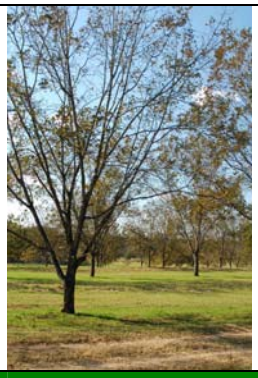
Participant Workbook

Introducing
Florida's Plant Industry


SART Training Media

Introducing Florida's Plant Industry

Participant Workbook

Prepared by: Rick Sapp, PhD, Florida SART Technical Writer

Published December 2006

SART Training Media are available for download from the Florida SART web site at www.flsart.org.

CONTENTS

ABOUT FLORIDA SART

SART, the Florida State Agricultural Response Team, is a multi-agency coordination group consisting of governmental and private entities dedicated to all-hazard disaster preparedness, planning, response and recovery for the animal and agriculture sectors in Florida.

SART Mission

Empower Floridians with training and resources to enhance animal and agricultural disaster response.

SART Goals

- Promote the establishment of a coordinator in each county responsible for all agriculturally related incidents
- Provide assistance in the development and writing of ESF-17 plans
- Promote the establishment of a county SART in each county
- Provide annual training for all SART and agriculturally related personnel
- Identify county resources available for an emergency or disaster
- Promote county cooperation at a regional level for mutual aid

INTRODUCTION

Subject: Introduce participants to an overview of Florida's plant industry

Goal: To provide participants with a general overview of the plant industry sector of agriculture in Florida and its value to the state and its citizens

SPECIFIC LEARNING OBJECTIVES

At the end of this training module, participants will be able to:

1. Name the leading sectors of Florida's plant industry
2. Identify areas of the state in which each plant industry is concentrated
3. Discuss some of the characteristics of Florida's plant industry
4. Describe some of the threats to the plant sector of Florida's agricultural economy
5. Identify key resources available for more information

Slides 1 – 3


STATE AGRICULTURAL RESPONSE TEAM
S. A. R. T.
FLORIDA


Introducing
Florida's Plant Industry


Introducing
Florida's Plant Industry
Prepared by
Rick Sapp, PhD
Florida Department of Agriculture and Consumer Services
Florida SART Technical Writer
State Agricultural Response Team
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Slides 4 – 6

Acknowledgements

- University of Florida, Institute of Food & Agricultural Sciences (IFAS)
- Florida Fruit & Vegetable Assn.
- Florida Fish & Wildlife Conservation Commission
- US Dept. of Interior, US Geological Survey
- US Dept. of Agriculture
- University Credits: California, N.C. State, Washington

Learning Objectives

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Florida SART

- Multi-agency coordination
  - Governmental and private
  - All-hazard preparation, response and recovery
  - Animal and agricultural

Slides 7 – 9


Introducing Florida
State Agricultural Response Team
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Introducing Florida
The "Sunshine State"
• Florida settled for 12,000 years before Columbus
• In 1513, the Spanish began exploring the state
• Today, Florida is known for its spaceport, for popular world-class attractions, for hundreds of miles of beaches, for fishing and the heart of America's citrus industry ... but there is so much more!
State Agricultural Response Team
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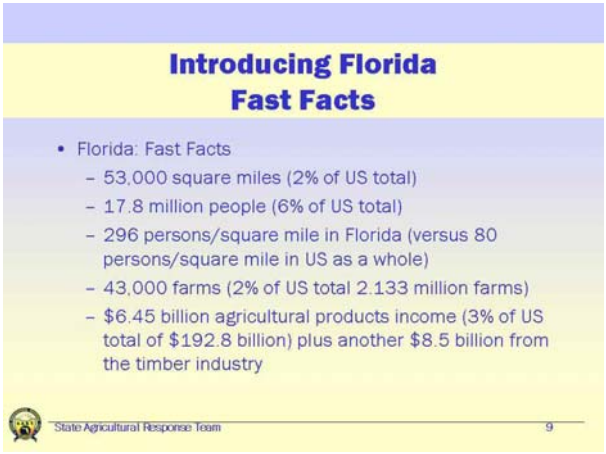
Introducing Florida
Fast Facts
• Florida: Fast Facts
– 53,000 square miles (2% of US total)
– 17.8 million people (6% of US total)
– 296 persons/square mile in Florida (versus 80 persons/square mile in US as a whole)
– 43,000 farms (2% of US total 2.133 million farms)
– $6.45 billion agricultural products income (3% of US total of $192.8 billion) plus another $8.5 billion from the timber industry
State Agricultural Response Team
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Slides 10 – 12

It's About People

1 ¼ million Floridians of many backgrounds and speaking several languages, with English as the base, make a living from the plant industry, but all draw sustenance from it!

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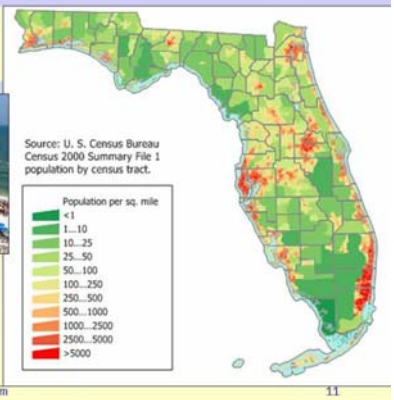
The People of Florida

A crowd at Perdido Key

Florida's is primarily white with 3 million blacks, 3 million Latinos, 300,000 Asians and 60,000 Native Americans.



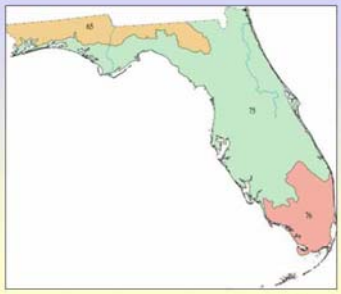
State Agricultural Response Team 11

Florida Ecoregions

Zone 65: Southeastern Plain A mosaic of cropland, pasture, woodland and forest.

Zone 75: Southeastern Coastal Plain Flat plains with numerous swamps and lakes. Warmer with longer growing season and coarser soils.

Zone 76: Southern Florida Coastal Plain Sub-tropical flat plains with wet soils, swamps, everglades and palmetto prairie vegetation.



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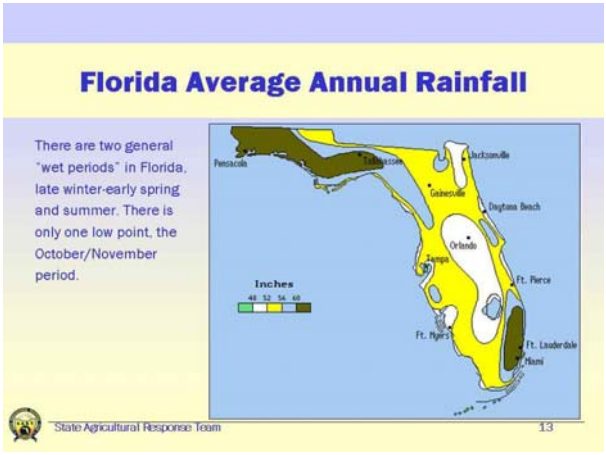
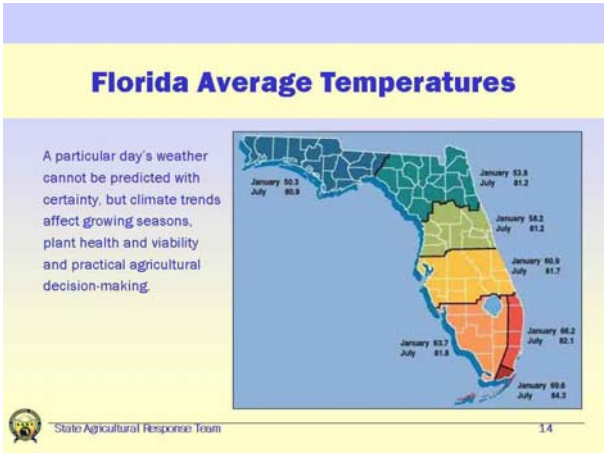
Slides 13 – 15


Florida Average Annual Rainfall
There are two general "wet periods" in Florida, late winter-early spring and summer. There is only one low point, the October/November period.
Pensacola
Tallahassee
Jacksonville
Gainesville
Daytona Beach
Orlando
Tampa
Ft. Pierce
Ft. Myers
Ft. Lauderdale
Miami
Inches
40 52 56 60
State Agricultural Response Team
13


Florida Average Temperatures
A particular day's weather cannot be predicted with certainty, but climate trends affect growing seasons, plant health and viability and practical agricultural decision-making.
State Agricultural Response Team
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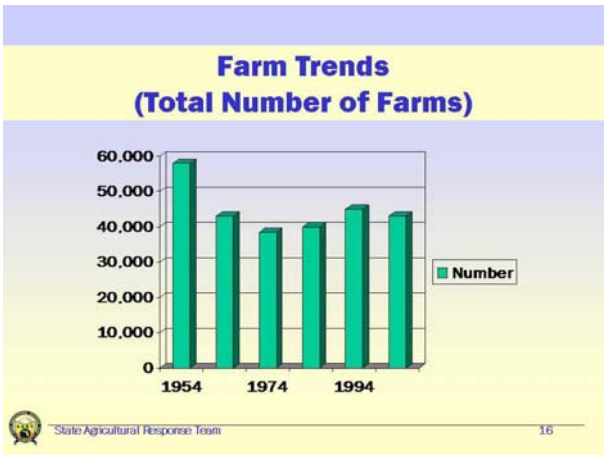
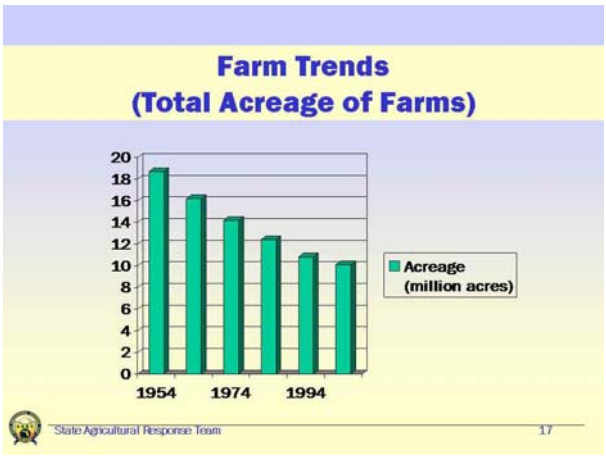
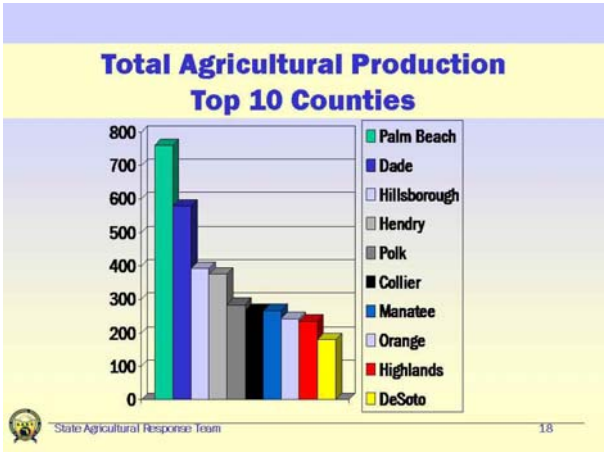
Number of Farms and Acreage
• 43,000 commercial farms (10.1 million of Florida's 35 million acres)

Slides 16 – 18


Farm Trends
(Total Number of Farms)
60,000
50,000
40,000
30,000
20,000
10,000
0
1954
1974
1994
Number
State Agricultural Response Team
16


Farm Trends
(Total Acreage of Farms)
20
18
16
14
12
10
8
6
4
2
0
1954
1974
1994
Acreage
(million acres)
State Agricultural Response Team
17


Total Agricultural Production
Top 10 Counties
800
700
600
500
400
300
200
100
0
Palm Beach
Dade
Hillsborough
Hendry
Polk
Collier
Manatee
Orange
Highlands
DeSoto
State Agricultural Response Team
18

Slides 19 – 21

How Does Your County Stack Up - $ million agricultural production?

1 Palm Beach $760	18 Lee $113	35 Clay $37	52 Calhoun $14
2 Dade $578	19 Volusia $106	36 Jackson $36	53 Taylor $13
3 Hillsborough $392	20 Gadsden $91	37 Sumter $31	54 Hamilton $12
4 Hendry $376	21 Marion $88	38 Holmes $30	55 Union $11
5 Polk $285	22 Pasco $84	39 Nassau $27	56 Pinellas $8
6 Collier $268	23 Levy $83	40 Baker $25	57 Citrus $7
7 Manatee $268	24 Glades $72	41 Madison $25	58 Dixie $7
8 Orange $243	25 Osceola $69	42 Flagler $24	59 Leon $7
9 Highlands $236	26 St. Johns $60	43 Duval $22	60 Okaloosa $7
10 DeSoto $180	27 Alachua $59	44 Hernando $22	61 Washington $6
11 Lake $178	28 Broward $50	45 Jefferson $21	62 Monroe $3
12 Hardee $166	29 Charlotte $48	46 Santa Rosa $21	63 Bay $2
13 Okeechobee $144	30 Lafayette $48	47 Walton $20	64 Wakulla $2
14 Suwannee $136	31 Columbia $47	48 Seminole $19	65 Liberty $less than 1
15 Martin $128	32 Putnam $47	49 Bradford $18	66 Franklin $less than 1
16 St. Lucie $128	33 Gilchrist $45	50 Sarasota $18	
17 Indian River $117	34 Brevard $42	51 Escambia $16	

State Agricultural Response Team 19

International Customers Top 10 Exports – 2004 ($ million)

Fruits $596.
Other $368.7
Vegetables $145.4
Feeds/Fodders $47.6
Seeds $35.1
Cotton $28.8
Poultry $28.2
Live Animals/Meat $27.2
Peanuts $18.7
Tobacco $18

Florida's busiest ports are Miami, Tampa Bay and Jacksonville.

State Agricultural Response Team 20

Florida's Top International Customers

Canada $388,232,000
Japan $107,860,000
Netherlands $28,927,000
France $17,487,000
Bahamas $15,263,000
United Kingdom $14,969,000
Haiti $12,193,000
Dominican Republic $11,189,000
Jamaica $9,425,000
Taiwan $7,317,000

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Slides 22 – 24


Florida's Troubling Trends
• Rapidly increasing and "graying" population plus assimilating people of many cultures and several languages
• Increasing urbanization in areas that formerly supported agriculture
• Future fresh water requirements for an expanding population and for industry
• Decreasing number of farms ... and farmers
State Agricultural Response Team
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Greetings from Your
FLORIDA
FARMERS
From Our Home To Yours.
Florida Department of Agriculture and Consumer Services • Charles H. Bronson, Commissioner
Fresh from Florida


Florida's #1
Timber/Forestry
• Forestry: renewable resources valued at $8.5 billion
• 12 million acres – 1/3 of the state is commercial forest
• 2.5 million acres classified as general woodlands
State Agricultural Response Team
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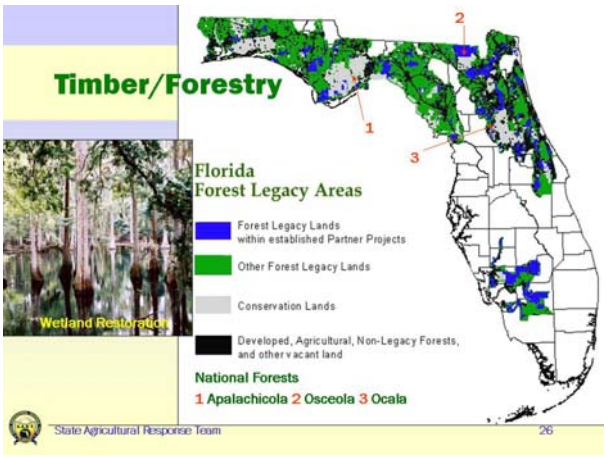
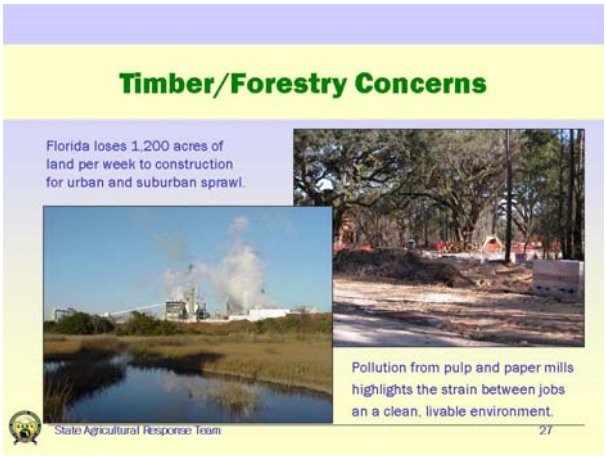
Slides 25 – 27


Timber/Forestry
Timber is a "renewable resource." In Florida, 82 million trees are planted each year, many of them loblolly pine.


Timber/Forestry
Wetland Restoration
Florida
Forest Legacy Areas
Forest Legacy Lands within established Partner Projects
Other Forest Legacy Lands
Conservation Lands
Developed, Agricultural, Non-Legacy Forests, and other vacant land
National Forests
1 Apalachicola 2 Osceola 3 Ocala
1
2
3
State Agricultural Response Team
26


Timber/Forestry Concerns
Florida loses 1,200 acres of land per week to construction for urban and suburban sprawl.
Pollution from pulp and paper mills highlights the strain between jobs an a clean, livable environment.
State Agricultural Response Team
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Slides 28 – 30

Florida's #2 Greenhouse/Nursery

- Florida is second in the United States with greenhouse and nursery business estimated at $1.6 billion from 7,722 nurseries which employ 55,000 people.


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Greenhouse/Nursery

- Florida is second in the United States in floriculture (sales of $826 million) and foliage plants (sales of $416 million)


State Agricultural Response Team 29

Greenhouse/Nursery Concerns

Sudden oak death

- The pathogen, *Phytophthora ramorum*, is a fungus-like organism that probably arrived in the US on rhododendron imported from Asia.
- Infection has 2 syndromes:
  - Bark canker, established on US West Coast, is lethal to some trees. Not yet found in Florida.
  - Leaf-and-twig blight, not always lethal, is detrimental to plant health and has been found in Florida. It is a huge potential problem in nurseries, infecting many species of flowering plants.


Bark canker is lethal.

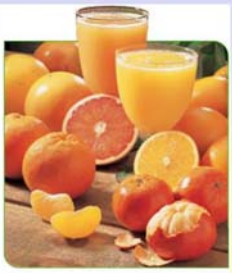

Leaf-and-twig blight begins with spots, lesions and bark peeling.

State Agricultural Response Team 30

Slides 31 – 33

Florida's #3
Citrus

- Citrus is a $1 ¼ billion industry in Florida (oranges, grapefruit, tangerines and tangelos)
- About 80% of all US citrus production
- 2nd only to Brazil, Florida's 100 million trees on 750,000 acres produce 14% of world's oranges
- Grows about 30% of world's grapefruit



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Citrus

- 95% of Florida oranges are processed to orange juice. In 2003-04, this amounted to 1.5 billion gallons

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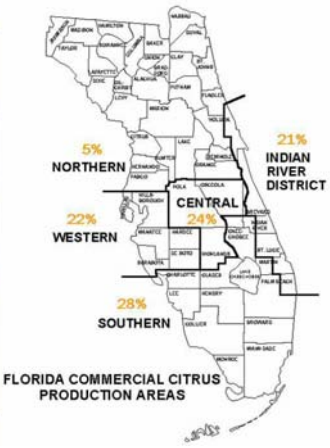
Citrus

Florida Commercial Citrus Production by Area

1. Southern 28%
2. Western 22%
3. Central 24%
4. Indian River 21%
5. Northern 5%

State Agricultural Response Team



FLORIDA COMMERCIAL CITRUS PRODUCTION AREAS

Slides 34 – 36


Citrus Concerns
Citrus greening
(huanglongbing)
• Known in China for 100 years
• In Brazil for 7-8 years; widespread possibly due to propagation sloppiness
• Now documented in Florida
• Begins as leaf mottling and yellowing; progresses to misshapen, mis-colored and bitter fruit
• A very serious threat to Florida citrus industry
FDACS-DPI
State Agricultural Response Team
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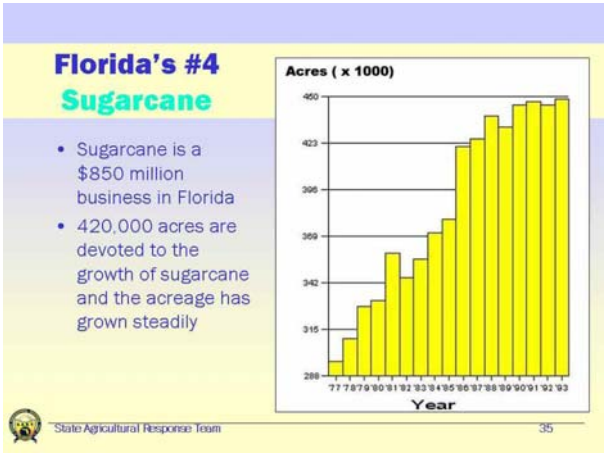
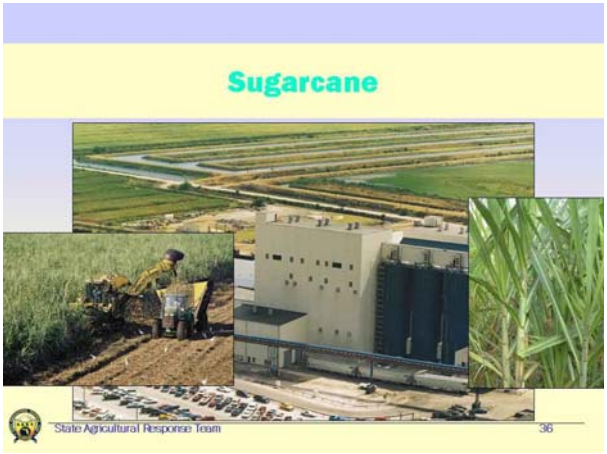

Florida's #4
Sugarcane
• Sugarcane is a $850 million business in Florida
• 420,000 acres are devoted to the growth of sugarcane and the acreage has grown steadily
Acres (x 1000)
Year
State Agricultural Response Team
35


Sugarcane
State Agricultural Response Team
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Slides 37 – 39

Sugarcane

- 406,000 acres of sugarcane yield 35.2 tons per acre or 14.3 million tons of cane
- 6 sugar mills (5 corporate and 1 grower cooperative) process 20,750 tons of cane/24 hours
- 2 in-state refineries and 4 co-owned out-of-state refineries yield 2 million tons raw sugar/year
- Florida produces half of all US cane sugar and is a net sugar exporter
- $800 million/year in sales of raw sugar and molasses ($433 million value of production in 2005, sugar and seed)

State Agricultural Response Team 37

Sugarcane

- Sugarcane has specific growth requirements and those are found in three South Florida counties:
  - Palm Beach 310,000 acres
  - Glades 40,000 acres
  - Hendry 35,000 acres

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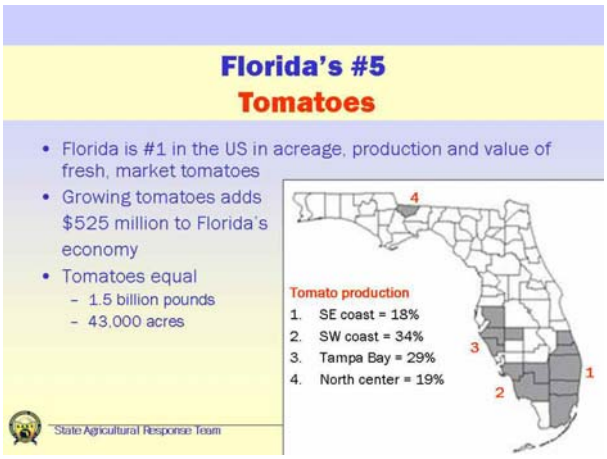
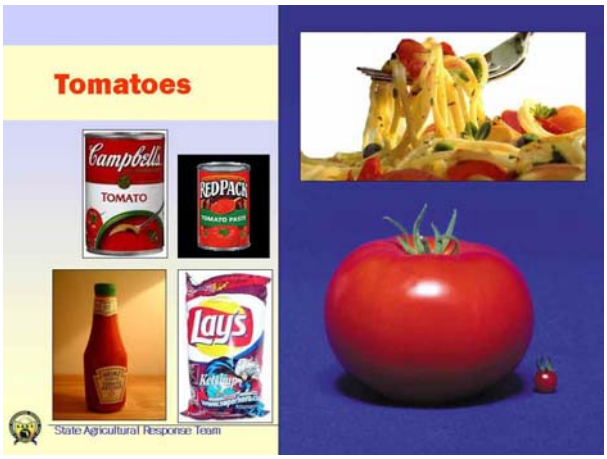
Sugarcane Concerns

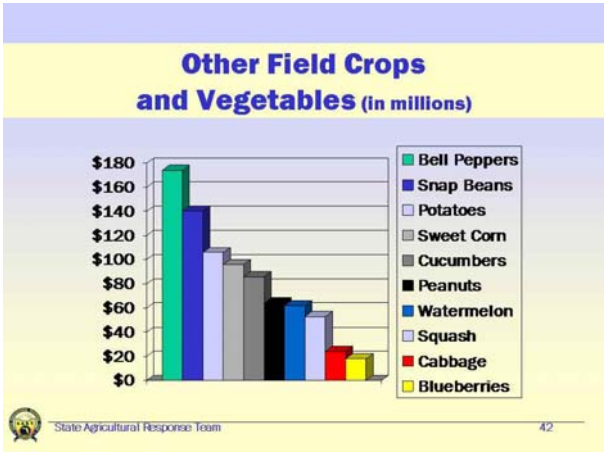
- Public policy uncertainties at home (possibility of pollution in the Everglades) and abroad (Cuba's political and economic future in international affairs)
- Changing public demand for sweeteners

State Agricultural Response Team 39

Slides 40 – 42


Florida's #5
Tomatoes
• Florida is #1 in the US in acreage, production and value of fresh, market tomatoes
• Growing tomatoes adds $525 million to Florida's economy
• Tomatoes equal
– 1.5 billion pounds
– 43,000 acres
Tomato production
1. SE coast = 18%
2. SW coast = 34%
3. Tampa Bay = 29%
4. North center = 19%
1
2
3
4
State Agricultural Response Team


Tomatoes
Campbell's
TOMATO
REDPACK
Lay's
State Agricultural Response Team


Other Field Crops
and Vegetables (in millions)
$180
$160
$140
$120
$100
$80
$60
$40
$20
$0
Bell Peppers
Snap Beans
Potatoes
Sweet Corn
Cucumbers
Peanuts
Watermelon
Squash
Cabbage
Blueberries
State Agricultural Response Team
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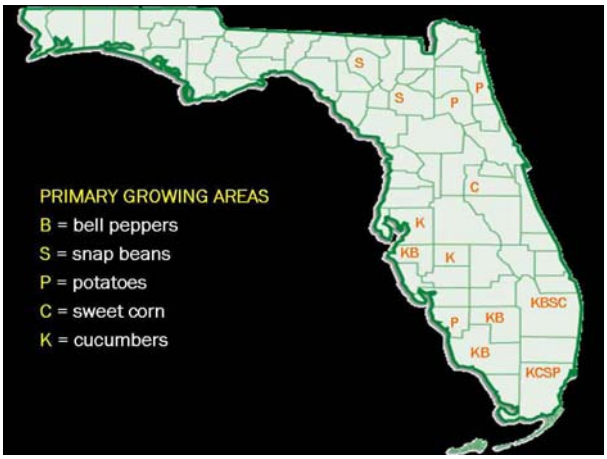
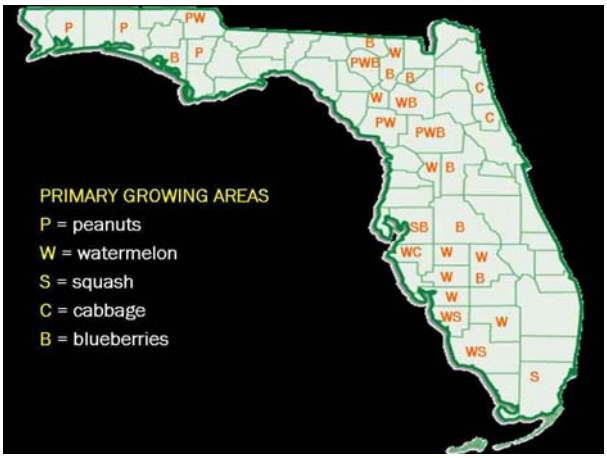
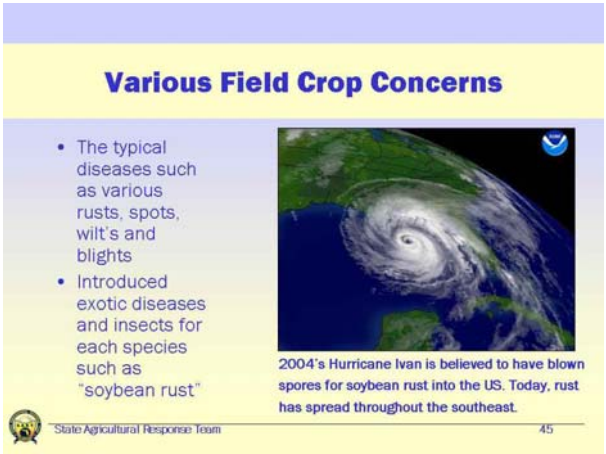
Slides 43 – 45


PRIMARY GROWING AREAS
B = bell peppers
S = snap beans
P = potatoes
C = sweet corn
K = cucumbers
S
S
P
P
C
K
KB
K
KBSC
P
KB
KB
KCSP


PRIMARY GROWING AREAS
P = peanuts
W = watermelon
S = squash
C = cabbage
B = blueberries
P
P
PW
B
P
B
W
PWB
B
B
C
W
WB
C
PW
PWB
W
B
SB
B
WC
W
W
W
B
W
WS
W
WS
S


Various Field Crop Concerns
• The typical diseases such as various rusts, spots, wilt's and blights
• Introduced exotic diseases and insects for each species such as "soybean rust"
2004's Hurricane Ivan is believed to have blown spores for soybean rust into the US. Today, rust has spread throughout the southeast.
State Agricultural Response Team
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Slides 46 – 48

Various Field Crop Concerns

Introduced, exotic diseases or insects such as the spoor that causes soybean blight may spread in unusual ways. It is believed that **kudzu** will be the active agent in the spread of this harmful new (to the US) plant disease, which means that in the south, it is already out of control!

State Agricultural Response Team

A Few of Florida's Specialty Crops

- Ferns/Ornamentals
- Tobacco
- Avocados

State Agricultural Response Team 47

Specialty Crop: Ferns and Cut Greens

More than 200 commercial producers of ferns and cut greens in Florida. Market value nearly $90 million. Florida is the largest producer in the U.S.

State Agricultural Response Team 48

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Specialty Crop: Tobacco

- Tobacco $20 million from 6,881 Florida acres

State Agricultural Response Team 49

Specialty Crop: Tobacco

Florida's tobacco counties – 2004 (acres – poundage)

1. Suwannee (1,000 – 2,510,000)
2. Hamilton (630 – 1,556,000)
3. Alachua (550 – 1,342,000)
4. Madison (490 – 1,161,000)
5. Columbia (380 – 927,000)
6. Lafayette (330 – 835,000)
7. Union (150 – 345,000)
8. Jefferson (100 – 215)

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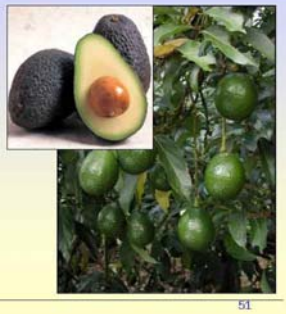
Specialty Crop: Avocados

- Florida's sales = $15 million
- Producing more than 200,000 tons, Florida has about 6% of the world market behind Mexico (33%) and Indonesia (7%). Almost all of Florida's avocados are consumed domestically.



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Slides 52 – 54

Specialty Crop: Avocados

About 6,600 acres in Florida are operated by 737 growers, 99% located in southwest Dade County.

Nutrition Facts

Serving Size 1/5 medium (30g/1.1 oz)
Servings Per Container 5

Amount Per Serving	
Calories 55	Calories from Fat 45
	% Daily Value*
Total Fat 5g	8%
Saturated Fat 1g	5%
Trans Fat 0g	
Polyunsaturated Fat 1g	
Monounsaturated Fat 3g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Potassium 170mg	5%
Total Carbohydrate 3g	1%
Dietary Fiber 3g	12%
Sugars 0g	
Protein 1g	

Vitamin A 0%	• Vitamin C 4%
Calcium 0%	• Iron 0%
Vitamin E 4%	• Thiamin 2%
Riboflavin 4%	• Niacin 4%
Vitamin B6 4%	• Folate 8%
Pantothenic Acid 4%	• Phosphorus 2%
Magnesium 2%	• Zinc 2%
Copper 2%	• Manganese 2%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

State Agricultural Response Team

Key Resources

- Florida Department of Agriculture and Consumer Services, Division of Marketing and Development www.florida-agriculture.com
- United States Department of Agriculture (USDA) www.usda.gov
- USDA, Animal and Plant Health Inspection Service, National Center for Import and Export www.aphis.usda.gov/vs/ncie/
- USDA, National Agricultural Statistics Service www.nass.usda.gov/
- Florida Department of Agriculture and Consumer Services (FDACS) www.doacs.state.fl.us and www.florida-agriculture.com
  - Division of Plant Industry www.doacs.state.fl.us/pi/ and http://www.doacs.state.fl.us/pi/enpp/bur-enpp.html/
  - Florida State Agricultural Response Team www.flsart.com
- Southern Region Center for Integrated Pest Management www.srpmc.org
- Extension Disaster Education Network www.eden.lsu.edu

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Key Resources

- Centers for Disease Control and Prevention www.cdc.gov
- National Plant Diagnostic Network
  - National www.npdn.org
  - Southern http://spdn.ifas.ufl.edu/
  - Southern Regional Laboratory http://plantpath.ifas.ufl.edu/pdc/
  - Florida http://fpdn.ifas.ufl.edu/
- University of Florida
  - IFAS Extension Service http://solutionsforyourlife.ufl.edu/
  - Nematode Assay Laboratory http://edis.ifas.ufl.edu/scripts/SR011
  - Insect Identification Laboratory http://edis.ifas.ufl.edu/SR010
  - Integrated Pest Management http://ipm.ifas.ufl.edu/applying/pest-id/weeds/index.htm

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Key Resources

- Florida Extension Plant Diagnostic Clinic, UF
  - Quincy http://tmomol.ifas.ufl.edu/pdc.htm
  - Immokalee http://www.imok.ufl.edu/plant/clinic/
  - Homestead http://trecclinic.ifas.ufl.edu/submissions.htm
- Florida Exotic Pest Plant Council www.fleppc.org
- Florida Fish & Wildlife Conservation Commission http://myfwc.com
- Florida Agricultural Census Data www.hort.purdue.edu/newcrop/cropmap/florida/default.html

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Learning Objective
Introducing Florida's Plant Industry

By this time, participants should be able to:

1. Name the leading sectors of Florida's plant industry
2. Identify areas of the state in which each plant industry is concentrated
3. Discuss some of the characteristics of Florida's plant industry
4. Describe some of the threats to the plant sector of Florida's agricultural economy
5. Identify key resources available for more information

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Working Together To Protect Florida's Agriculture & Way of Life

Thank You!

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Slides 58 – 60

Now, Test Your Knowledge and Awareness (1 of 3)

1. What sector of the agricultural plant industry, earns the most money for Florida?
2. Can you name the top five plant industry sectors in Florida?
3. (True/False) SART is a government "response team" of special agents prepared to counter any act of terrorism within the state.
4. Florida's top two international customers are _____?
5. Which of the following two statements is true?
   A. The number of farms in Florida is continually shrinking.
   B. The acreage in Florida farms has shrunk continually for years.
6. The Florida county that produces the greatest bounty in plant agricultural products (as measured in dollars) is _____?

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Pre/Post Test (2 of 3)

7. (select the best answer) The greatest threat to Florida's agricultural sector may be:
   A. increasing urbanization which ceaselessly encroaches on land for farms, fields and pastures
   B. introduced exotic non-native diseases such as citrus greening or soybean rust
   C. either A or B (or both) would be excellent answers.
8. Which is the closest approximation to the number of people who "make a living" from agriculture in Florida?
   A. less than 50,000 B. about one million C. 7,155,248
9. Approximately what fraction of Florida is currently covered by managed timber and forest?

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Pre/Post Test (3 of 3)

10. (True/False) Under "global warming" conditions for the foreseeable future, it is anticipated that citrus will once again be grown as far north as the Suwannee River. Agronomists and county extension offices are quietly purchasing land ahead of and preparing for this expansion.

Bonus: Your instructor will now hand out the final question(s), an agricultural crossword, which you may attempt for "bonus credit!"

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Slides 61 – 63

Test Answer Key (1 of 3)

1. Timber and forestry bring more dollars into Florida than any other individual plant-ag sector.
2. The top three plant agricultural sectors in Florida's economy are timber/forestry, nursery/greenhouse and citrus.
3. (False) SART is a multi-agency coordination group consisting of governmental and private entities dedicated to all-hazard disaster preparedness, planning, response and recovery for the animal and agriculture sectors in Florida.
4. Canada and Japan

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Test Answer Key (2 of 3)

5. The acreage in Florida farms has continued to shrink since the end of the Second World War while the number of farms has remained relatively constant.
6. Palm Beach grows more agricultural products than any other Florida county.
7. Both A (urbanization) and B (exotic diseases and pests) pose very real threats to Florida agriculture.
8. It is estimated that as many as 1.25 of Florida's 17.8 million full and part time residents make a living in the plant agriculture sector.

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Test Answer Key (3 of 3)

9. Approximately 1/3 of the Sunshine State is covered by natural (although not first growth) forest or managed timber for a continuing "renewable resource."
10. Wow ... False! No one has been able to predict reliably any effects of "global warming" on the state of Florida except a slow rise in the ocean level which may inundate low-lying properties.

Bonus: The answers to our "Florida Ag Fun" Bonus Crossword are:

DOWN	ACROSS
1 POTATO	5 TOMATO
2 MELONS	6 AVOCADO
3 TOBACCO	7 CITRUS
4 OLIVES	

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Slides 64 – 66

Glossary

- Horticulture: The science and art of growing fruit, flowers, ornamental plants and vegetables. Often used to refer to small gardens.
- Nematode: Any of several worms of the phylum *Nematoda*, having unsegmented, cylindrical bodies, often narrowing at each end, and including parasitic forms such as the hookworm and pinworm. Also called *roundworm*.
- SART: The Florida State Agricultural Response Team. A multi-agency coordinating group consisting of governmental and private entities dedicated to all-hazard disaster preparedness, planning, response and recovery for the animal and agriculture sectors in Florida.
- Weed: Generic term for a plant that is growing where it is not wanted.

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Reporting Plant and Insect Diseases Cases

Protect Florida Agriculture.
Report suspicious animal disease cases to the Office of the State Veterinarian.
All calls are confidential and toll free.
Daytime (8 am –5 pm) 1-877-815-0034
(1-850-410-0900)
Office of Bio & Food Security Preparedness
1-850-410-6757
Agriculture Law Enforcement (24/7)
1-800-342-5869
SPDN Hub Laboratory (Gainesville)
1-352-392-1795

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Introducing Florida's Plant Industry

This concludes our presentation
"Introducing Florida's Plant Industry."
Thank you for attending and participating.

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LOCAL RESOURCES – NOTES

KEY RESOURCES

This publication and other materials for SART training programs are available on the World Wide Web at www.flsart.org, the Web site of the Florida State Agricultural Response Team. Note: As new modules become available, they will be posted on the Web site.

United States Department of Agriculture (USDA) www.usda.gov
- National Agricultural Statistics Service www.nass.usda.gov/
- Animal and Plant Health Inspection Service, National Center for Import and Export www.aphis.usda.gov/vs/ncie/
- Southern Region Center for Integrated Pest Management www.srpmc.org

United States Department of Health and Human Services, Centers for Disease Control and Prevention www.cdc.gov

Extension Disaster Education Network www.eden.lsu.edu

National Plant Diagnostic Network
- National www.npdn.org
- Southern http://spdn.ifas.ufl.edu/
- Southern Regional Laboratory http://plantpath.ifas.ufl.edu/pdc/
- Florida http://fpdn.ifas.ufl.edu/

Florida Department of Agriculture and Consumer Services (FDACS)
www.doacs.state.fl.us and www.florida-agriculture.com
- Division of Marketing and Development www.florida-agriculture.com
- Division of Plant Industry www.doacs.state.fl.us/pi/ and www.doacs.state.fl.us/pi/enpp/bur-enpp.html/
- Florida State Agricultural Response Team www.flsart.com

Florida Fish & Wildlife Conservation Commission http://myfwc.com

University of Florida, IFAS Extension Service http://solutionsforyourlife.ufl.edu/
- Nematode Assay Laboratory http://edis.ifas.ufl.edu/scripts/SR011
- Insect Identification Laboratory http://edis.ifas.ufl.edu/SR010
- Integrated Pest Management http://ipm.ifas.ufl.edu/applying/pest-id/weeds/index.htm

University of Florida, Florida Extension Plant Diagnostic Clinic
- Quincy http://tmomol.ifas.ufl.edu/pdc.htm
- Immokalee http://www.imok.ufl.edu/plant/clinic/
- Homestead http://trecclinic.ifas.ufl.edu/submissions.htm

Florida Exotic Pest Plant Council www.fleppc.org

Florida Agricultural Census Data
www.hort.purdue.edu/newcrop/cropmap/florida/default.html