastating freezes that occurred in the 1980's wiping out thousands of acres of citrus in this region.

This could happen here due to HLB.



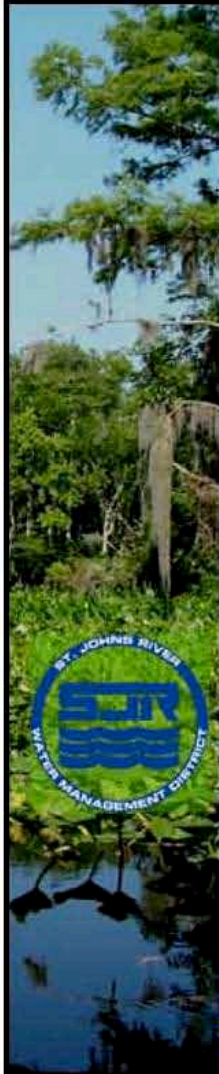
# How Can Water Management Provide For Agricultural Sustainability?

Water

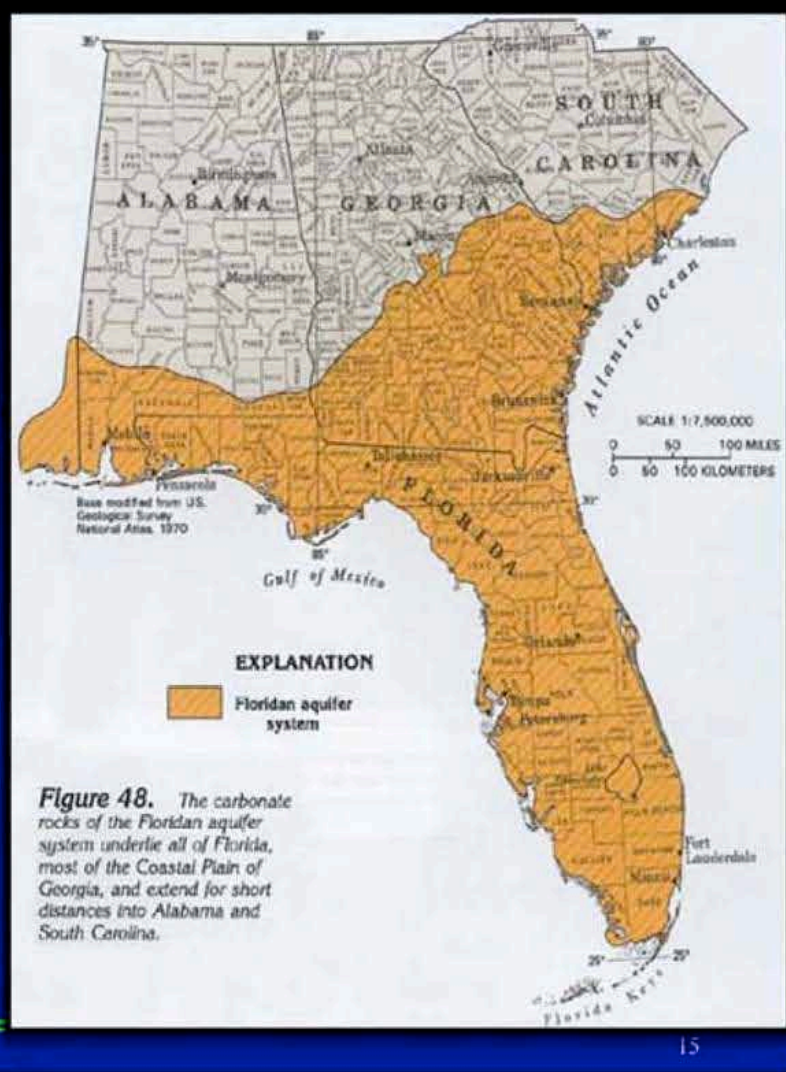


# Water Resource Providers

- David Fisk - Asst. Department Director SJRWMD, IRC's Water Supply into the Future
- Elizabeth Thomas – Sr. Project Manager, SJRWMD, Reconnection Project of the Upper Basin



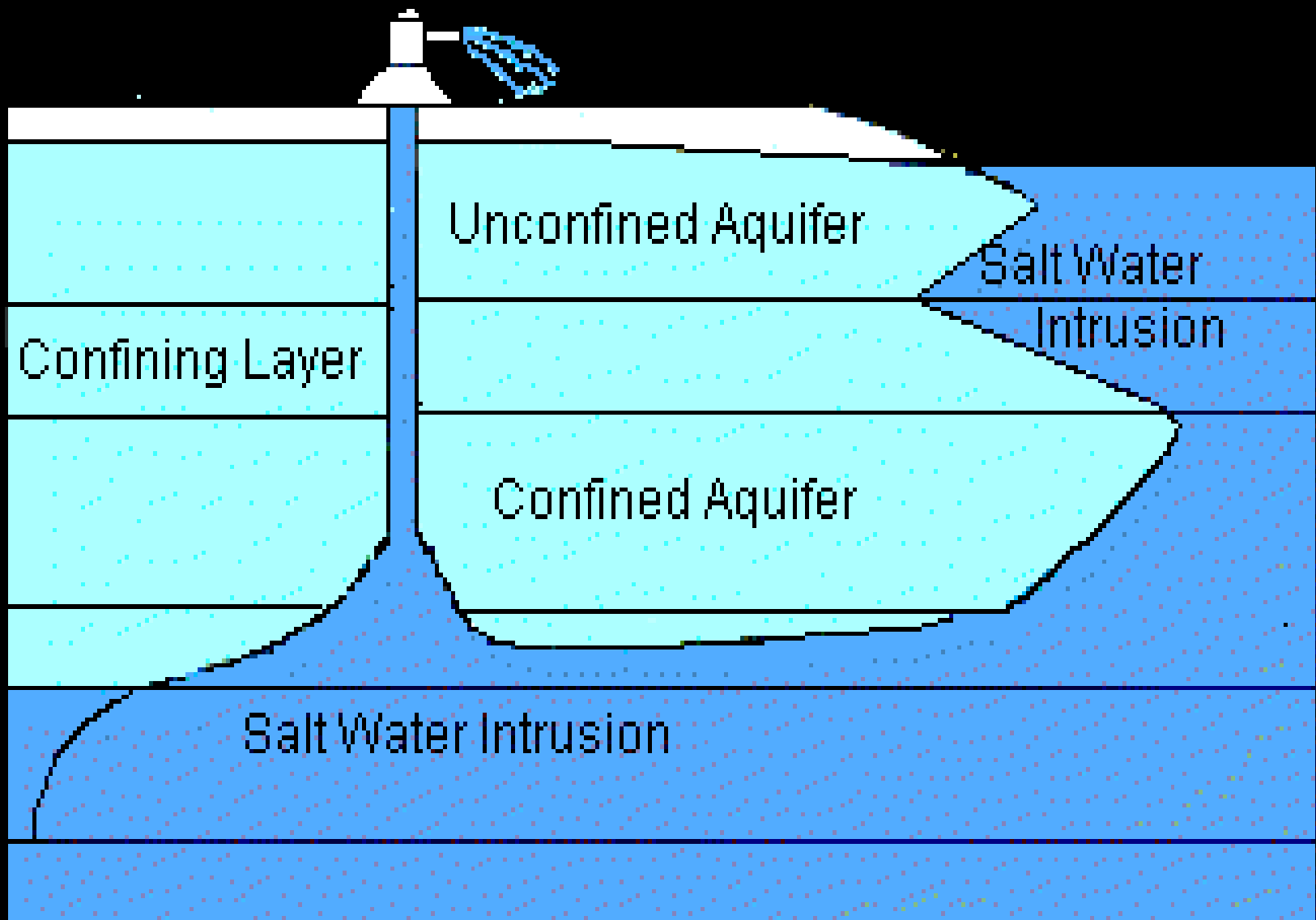
## Extent of the Floridan Aquifer system



15

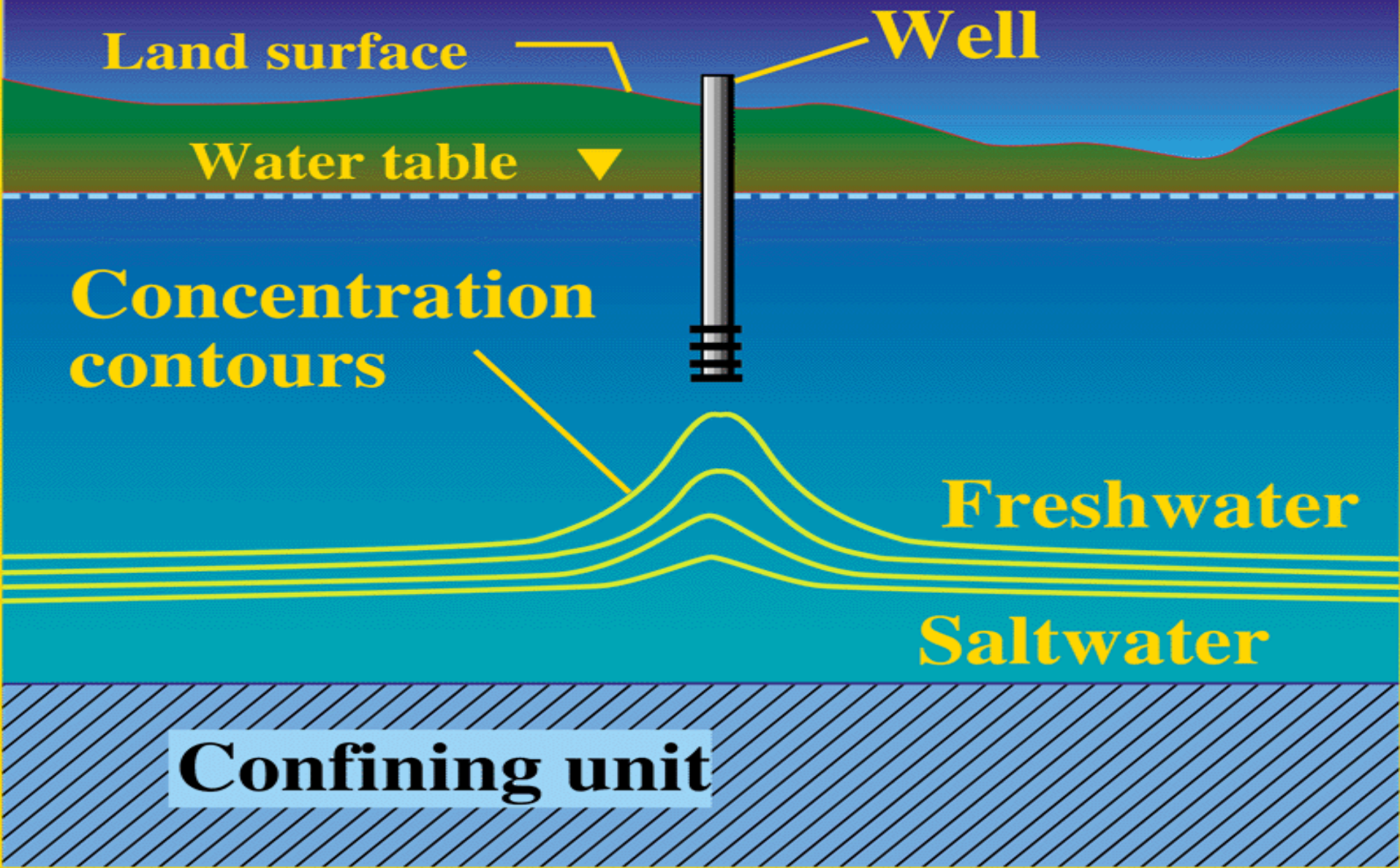
1. The Floridan aquifer system underlies all of Florida, most of the Coastal Plain of Georgia, and extends for a short distances into Alabama and South Carolina.
2. The Indian River and USGS Peninsular Regional Groundwater Flow model only covers a small area that is underlain by the Floridan aquifer.

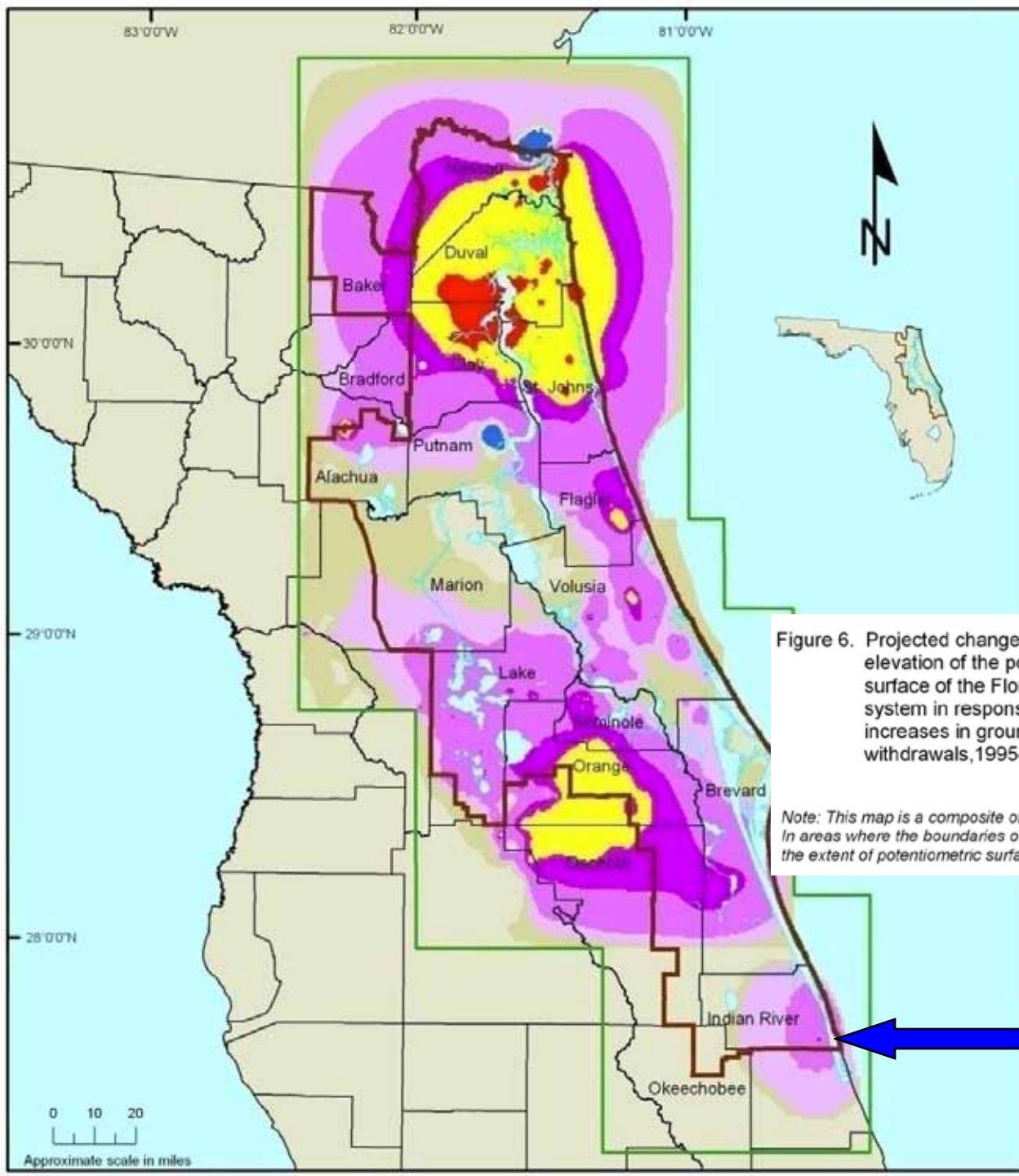




**Lateral Salt Water Intrusion occurs as a result of ground water pumping near saline water interface or coastal areas**

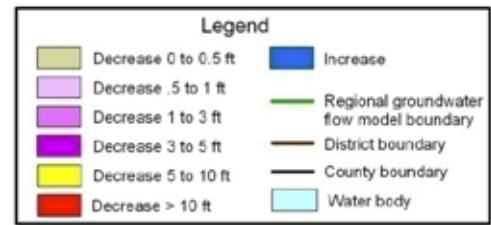
# Upconing of Saline Water Beneath a Pumping Well





Farmers rely on positive artesian flow to supply their pumps and to flood crop lands for freeze protection. Private wells require the same artesian flow to supply water for domestic use in rural areas. This artesian flow is projected to cease in 2015. D. Toth, 2001

Figure 6. Projected changes in the elevation of the potentiometric surface of the Floridan aquifer system in response to projected increases in groundwater withdrawals, 1995-2030



Note: This map is a composite of the results of simulations of five regional groundwater flow models. In areas where the boundaries of these models overlap, professional judgment was applied to determine the extent of potentiometric surface changes.

Source: Technical Pub. SJ2009  
 WATER SUPPLY ASSESSMENT 2008  
 SJRWMD  
 Indian River County's South Well Field



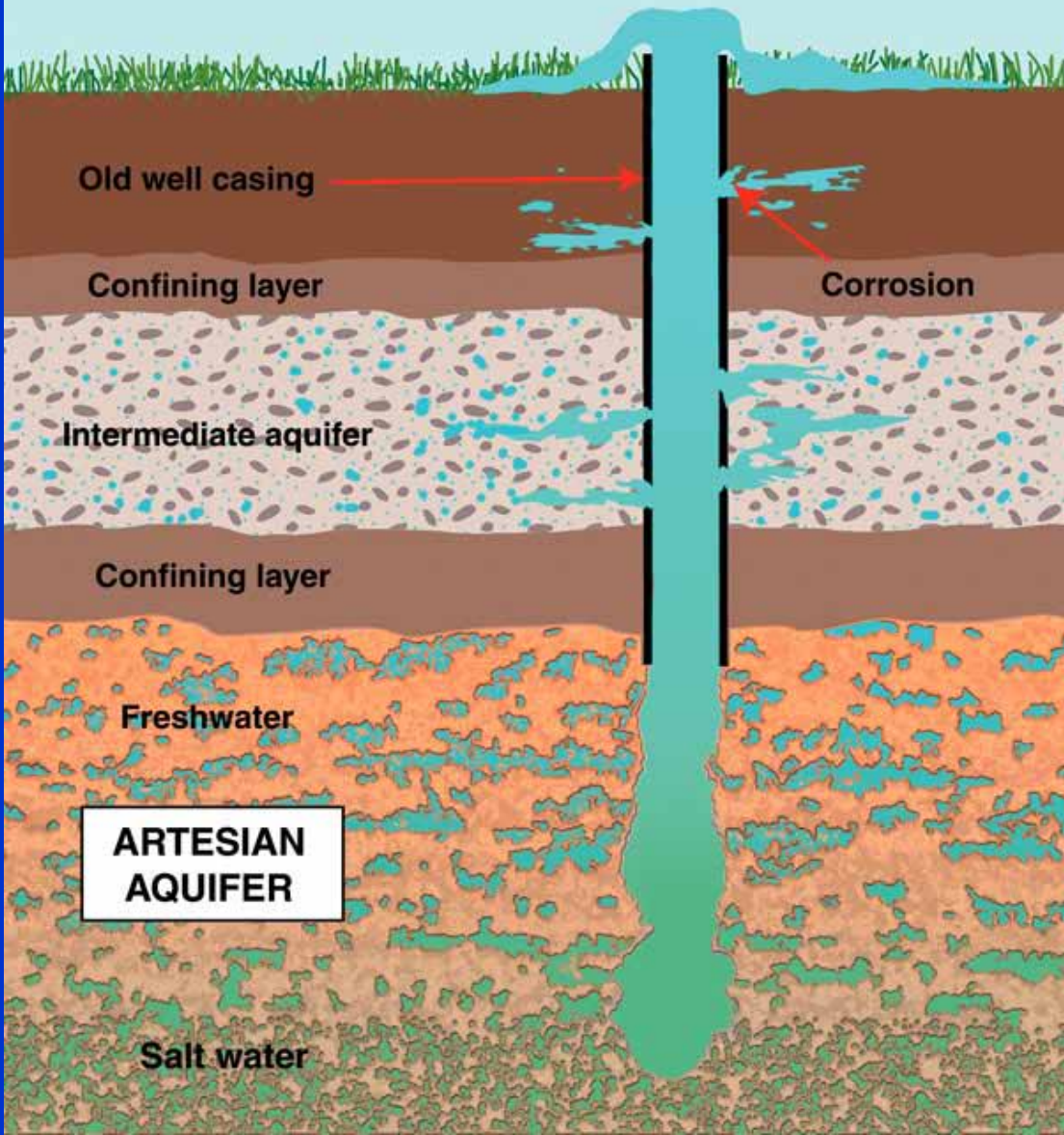
0 10 20  
 Approximate scale in miles

Artesian wells can leak at the surface  
at the well head as shown below -



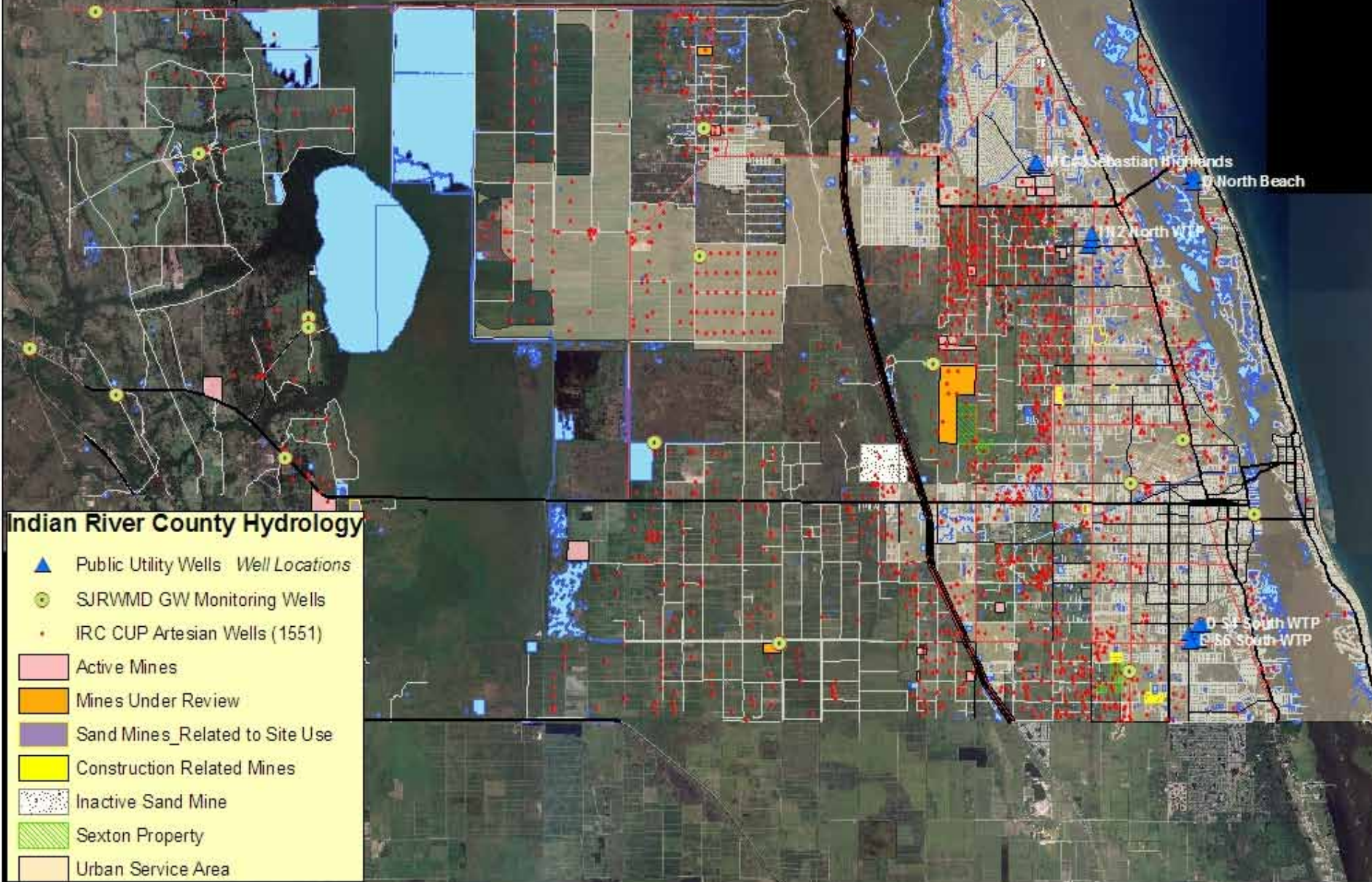
Repairing leaking well heads are easy to locate, but are expensive to repair

## Free-flowing artesian well



The number of leaking well casings in IRC is unknown. They are difficult to locate and very expensive to repair. They represent a significant waste of artesian water that runs 24 hrs a day, 7 days a week, forever!

There are 1551 permitted artesian wells in IRC ( • ) and thousands more that are not permitted. Most are more than 50 yrs. old and no one is certain as to the casing condition.

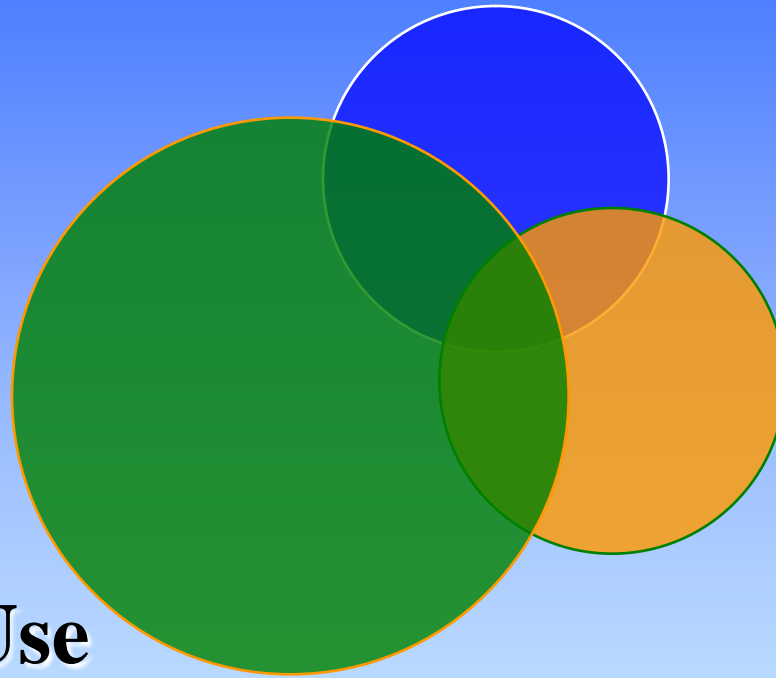


# What Can Be Done to Maintain Viable Agriculture In Our County?

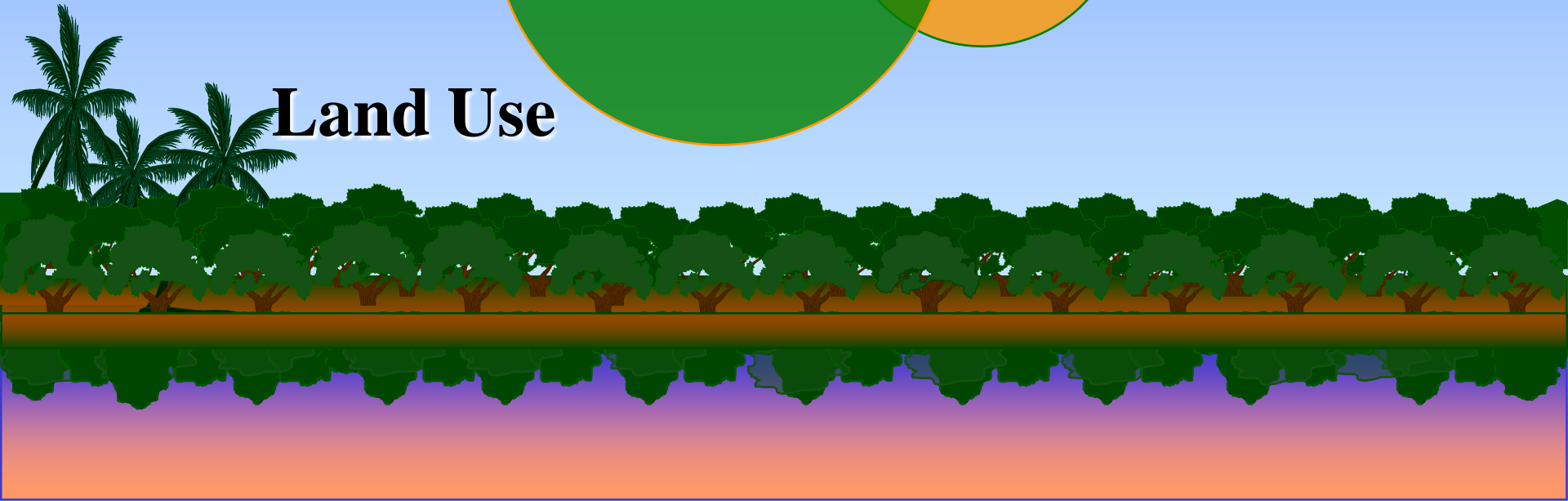
## **Water Use & Conservation:**

- Avoid permitting sand mines near active agricultural operations
- Develop and expand a waste water reuse system to conserve water
- Fund an Urban Mobile Irrigation Lab to evaluate irrigation systems to conserve water
- Water Farming- reservoir, aquaculture, algae for biofuel, water recharge, etc.
- Pursue alternative water supply for County

# What Land Use Strategies Can Provide For Agricultural Sustainability?



**Land Use**

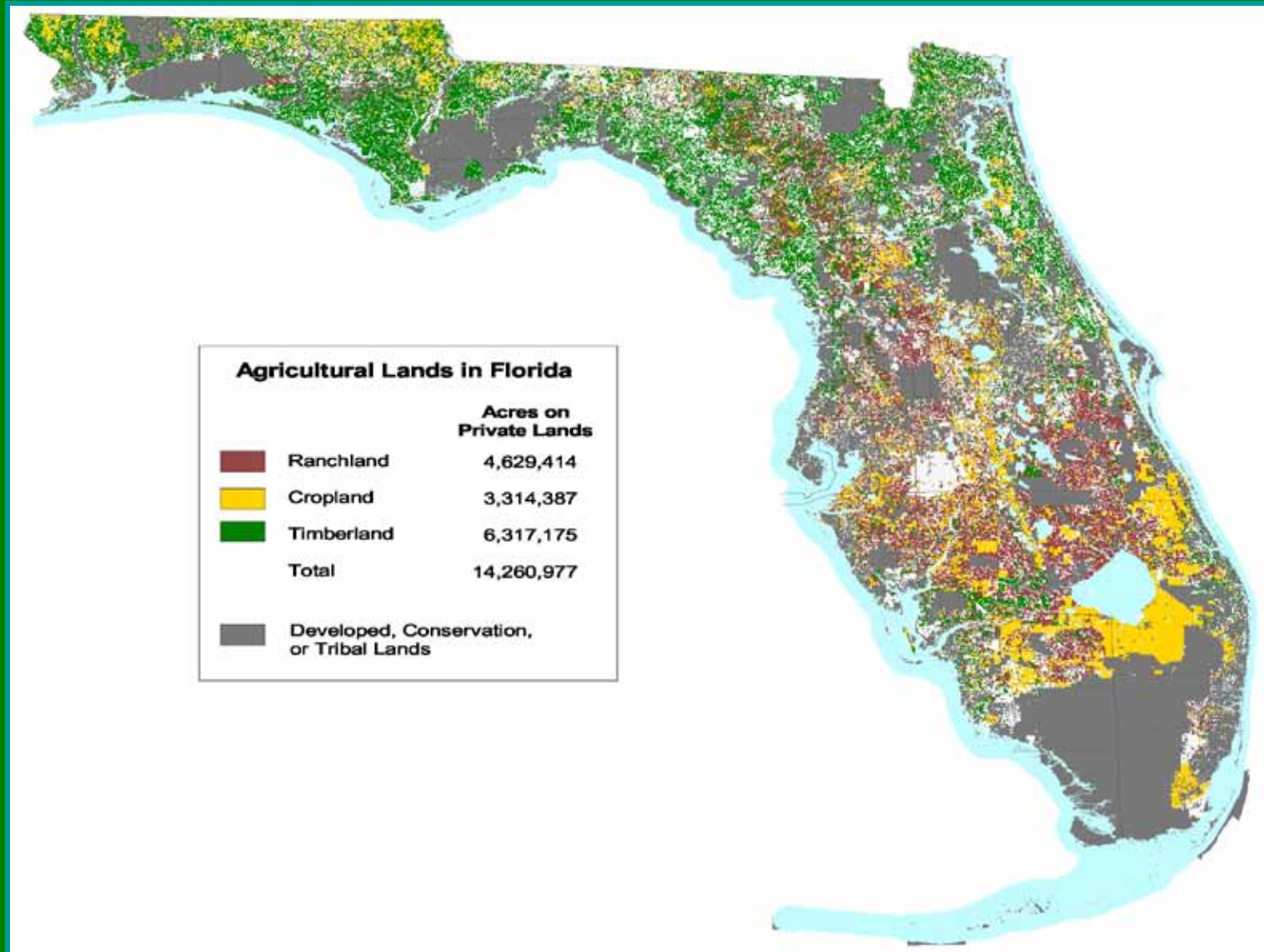




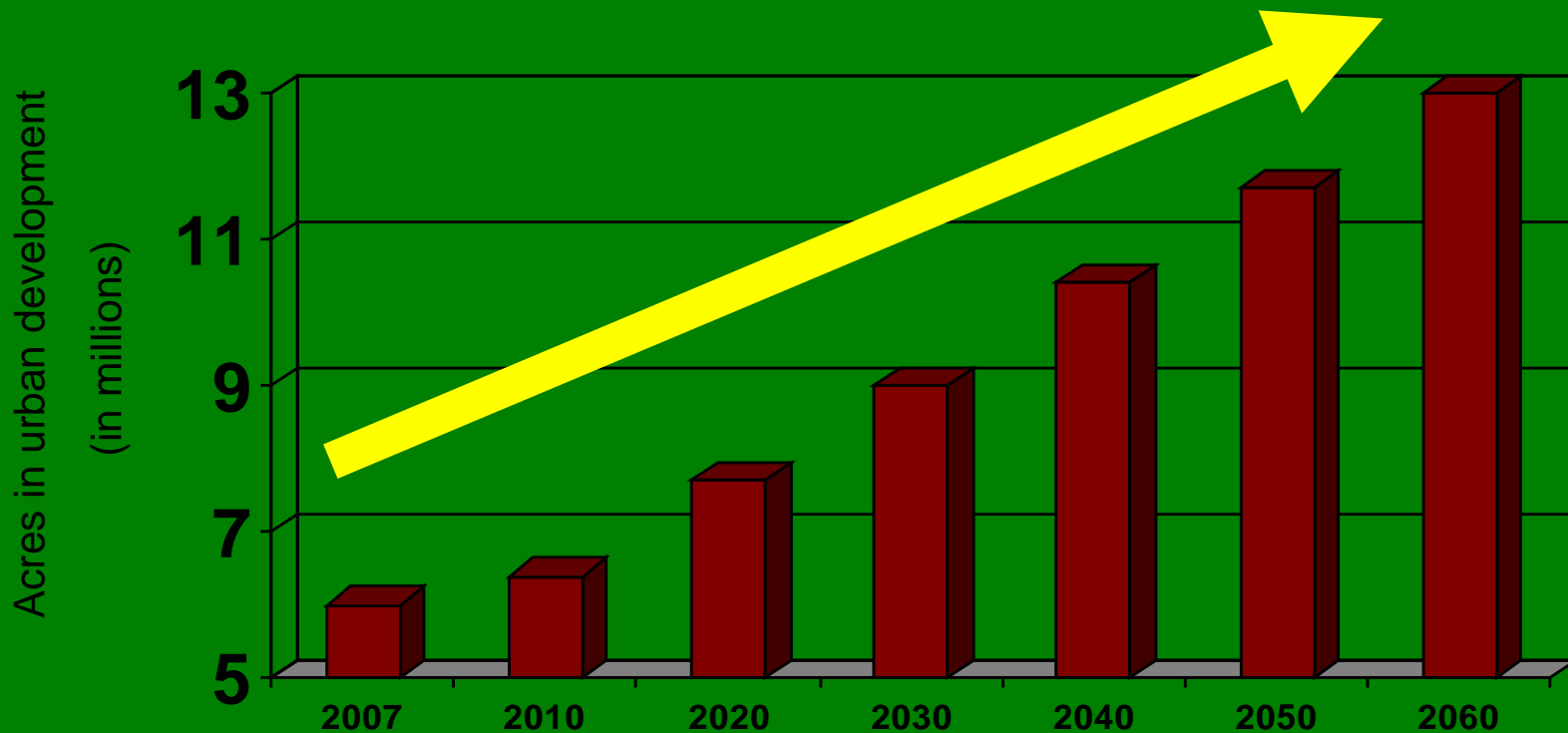
# Land Use Resource Providers

- Jean Scott - Senior Fellow FAU, CUES, Strategies for Livable Communities
- Hillary Swain - Ex. Dir. MacArthur Agro-ecology Research Center

# The only land left to develop in the State of Florida is Agricultural Land



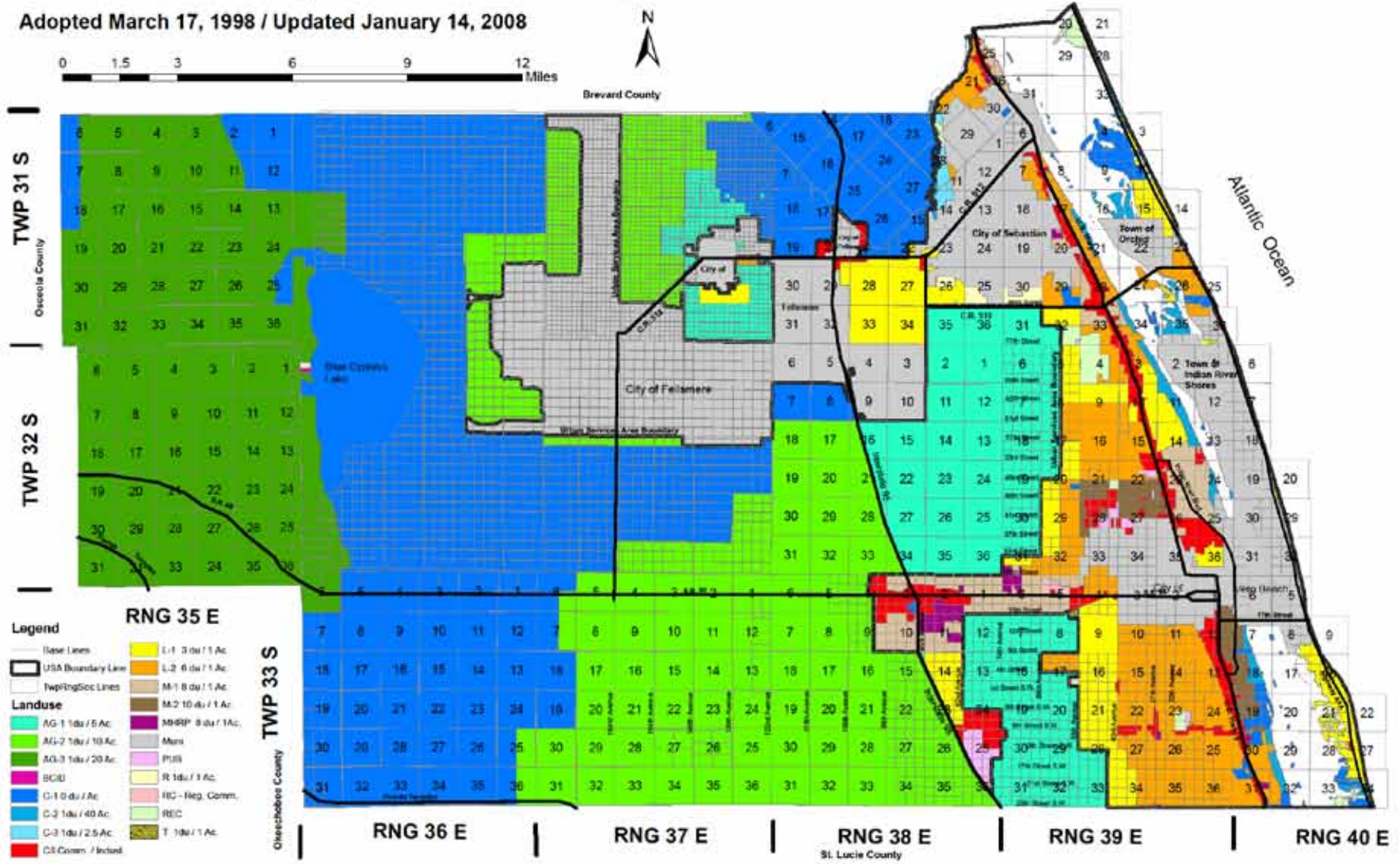
# Projected Loss of Ag Land in Florida Due to Urban Development

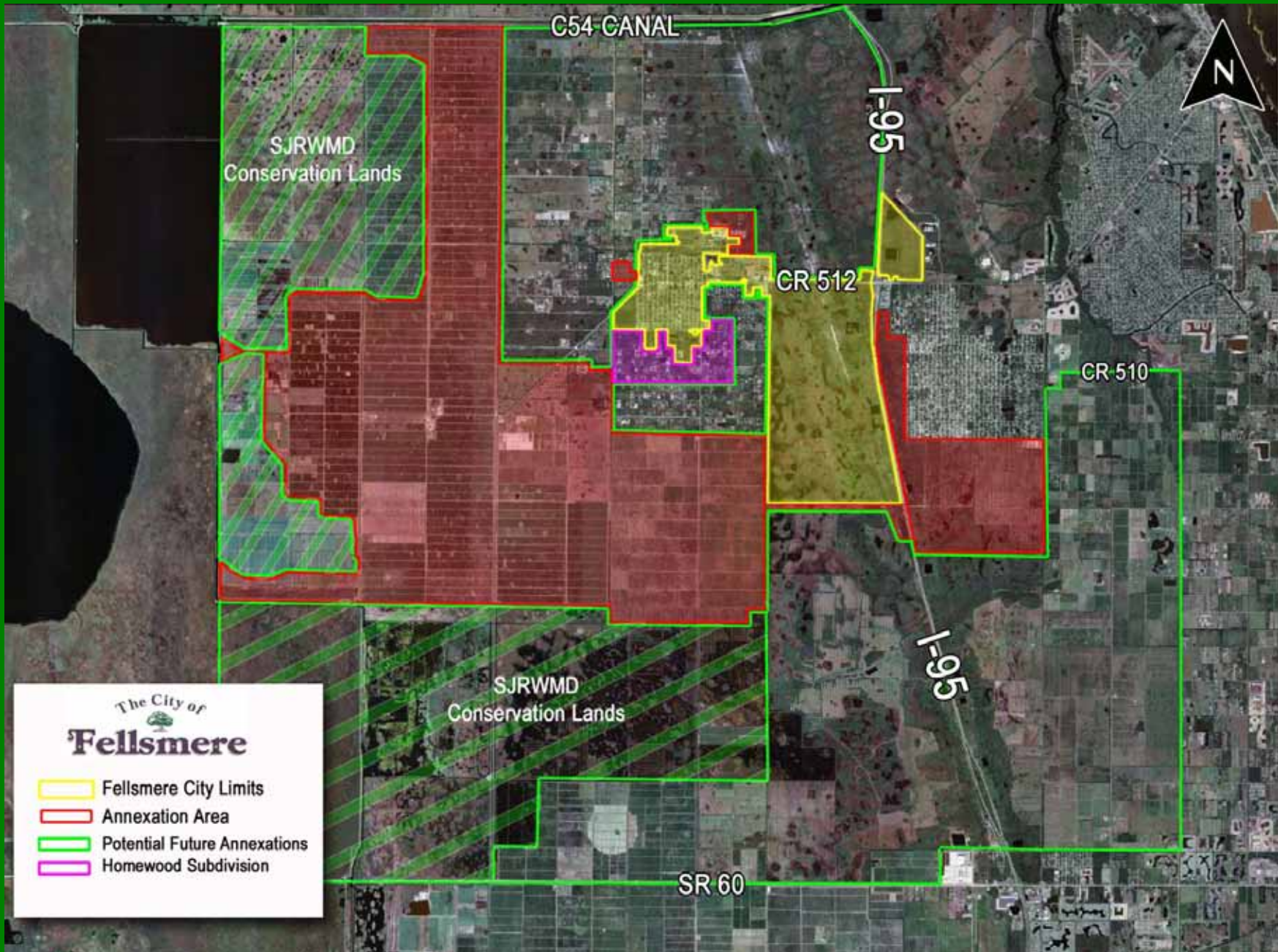


Source: *Florida 2060*, published by 1,000 Friends of Florida

# Indian River County Future Land Use Map

Adopted March 17, 1998 / Updated January 14, 2008

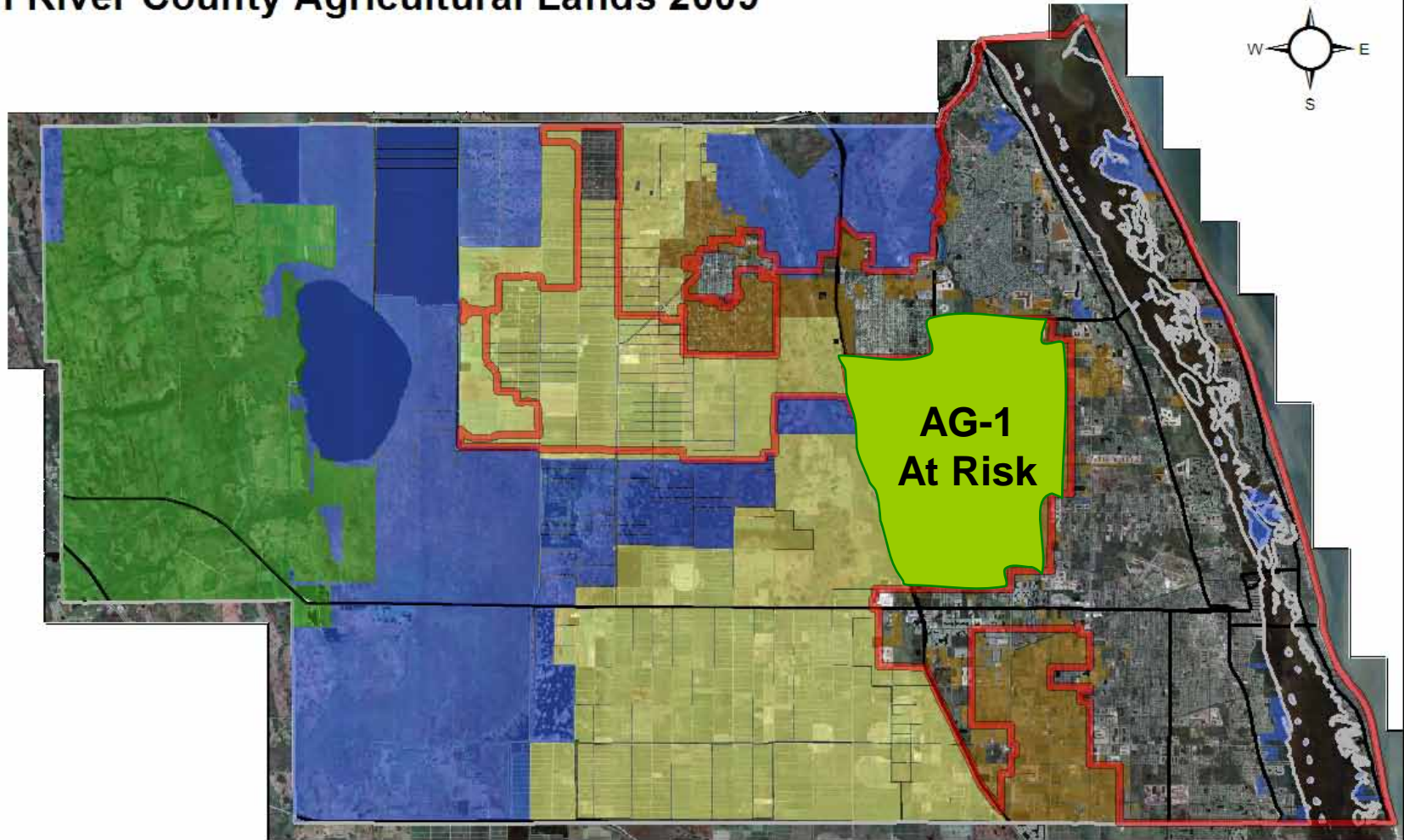
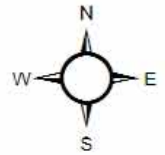








**Ag Reserve- A designated area with a plan based on a matrix of theme based hamlets embracing agricultural, equestrian and natural habitat components each with wide open spaces.**



# Indian River County Agricultural Lands 2009



-  Urban Service Boundary
-  Agriculture Zoned Land 2009
-  Agricultural-1 (1unit/5ac)
-  Agricultural-2 (1unit/10ac)
-  Agricultural-3 (1unit/20ac)
-  Conservation-1

Data current as of 02/17/2009

Data reference: Indian River County Property Appraiser

DATE: 02/17/2009

FILE: Indian River County Ag Lands .mxd

# Agroecosystem Services for Restoration and Remediation

- Storm water management (attenuation, cleansing, treatment)
- Water remediation and Wastewater reclamation (Ag Treatment Systems, constructed wetlands, reclaimed water extends supply and lowers cost, “living machines”)
- Waste recycling (compost, biosolids)
- Carbon sequestration (range of crops – forest, horticulture, agronomic – absorbs and stores atmospheric CO<sub>2</sub>)



# What Can Be Done to Maintain A Viable Agriculture In Our County?

## Land Use and Planning:

- Create mutually beneficial solutions for stakeholders involved with Community Planning
- Implement Transfer of Development Rights (TDRs)
- Determine best use for undeveloped land based on assessment by GIS (CARL)
- Purchase Conservation Easements of key agricultural lands with demonstrable benefits
- Consider an Ag Reserve for AG-1 land (using TDRs)
- Pay land owners for ecosystem services

# Purchase of Development Rights

- Florida Forever, Water Management Districts, and many county programs allow purchase of development rights
- Rural and Family Lands Protection Program
- Fair market value of land based on appraisal after rights are extinguished
- Perpetual conservation easement remains on land.
- Land can remain in agriculture or conservation

# Process to achieve sustainability

- Enhance understanding of the problem across the community
- Explore possible strategies
- Incorporate accepted strategies
  - smart growth tools (incorporate into Comprehensive Plan)
  - alternative crops for bedded groves
  - water farming
  - others?

# What Can Be Done to Maintain A Viable Agriculture In Our County?

## **Agricultural Activities:**

- Look for alternative crop(s) for Citrus
- Develop new means of control for diseases
- Encourage and expand farmers markets
- Farm to Table Programs (connects schools, restaurants, institutions, etc.)
- Develop Community Food Systems
  - Community Supported Agriculture (CSA)
  - Buy local, buy direct, u-pick, organic

What can you do to get  
involved?

Attend the  
Forum on  
Agricultural Sustainability

Sponsored by the  
Indian River  
Soil & Water Conservation  
District

November 20<sup>th</sup>, 2009  
9 AM to Noon  
The Richardson Center  
Indian River State College  
Mueller Campus  
Vero Beach, FL





*But the fields of common land belonging to their cities may not be sold; for that is their perpetual possession.* Leviticus Ch. 25, v. 34 Revised Standard Version