Lesson Plan

Introducing
Florida's Plant Industry

SART Training Media

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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

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

INTRODUCTION

This lesson plan and workbook are designed to be a part of the SART Training Module for *Introducing Florida's Plant Industry*. The lesson plan gives the instructor direction for the educational portion of the workshop. The mechanics of planning, organizing and publicizing the entire training event are covered in the companion piece, *Toolkit for Planning a Community-Based SART Training Event*. For information on obtaining this publication, please refer to the resource section.

This lesson plan is structured to provide an introductory overview of the plant sector of Florida's agricultural economy. It also briefly reviews some of the threats to that sector.

A PowerPoint Presentation has been created to accompany this lesson. Throughout the lesson, boxed references are placed in the left margin to indicate that PowerPoint slides are available to help illustrate the points being made.

Approximately one hour should be allocated for this lesson on Florida's plant industry and related discussion.

SESSION OUTLINE

PART 1 – BEGINNING THE WORKSHOP	(5 minutes)
PART 2 – FLORIDA AND ITS PEOPLE	(10 minutes)
PART 3 – FLORIDA'S "BIG 5"	(20 minutes)
PART 4 – THREE SPECIALTY CROPS	(10 minutes)
PART 5 – KEY RESOURCES	(5 minutes)
PART 6 – SUMMARY AND WRAP-UP	(10 minutes)

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

LEARNING ENVIRONMENT AND LEARNING AIDS

To complete this lesson plan, you will need:

PowerPoint Presentation: *Introducing Florida's Plant Industry* – a companion publication, *Introducing Florida's Plant Industry. Optional: Participant Workbook*, is available with the PowerPoint slides and resource information.

A companion publication (T-1) *Toolkit for Implementing a Community-Based SART Training Event* is available to help you organize, plan and present an entire SART training event with multiple training modules

(See the Resources section at the end of this publication to find out more about any of these materials.)

To conduct this training unit, you will need:

A means to show the PowerPoint Presentation: a computer with a projector

(Note: Master black and white copies of the slides are included at the end of this manual if you prefer to use an overhead projector.)

Sufficient seating for all participants

Each participant will need:

A pen or pencil and participant workbook or paper for notes.

BEFORE THE WORKSHOP

On the day of the workshop, check that equipment needed is in place. Double-check that the electronic media works properly with the equipment you have. Also, make certain that any materials such as paper, workbooks and pens/pencils are available in sufficient numbers for all participants.

PART 1: BEGINNING THE WORKSHOP

Time: 5 minutes

Focus: Explain the purpose of the workshop – Expand participants' understanding of the plant sectors of Florida's agricultural economy

Once all participants have taken their seats and have settled down, welcome them to the workshop *Introducing Florida's Plant Industry*. Thank them for attending and congratulate them on taking the time to learn more about the state, its economy and way of life. Remind them that the best way to respond to and recover from an emergency situation is to have a foundation of knowledge about the situation and available resources.

During this introduction, you may choose to distribute the Pre-Test included in the Resources section of this manual (the crossword is optional). The Pre-Test is a good way to determine the knowledge your audience currently possesses about Florida's plant industries. Make sure to communicate to the participants that their Pre-Test answers, right or wrong, are only meant to guide them through this learning experience. (Note: By design, the Pre-Test and Post-Test are the same as this will give a measure of teaching and learning effectiveness, and of the effectiveness of the module as presented.)

Slides 1-6

This lesson plan can be used with agricultural and non-agricultural audiences. At the end of this training module, participants will be able to name and discuss the major sectors of Florida's plant economy, identify concentrations and some of the threats on the horizon, and identify key resources that participants can easily access for additional information and assistance.

Remind attendees that the reason they are attending the workshop (and the training event if applicable) is because they realize the value of understanding our state and its economic and social foundations. This understanding would be the basis for developing and

implementing any emergency or disaster plan. They will carry the results of the workshop and training event with them everywhere.

This introduction should not exceed five minutes unless the Pre-Test and the optional crossword is to be completed, in which case another few minutes may be required. This is a time when the participants are getting comfortable with the workshop they have decided to attend, their surroundings and you as the presenter. Simultaneously, you are becoming comfortable with the participants, the material you are presenting, and with being a presenter.

Pay attention to time as participants will want to learn what you have to present AND will want to depart on time. If you find that you are nervous when you start, understand that this is a natural response to public speaking. These "nerves" can make people ramble, talk faster or talk slower than normal, or even forget the time altogether. Nevertheless, even if participants enjoy what you are presenting, they will appreciate your discipline when the workshop ends on time.

PART 2: FLORIDA AND ITS PEOPLE

Time: 10 minutes

Focus: Discuss the size, climate and population of Florida as background to describing the plant industry

When the first people, certainly as rugged a bunch of hunter-gatherers as ever fled south from the glacial regions, entered the peninsula that is now Florida about 12,000 years ago, the state was only slowly emerging from the most recent ice age. It was much colder than today, and the coastline was much further from what is today's coast. Many of the animals were different also; there were mastodon … as well as mice, and the area's resources, while bountiful, were difficult to wring from the sands and swamps on a day-to-day basis with the extant technology. It took thousands of years for Florida to develop a rudimentary native economy with agriculture in the mix.

Slides 7-11

Today, the state of Florida has about 17.8 million residents on 53,000 square miles of land. With a gross state product of more than $500 billion, its economy relies heavily on tourism, government (including the space industry), light industry, construction and both plant and animal agriculture. Although it is widely known as the "Sunshine State," and is primarily promoted as a tourist destination, Florida's residents nevertheless operate 43,000 farms (including ranches and dairies).

None of Florida's current residents, located primarily along its coast and in a central band stretching from Tampa-St. Petersburg to Daytona, are full-time hunter-gatherers, but an estimated 1 ¼ million quietly work in agricultural-related sectors. These people produce $6.45 billion of market value in agricultural products or about three-to-five percent of the agricultural products of the United States as a whole. In addition, another $8.5 billion can be attributed to timber, forestry and the production of raw cellulose-based products.

Florida's top five plant commodities are:

- forestry products ($8.5 billion),
- greenhouse and nursery ($1.6 billion),
- citrus ($1.17 billion),
- cane for sugar products ($517 million) and
- tomatoes ($508 million) in addition to other vegetables.

Slides 12-14

Florida is a unique ecological container attached to the continental United States. It points like a long finger from the temperate regions toward the hot and humid tropics, as if it wished to interrupt the ocean's ebb and flow and stir the weather. These things, it in fact does quite effectively. Thus, its generally mild, humid climate bridges the freezing and the boiling zones, and is influenced by strong ocean currents and a variable season of tropical disturbances that originate over Africa.

Consequently Florida's 43,000 commercial farms grow tropical fruits, such as mangos and sugarcane, as well as temperate zone crops such as soybeans and tobacco. These farms are among the most productive in the world, furnishing the nation with a dependable and safe food supply, and provide an enduring economic base. In 2003, Florida farmers utilized about one-third, more than 10 million of the state's nearly 35 million acres.

Slides 15-19

Although the number of farms has remained relatively stable, the total agricultural acreage in Florida has gradually decreased during the last half-century. The strongest region for agriculture – measured by dollar value of production – is centered in a southern triangle from Homestead to Palm Beach to Sarasota. Still, when all plant agricultural resources are considered, Florida has a remarkably diverse farm base and every county in the state derives income from some primary market sector.

Slides 20-21

Florida does not grow peanuts and tangerines and watermelon just for domestic purposes, however. The international market for Florida's agricultural products is growing consummate with the world's burgeoning population. The state ships a variety of products to

customers as close as the Dominican Republic and as distant as Japan.

There are troubling trends that worry Florida's farmers, ranchers and agricultural researchers, however. The expansion of the population, for instance, the sheer size of the population that depends on farm produce, threatens to overwhelm Florida's valuable and irreplaceable agricultural land. Every day, hundreds of acres are lost to the construction – what is politely called urbanization and suburbanization – of places to live and work for Florida's expanding population.

Slide 22

And land is not the only natural resource in short supply. Many ecologists worry that fresh water, the same clean fresh water required in abundance by people as well as plants and animals, may soon be in short supply. This is a concern that must be effectively addressed both internally and with neighboring states sooner rather than later. Discussion, occasionally heated, also continues about the long-term role of agriculture in Florida and its contribution to pollution, as farmland – and yes, suburban lawns – increasingly require the addition of pesticides and fertilizers to produce their bounty.

Now, let's examine specific sectors of Florida's plant economy.

PART 3: FLORIDA'S "BIG FIVE"

Time: 20 minutes

Focus: Recognize the size and contribution of timber/forestry, nursery/greenhouse, citrus, sugarcane and field crops

Slide 23

To reiterate, Florida has about 17 million residents and of them, an estimated 7-8 percent (plus thousands of legal and illegal guest or migrant workers) labor in agricultural-related sectors. These people produce $6.5 billion of market value agricultural products or about three-to-five percent of the agricultural products of the entire United States. Once again, Florida's top commodities are:

- forestry products ($8.5 billion),
- greenhouse and nursery ($1.6 billion),
- citrus ($1.17 billion),
- cane for sugar products ($517 million) and
- tomatoes ($508 million), representing Florida's diverse field crop sector.

Timber and Forestry

Slides 24-26

As an $8.5 billion-a-year industry, forestry in Florida is part of a complex and integrated network of natural resource enterprises. Florida's renewable forest industries produce ingredients for more than 5,000 products such as lumber, plywood, pulp, paper containers, plastics, furniture, medicines, flavors and fragrances.

Forests cover more than 40 percent of Florida's total land acreage. Private non-industrial landowners own roughly seven million acres, half of Florida's second- or third-growth woodlands. Industry lands account for 35 percent, or 5 ½ million acres and federal and state governments own 18 percent, or three million acres.

With today's new technology, up to 98 percent of a harvested pine tree can be used efficiently in manufacturing. The estimated annual value of the state timber harvest is $430 million, with a mill value of $3.3 billion and a manufactured products value of $8.5 billion. The Florida forest industry generates an annual payroll of $1.2 billion.

It is important to remember that today's managed forest is a "renewable resource." Eighty-two million trees are planted each year in Florida, making it one of the top four tree-planting states in the nation. Since 1927 more than six billion trees have been planted here. For every tree that is harvested, five are planted, assuring a renewable supply of forest products for future generations.

Slide 27

Problems associated with the timber and forestry industry are those of disease and those of public policy. A variety of rusts, cankers and blights infect planted slash pines and the fear in the hardwood bottoms – oak and hickory – is that sudden oak death (spoken of later in the nursery/greenhouse segment) will make a robust inroad here from the west coast.

In the public policy arena, people living in the neighborhood of Florida's pulp and paper mills, where harvested trees are hauled to be converted into raw pulp for paper products, have become extremely sensitive to the pollutants associated with the pulping process. And, too, Florida loses an estimated 1,200 acres, much of it woodland, per week to suburban and urban sprawl.

Greenhouse and Nursery

Few people in this room would have estimated that the greenhouse and nursery industry in Florida was a $1.6 billion business, almost half-a-billion dollars larger than oranges and grapefruit. Remember, however, that the broad view of horticultural production typically involves five distinct growing areas, not all of which, of course, are

considered in the greenhouse and nursery category. They are listed here simply to give a complete definition:

Slides 28-29

- floriculture (the production and marketing of floral crops),
- landscape horticulture (the production, marketing *and* maintenance of landscape plants),
- olericulture (the production and marketing of vegetables),
- pomology (the production and marketing of fruits) and
- post-harvest physiology, maintaining quality and preventing the spoilage of horticultural crops.

With greenhouse and nursery sales of more than $1.6 billion annually and somewhere upwards of 55,000 people employed in the sector, Florida is the nation's second-leading horticulture state. The Sunshine State is the nation's leader in sales of cut cultivated greens (among 36 states recently surveyed). Florida growers also produce 97 percent of the nation's cut ferns (used nationwide in floral arrangements), valued at $46 million; 68 percent of the cultivated cut greens, valued at $31 million; and 34 percent of the hanging baskets, valued at $27 million.

Consequently, Florida's horticulture industry generates a powerful economic force. Cash receipts from the greenhouse and nursery sector rank first in Florida and second nationally.

Obviously, the size of this category depends upon its definition, but however it is defined, it is subject to its own special brand of problems – introduced exotic, non-native plants and insects. The pathogen for sudden oak death or SOD, for instance, is a fungus-like organism named *Phytophthora ramorum* and SOD is often referred to as "ramorum blight."

Slide 30

SOD has two "syndromes" or manifestations, a bark canker, which is lethal to many trees, and a leaf-and-twig blight, which may be very subtle, very common-looking until a nursery plant begins to collapse and die. The leaf-and-twig blight is not always lethal, but is always detrimental to the health of a plant and renders it susceptible to death from secondary infections.

Established now in Europe, the ramorum fungus probably arrived in the US on infected rhododendron from Asia. Today, it is thoroughly entrenched in California and is found sporadically in Oregon, Washington and British Columbia. It was found in Florida in the spring of 2004 and in 2006.

The culprit has been infected *camellia japonica* shipped to nurseries in Florida and 38 other states from Monrovia Growers in Azusa, California. Specialty Plants, a California mail-order nursery, also

distributed infected bonsai camellias that originated with Monrovia. The disease was subsequently verified in 176 nurseries in 22 states.

SOD has been found in six north Florida nurseries. All had received plants from Monrovia. In one of these nurseries, neighboring camellia not originating from Monrovia but mingled with Monrovia stock became infected.

Other than *camellia japonica*, no other hosts have been found to carry P*. ramorum* in Florida, but in 2005, Monrovia again distributed affected plants, this time shipping infected *kalmia* to Georgia.

On infected camellia, leaf tips turn dark brown and the edges of the browned area appear indistinct. Brown spots dot the leaf. Lesions form and may progress down the petiole to the stem. Once on the stem, rapid bark peeling and plant death follow shortly.

Citrus

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Citrus – oranges, grapefruit, tangerines, tangelos – is a $1 ¼ billion industry in Florida. In overall size, Florida produces at least three-quarters of all the citrus products grown in the United States and is second only to Brazil in supplying the world. Our 100 million trees on 750,000 acres produce 14 percent of the world's oranges and about 30 percent of the world's grapefruit.

So, what happens to the billions of oranges grown in the Sunshine State? Although your grandfather was fond of peeling an orange in one continuous stroke without losing a drop of juice, today, ninety-five percent of those oranges are processed into orange juice. In 2003-04 this amounted to 1.5 billion gallons.

Fifty years ago, frozen orange juice was a flavorless commercial flop. The only orange juice available then was either squeezed from fresh oranges, occasionally at roadside stands that sold "All You Can Drink Just 10¢," or it was mixed from a relatively tasteless concentrate, or poured from a can – and it tasted like a can. At the time, millions of Florida oranges were going to waste.

In 1946, Louis G. MacDowell, director of research for the Florida Citrus Commission, suggested that adding a little single-strength fresh juice, or "cut-back," to slightly over-concentrated orange juice might restore the flavor and aroma lost during vacuum evaporation. He took the idea to USDA researchers and it worked; the improved concentrate could also be easily frozen. Thus began the real success story of Florida orange juice.

Although oranges once grew as far north as the Georgia border and were heavily concentrated in Alachua and Marion Counties – Marjorie Kennan Rawlings wrote *The Yearling* and *Cross Creek* based on a way of life she learned on her small citrus grove near Gainesville – a series of early-season hard freezes drove most groves south of Orlando.

Slide 34

A variety of ills loom on the horizon for Florida citrus. Everyone is aware of continual battles with fruit flies, either of the Mediterranean or Mexican variety, but an even greater problem is the appearance of citrus greening or *huanglongbing* (literally "yellow dragon"). Known in China for a century, this disease is spread by a tiny insect called a citrus psyllid and may have come into Florida from Brazil where it has been documented spreading for 7-8 years, possibly due to poor propagation techniques.

Nevertheless, citrus greening is now documented in Florida. It begins as leaf mottling and yellowing of sectors of a tree and then a group of trees. It progresses to misshapen, mis-colored and bitter fruit. Obviously, this spreading disease – which at this time has no known antidote other than cutting entire groves where the psyllid is found – is a very serious threat to Florida's citrus industry.

Sugarcane

Originally from tropical Southeast Asia, sugarcane is a grass. The thick stalk stores energy as sucrose in the sap. From this juice, sugar is extracted by evaporating the water.

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Crystallized sugar was reported 2,500 years ago in India. Around the eighth century A.D., Arabs introduced sugar to the Mediterranean and cultivated it in Spain. It was among the early crops brought to the Americas by Spanish explorers and settlers.

Cultivation requires a tropical or subtropical climate, with a minimum of 24 inches of annual moisture. It is one of the most efficient photosynthesizers in the plant kingdom, able to convert up to two percent of incident solar energy to biomass. In prime growing regions, such as south Florida, sugarcane can produce 44 pounds for each square meter exposed to the sun.

Traditionally, sugarcane is processed in two stages. Mills extract raw sugar from freshly harvested sugarcane. Refineries then purify the raw sugar to produce white sugar, a product that is more than 99 percent pure sucrose.

- Florida grows 406,000 acres of sugarcane, which yields 35.2 tons per acre or a total of 14.3 million tons of cane.

- Six Florida sugar mills (five corporate and one grower cooperative) process 20,750 tons of cane each 24 hours. There are also two in-state refineries and four co-owned out-of-state refineries, which produce two million tons raw sugar/year.
- Florida produces half of all American cane sugar and is a net sugar exporter.
- Gross income is $850 million/year in sales of heavily subsidized raw sugar and molasses ($433 million value of production in 2005, sugar and seed).

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Although sugarcane has been a small-plot staple on farms throughout the southeast for several hundred years, it has specific requirements for ideal growth and those are primarily found in three South Florida counties: Palm Beach (310,000 acres), Glades (40,000 acres) and Hendry (35,000 acres).

After establishing the contribution of the raw sugar industry to the regional and state economies, Mulkey and Gordon (1979) made some important statements in the first economic impact study conducted by the Department of Food and Resource Economics at the University of Florida. More than 20 years later, those statements are still true:

"At present there are uncertainties regarding United States and international sugar policies. Potential changes in policy are likely to have important implications for the Florida sugar industry and for the economy of the four-county sugar producing area. Information on the contribution of the sugar industry to the regional economy is a necessary input into policy decisions which affect the sugar industry and, subsequently, the entire regional economy …. Any public policy then, which affects the size of the sugar industry, has important implications for total economic activity in the sugar-producing region, implications extending far beyond the sugar industry itself. These implications would seem to warrant serious considerations in the sugar policy arena."
(Source: Jose Alvarez and Leo Polopolus, UF IFAS "The Florida Sugar Industry" http://edis.ifas.ufl.edu/SC042 quoting Mulkey, D., and J. Gordon. (1979). The economic importance of the sugar industry in south Florida. Staff Paper SP-117, Department of Food and Resource Economics, University of Florida, Gainesville, FL)

Slide 39

There are five identifiable difficulties in south Florida's sugarcane fields:

1. continuation of government price and production supports at present levels is a hotly if occasionally debated topic as the majority of Florida's sugar industry is highly centralized in a relatively few families.

2. continuing unconscionable exploitation at very low wages in terrible working and living conditions of Caribbean migrant workers.
3. political instability looming in Cuba and the possible end of European Union price supports for sugar from the Caribbean area in 2009.
4. debate about the evidence of wide-scale Everglades pollution and
5. a rapid dietary shift in the developed world toward low calorie artificial sugars.

Tomatoes – Representing Florida's Vegetable Crops

Florida's 43,000 farms produce $1 ¼ billion of fresh produce. This makes Florida the #2 state in the nation in this edible category, actually leading national production in snap beans (50 percent), bell peppers and tomatoes (38 percent each), cucumbers (24 percent) and squash (17 percent). The majority of this bounty is consumed in state, but about $150 million is exported.

The tomato – known in the 19th century as a "love apple" – is an excellent example of Florida's agricultural strength and diversity:

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- Florida is first nationally in the acreage, production and value of fresh market tomatoes. This ranking has remained unchanged since the early 1980s.
- In 2004, Florida harvested 33 percent of the national fresh market tomato acreage, produced 42 percent of the tomatoes, and earned 37 percent of the cash receipts for this crop.
- In 2004, Florida produced approximately 1.5 billion pounds of fresh market tomatoes on more than 42,000 acres, valued at over $500 million, equating to an average price of $0.33 per pound.
- Fresh market tomatoes comprised approximately 40 percent of Florida fresh market vegetable cash receipts in 2004.
- Florida tomatoes account for most of the US-grown tomatoes eaten by Americans during the late fall and winter.
- Pests account for nearly a 25 percent loss in fresh market tomatoes (9,056 pounds/acre), equating to $3,382/acre in losses.
- Total production cost for an acre of fresh market tomatoes is approximately $6-$7,000, with nearly 25 percent of costs related to pest management.

Slides 42-44

Although tomatoes are grown in practically every garden in every county in Florida, commercial production is centered in the southern portion of the state – with a surprisingly substantial pocket northwest of Tallahassee. Otherwise, field and vegetable crops from peanuts to soybeans to lettuce are scattered throughout the state.

As far as difficulties in the vegetable fields are concerned, the typical diseases such as various rusts, spots, wilt's and blights are combated

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annually, but there are a whole batch of introduced exotic diseases and insects for each species that must be avoided and, if introduced, dealt with immediately. One such new-to-the-US crop disease is a destructive "soybean rust," and the case is instructive.

In 2004, Hurricane Ivan is believed to have blown the spores for soybean rust from Venezuela into the southeastern United States. Today, this rust has spread throughout the southeast and is found in Florida. It is believed to be adaptable to other plant species and unfortunately, one of those is the wide-spread (and intentionally introduced) kudzu vine.

PART 4: THREE SPECIALTY CROPS

Time: 10 minutes

Focus: To illustrate the rich diversity of Florida's agricultural potential

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Florida growers bring a rich diversity of products to market. From an old and traditional crop such as tobacco to a century-old business such as fern growing and a relatively new set of crops such as carambola fruit and avocados, the Sunshine State is capable of producing an immense variety of commercial plants.

Ferns

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According to the Florida Department of Agriculture and Consumer Services, Florida's cut foliage industry began in the early 1900s when growers of fern asparagus shipped iced fern sprays by train to florists in the northeast. By the 1920s, a fern growers' association was organized and the City of Apopka adopted the slogan, "The Fern City." Growers sold millions of ferns to dime-store chains, which soon asked for other plants to sell, thus launching the foliage industry.

By the middle of the 20th century, there were 2,072 acres of cut foliage production in Florida, 65 percent in Volusia County, followed by Putnam and Lake. Fern asparagus was the dominant crop then, but during the next 25 years dramatic changes took place in the industry. By the early '80s, production acreage had increased 61 percent to 3,339 acres, with more than 90 percent of the acreage devoted to leatherleaf fern. Although the acres of cut foliage increased, the number of producers declined (or "consolidated") by 42 percent, from 400 growers in 1956 to 233 in 1981.

The shipping and marketing of cut foliage changed during the late 1900s. Trucks replaced trains for primary transportation and the

development of sea containers and airfreight enabled Florida growers to expand their market into Europe and even as far away as Japan.

In 2002, there were 224 producers of leatherleaf ferns and other cut greens in Florida, with sales totaling $86.3 million. Florida continues as the national leader in sales of cut cultivated greens, producing nearly 78 percent of the value of all cut greens sold in 36 states surveyed for a recent state report.

Tobacco

Slides 49-50

Today, one cannot mention tobacco without engaging in controversy. Still, it has grown in the Americas in its present form for about 8,000 years and people have used it – smoking and chewing – for its drug effect for at least 2,000 years. Columbus' sailors found Arawak and Taino Indians smoking tobacco, took up the habit themselves and thus began the worldwide spread. When Spaniards and Frenchmen explored Florida following Juan Ponce de Leon's 1513 visit, they found that the native Timucuan Indians smoked long clay pipes filled with tobacco.

Growing "the leaf," is tremendously labor- and chemical-intensive (insecticides, herbicides and sucker controls) and it was formerly tightly controlled through a federally administered allotment system. Actually, growing it was not so rigidly controlled as was its marketing through a system of auction houses.

Tobacco in the 21st century is a $20 million farm business in Florida, but flue-cured (maturing from the bottom up, leaves are picked, strung on sticks and hung in special, heated barns to cure and dry) tobacco, which primarily grew tobacco for cigarettes, is declining. It was formerly substantially larger in acreage, gross pounds produced and gross revenues. America's national indecision about the future, purpose and ethical issues surrounding tobacco – growing it, marketing it and using it – have caused domestic growing and consumption to plummet during the past decade.

A cluster of counties surrounding the Suwannee River now share Florida's tobacco production although from time to time, a minor amount of a specific variety of shade-tobacco (literally grown in the shade beneath black nylon netting) was grown in Madison County.

Avocados

Spanish explorers named the avocado. Unable to pronounce the Aztec work for the fruit, know as *ahuacatl*, or "testicle," because of its shape,

Slides 51-52

the Spanish called the plant *aguacate*. Eventually, by an odd twist of linguistic fate, that led to guacamole!

Rich and tasty, avocados grow everywhere in south Florida. Hundreds of thousands of residents have tall avocado trees in their yards. Curiously, avocado fruit must be picked before they begin to decompose, as they will not soften on the tree. Thus, the tree can be used as a storage unit by keeping the fruit available and hanging readily at hand for several months after it technically becomes mature.

Florida's 737 commercial growers ring up sales of $15 million by producing more than 200,000 tons of avocados on 6,600 acres of trees. More than 95 percent of commercial avocado production is located in southwest Dade County. Florida has about 6 percent of the world market, locally significant but far behind world-leader Mexico, which sells 33 percent of the world supply. Almost all of Florida's avocados are consumed domestically.

This wraps up our review of Florida's plant industry. Now, let's take a look at some resources that are readily available and may be of interest and use in the future.

PART 6: KEY RESOURCES

Time: 5 minutes

Focus: Identify key resources participants can easily access for additional information

Slides 53-55

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.

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, National Agricultural Statistics Service www.nass.usda.gov/

USDA, Animal and Plant Health Inspection Service, National Center for Import and Export www.aphis.usda.gov/vs/ncie/

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
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

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

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

PART 7: SUMMARY, DISCUSSION & WRAP-UP

Time: 5-10 minutes

Focus: Review the learning objectives and encourage a commitment to SART

You and your audience have had a stimulating and practical 50 minutes, but it is almost over. Prior to answering any audience questions or comments, provide a summary to the participants of what they just learned:

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

Slide 56-57

Thank the audience for their attention and participation. Congratulate them for their commitment to the SART endeavor and on their desire to understand the plant industry in Florida and some of the potential threats to that industry, our economy and way of life.

At this point, you may elect to have the participants take the Post-Test and work the small crossword puzzle provided in the Resources section of this manual. Remember to review the answers to the test questions after all participants complete the test.

A content-specific Evaluation is provided in the Resources section of the manual, but the generic Evaluation available in the *Toolkit for Planning a Community-Based SART Training Event* can be utilized as well. As the presenter, you should decide which evaluation best meets the needs of your situation. Please have participants complete an evaluation at the conclusion of this module. Encourage them to be as honest and forthright as possible as it helps you, the presenter, make adjustments as necessary for future presentations, which in turn benefits future participants.

PARTICIPANT EVALUATION

Introducing Florida's Plant Industry

Please circle the number that best expresses your opinions about the following statements.

		Fully Disagree	Disagree	Neutral	Agree	Fully Agree
1.	The training module's format was appropriate.	1	2	3	4	5
2.	The information presented is useful to me.	1	2	3	4	5
3.	The time it took to complete this module was acceptable.	1	2	3	4	5
4.	I have a good basic understanding of the complexity of the plant sector of Florida's agricultural industry.	1	2	3	4	5
5.	The fact that Florida's unique climate makes it ideal for growing a variety of products was well-presented.	1	2	3	4	5
6.	I can name the five top agricultural sectors or plant products that Florida growers produce.	1	2	3	4	5
7.	I understand the diversity of Florida's agricultural economy and can name some of the top producing counties … and their products.	1	2	3	4	5
8.	Some of the difficulties and issues facing Florida agriculture were honestly and openly discussed.	1	2	3	4	5
9.	Available up-to-date resources were clearly outlined.	1	2	3	4	5

We welcome your comments about this program:

Please use the back of this sheet for any further comments.

Thank you for your time!

PRE-TEST/POST-TEST

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?

Slides 58-60

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 _____.

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.

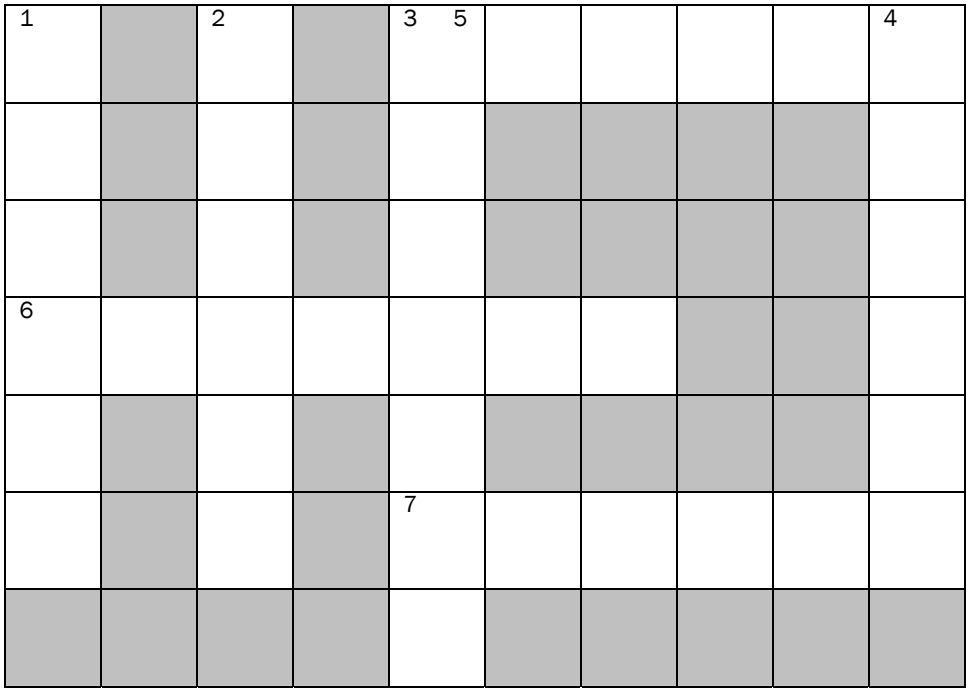
8. Which is the closest approximation to the number of people who "make a living" from agriculture in Florida?
A. less than 50,000
B. about one million
C. 7,155,248

9. Approximately what fraction of Florida is currently covered by managed timber and forest?

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!"

Florida Ag Fun
(fill in the blanks)



DOWN

1 - down: A blight in fields growing this vegetable brought millions of immigrants to the US in the middle of the 19th century.
2 - down: Its inside color depends on the species grown.
3 - down: For good or ill, this agricultural product is declining rapidly in Florida.
4 - down: Another green (fruit/vegetable?), except this one is not grown in Florida.

ACROSS

5 - across: In the 18th century it was called a "love apple."
6 - across: Is it a fruit or a vegetable? Hint: it is green and grown in Florida!
7 - across: What folks north of the Mason-Dixon Line wish they could grow.

TEST ANSWER KEY

Slides 61-63

1. Timber and forestry bring more dollars into Florida than any other individual plant-ag sector.

2. The top five plant agricultural sectors in Florida's economy are timber/forestry, nursery/greenhouse, citrus, sugarcane and tomatoes.

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

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.

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	

GLOSSARY

Horticulture: The science and art of growing fruit, flowers, ornamental plants and vegetables. Often used to refer to small gardens.

Slides 64-66

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.

PowerPoint Slides

Slides 1 – 6

Introducing Florida's Plant Industry

Prepared by

Rick Sapp, PhD

Florida Department of Agriculture and Consumer Services

Florida SART Technical Writer

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

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

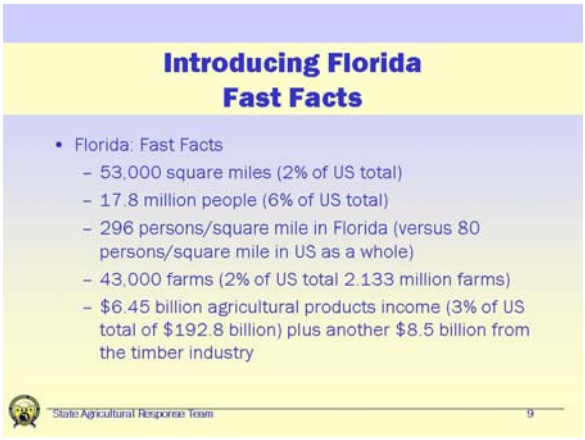
1. Name the leading sectors of Florida's plant industry
2. Identify areas of the state in which each plant industry is concentrated
3. Discuss some of the characteristics of Florida's plant industry
4. Describe some of the threats to the plant sector of Florida's agricultural economy
5. Identify key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

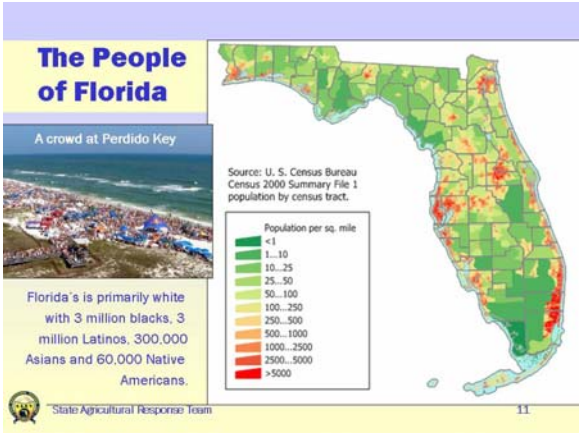
Florida SART

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

PowerPoint Slides

Slides 7 – 12



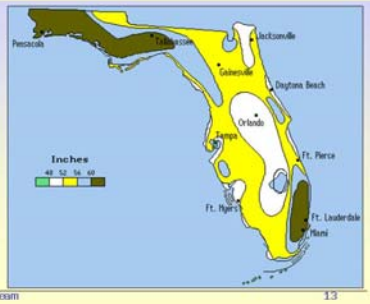


PowerPoint Slides

Slides 13 – 18

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.



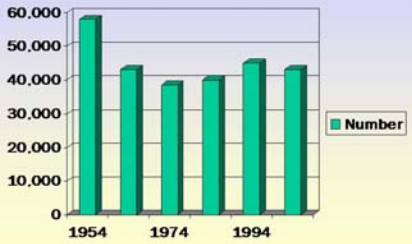
Florida Average Temperatures

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.

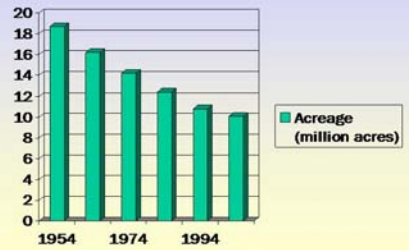
Number of Farms and Acreage

- 43,000 commercial farms (10.1 million of Florida's 35 million acres)

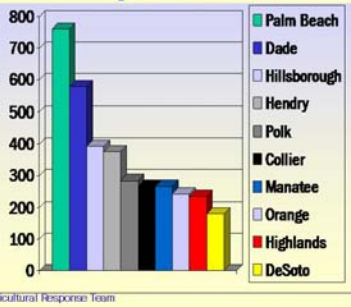
Farm Trends (Total Number of Farms)



Farm Trends (Total Acreage of Farms)

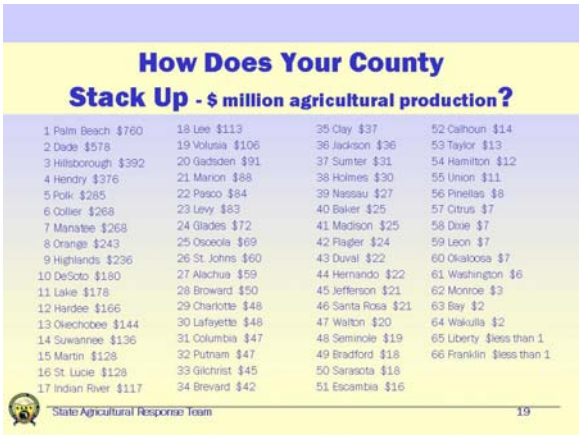


Total Agricultural Production Top 10 Counties



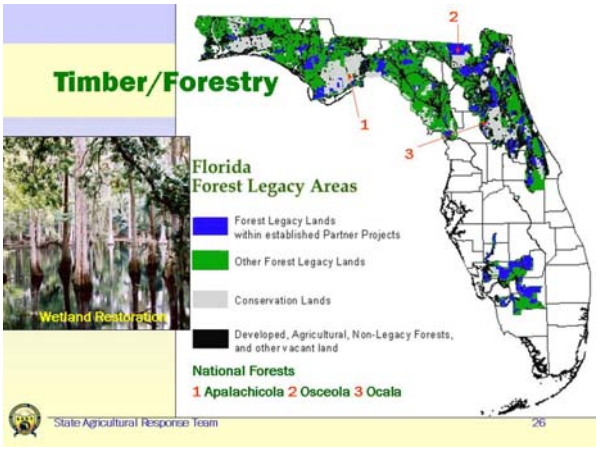
PowerPoint Slides

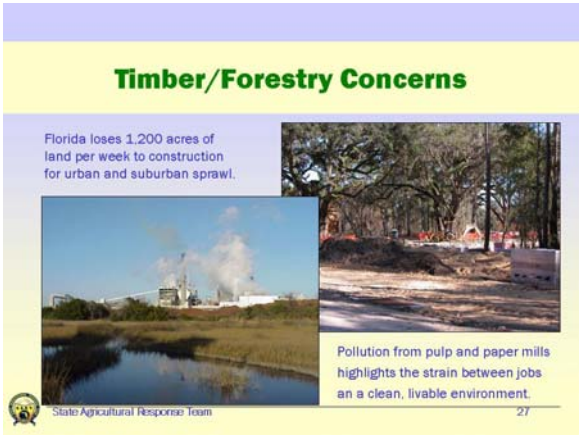
Slides 19 – 24

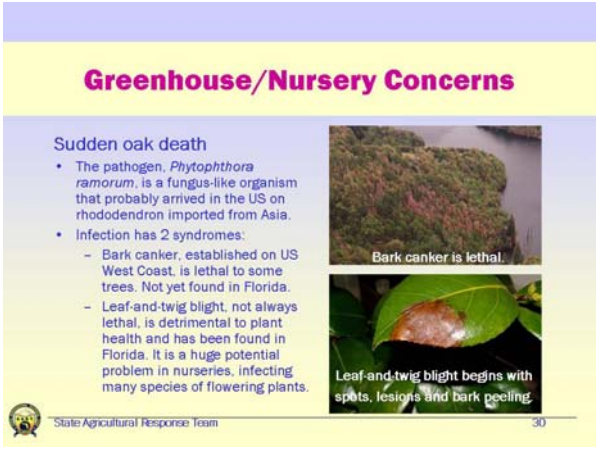


PowerPoint Slides

Slides 25 – 30

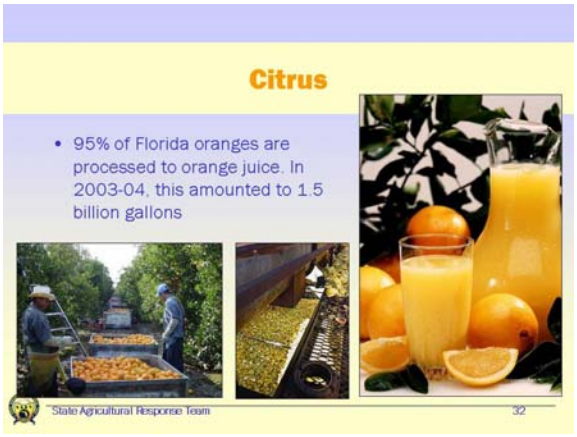


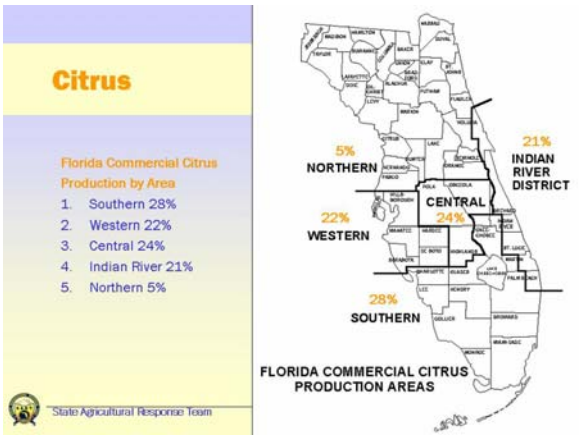


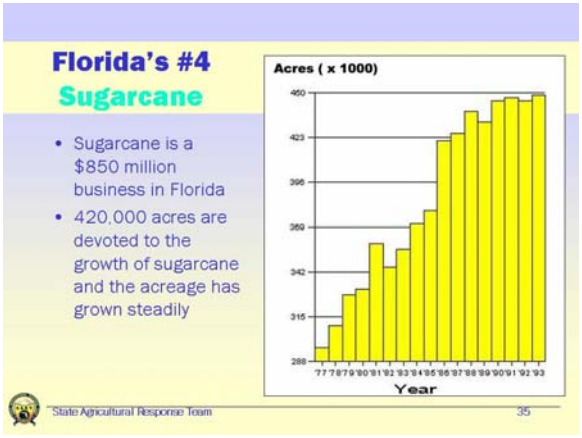


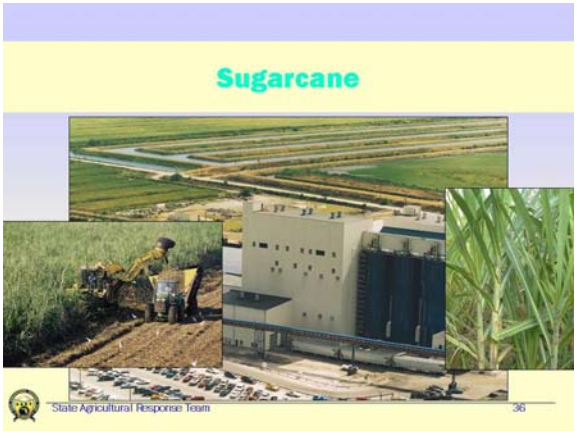
PowerPoint Slides

Slides 31 – 36









PowerPoint Slides

Slides 37 – 42

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

State Agricultural Response Team 38

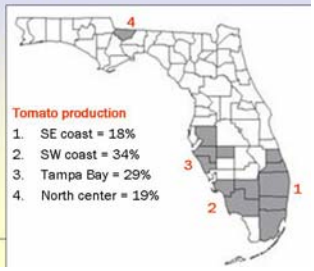
Sugarcane Concerns

- 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

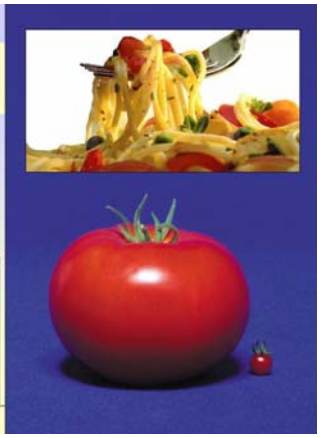
Florida's #5 Tomatoes

- 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



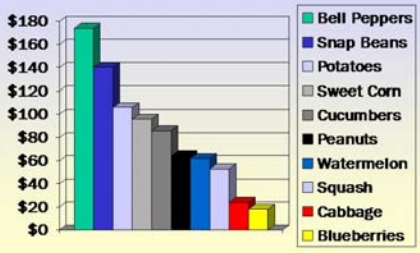
State Agricultural Response Team

Tomatoes



State Agricultural Response Team

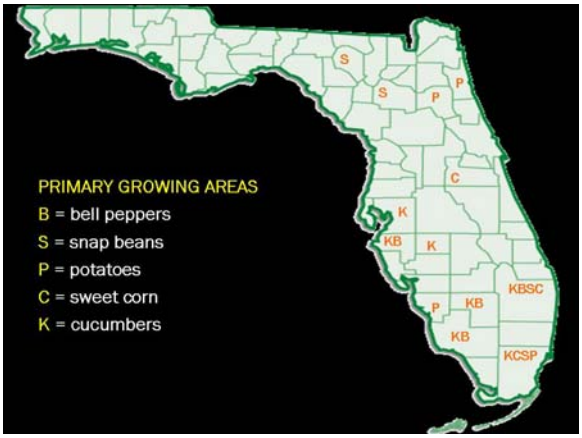
Other Field Crops and Vegetables (in millions)

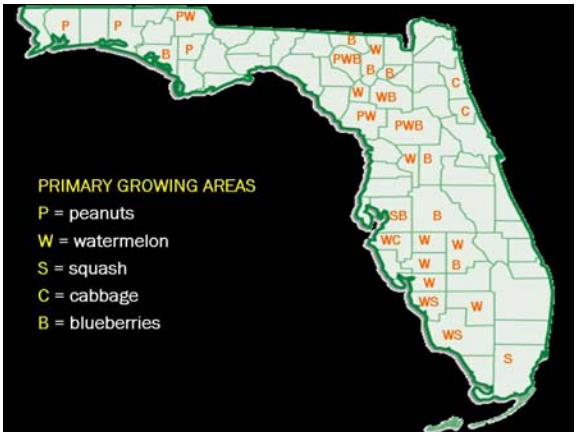


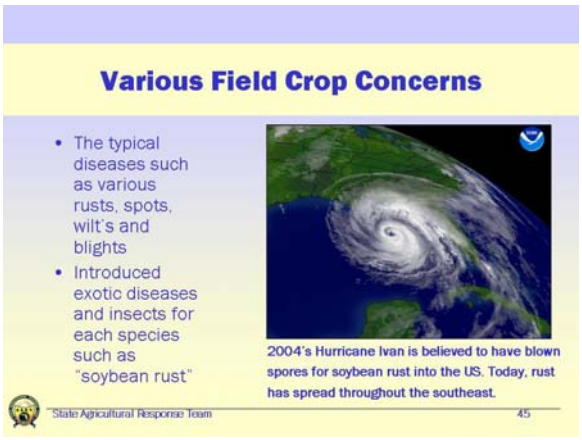
State Agricultural Response Team 42

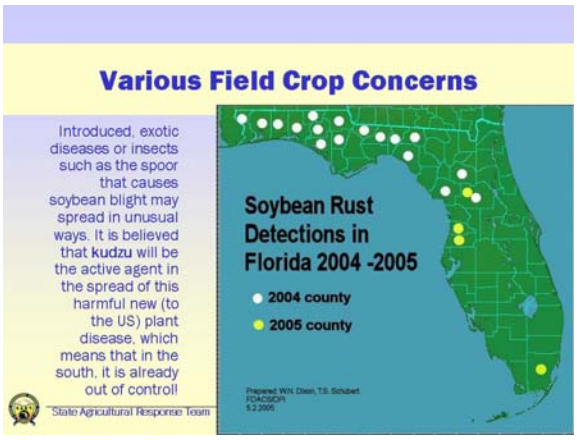
PowerPoint Slides

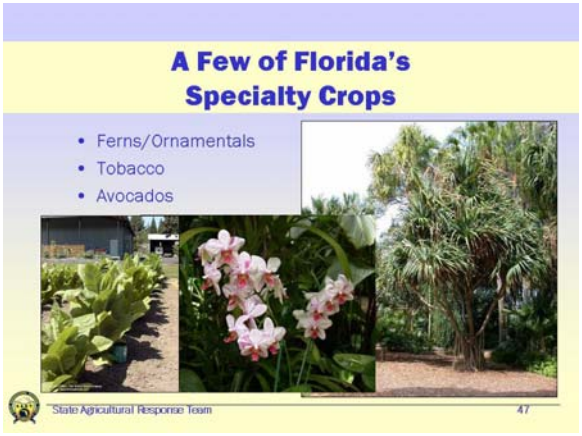
Slides 43 – 48

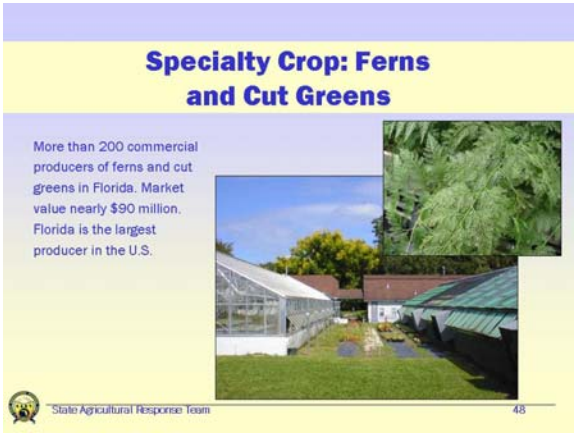












PowerPoint Slides

Slides 49 – 54

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)

State Agricultural Response Team 50

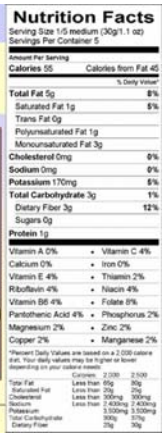
Specialty Crop: Avocados

- 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.

State Agricultural Response Team 51

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

State Agricultural Response Team 53

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

State Agricultural Response Team 54

PowerPoint Slides

Slides 55 – 60

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

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

Thank You!

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 _____?

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?

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!"

PowerPoint Slides

Slides 61 – 66

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

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.

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	

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 un-segmented, 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.

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

Introducing Florida's Plant Industry

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

PowerPoint Slides – Full Size

The *Introducing Florida's Plant Industry* PowerPoint slides are reproduced full-size on the following pages. You can use these pages as a display or photocopy them onto plastic overhead sheets for use with an overhead projector.

Color versions of these slides can be downloaded from the SART web site at:

www.flsart.org


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

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

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

Florida SART

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


Introducing Florida
eFlorida.net
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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!

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

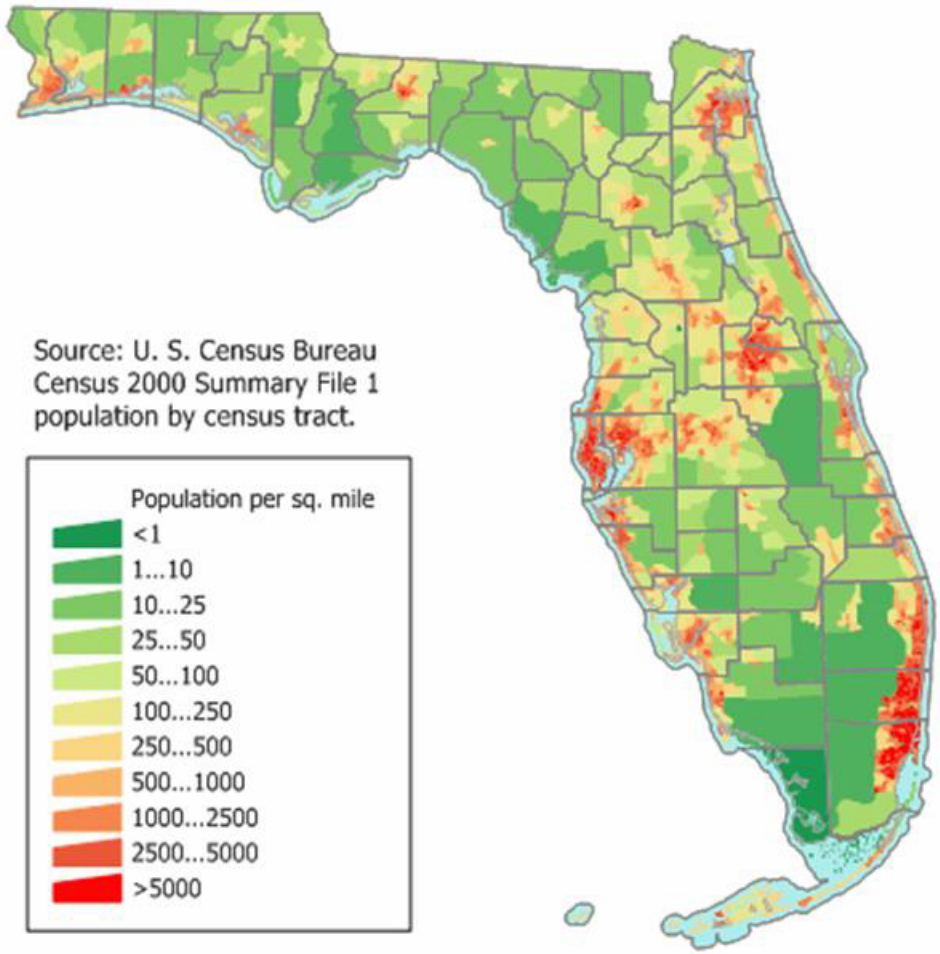
It's About People

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!

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.

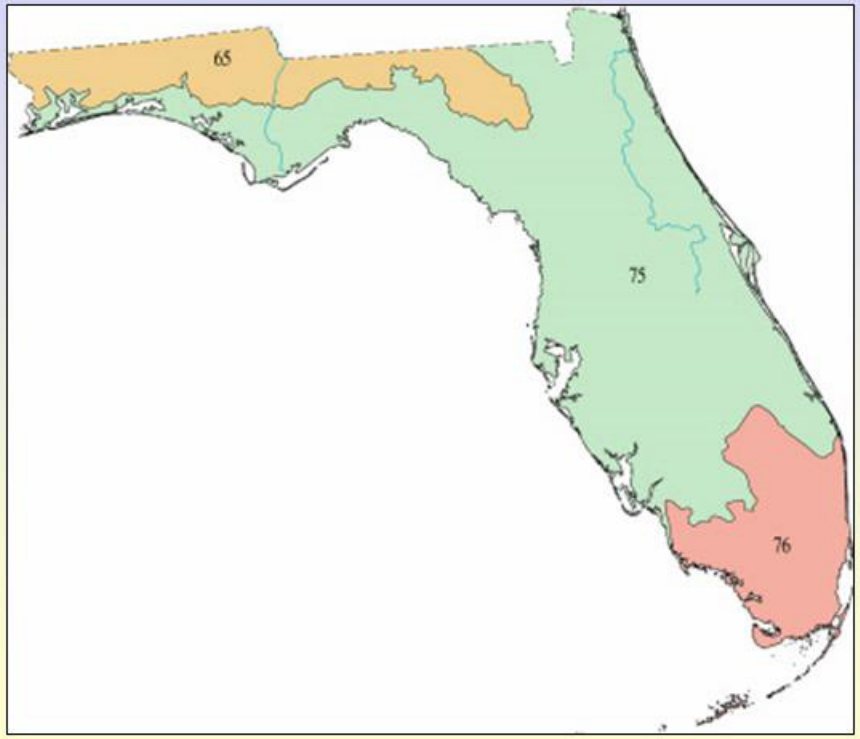


Florida Ecoregions

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

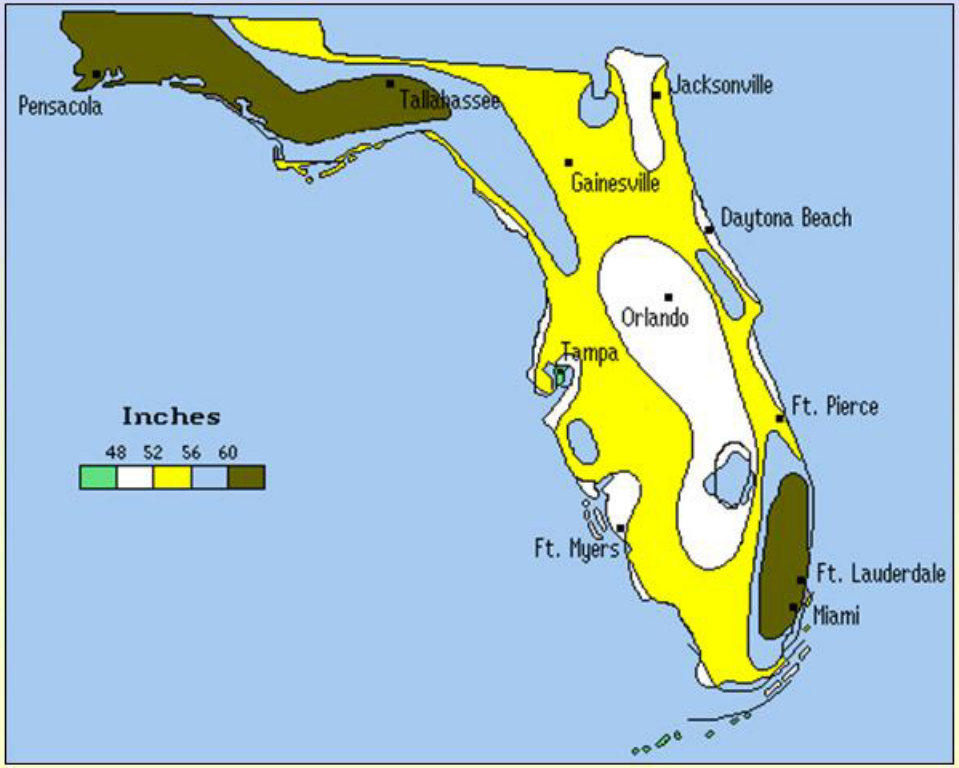
Zone 75: Southeastern Coastal Plain Flat plains with numerous swamps and lakes. Warmer with longer growing season and coarser soils.

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



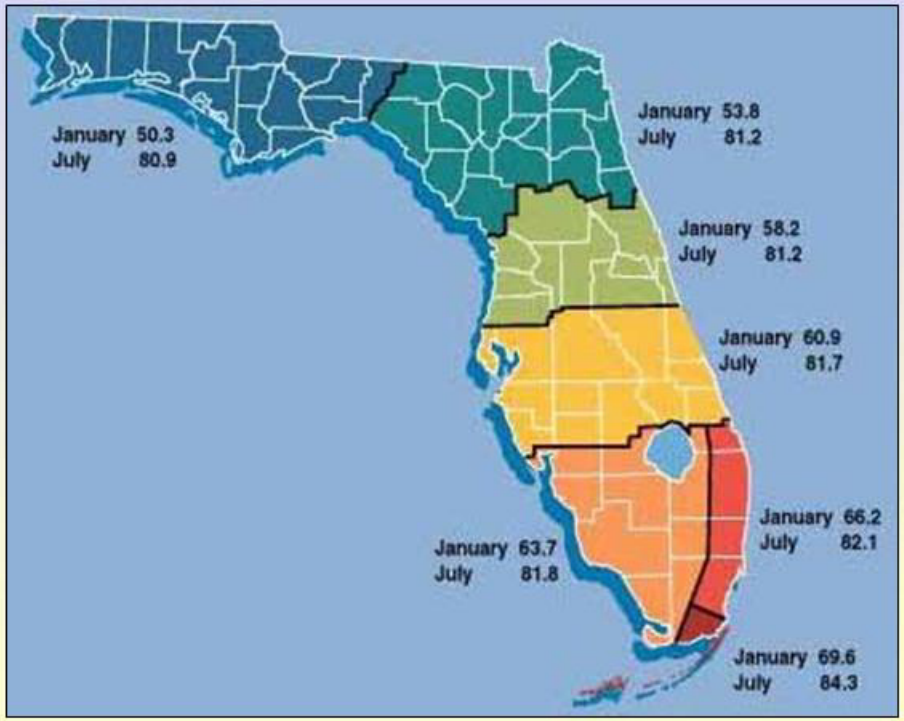
Florida Average Annual Rainfall

There are two general "wet periods" in Florida, late winter-early spring and summer. There is only one low point, the October/November period.



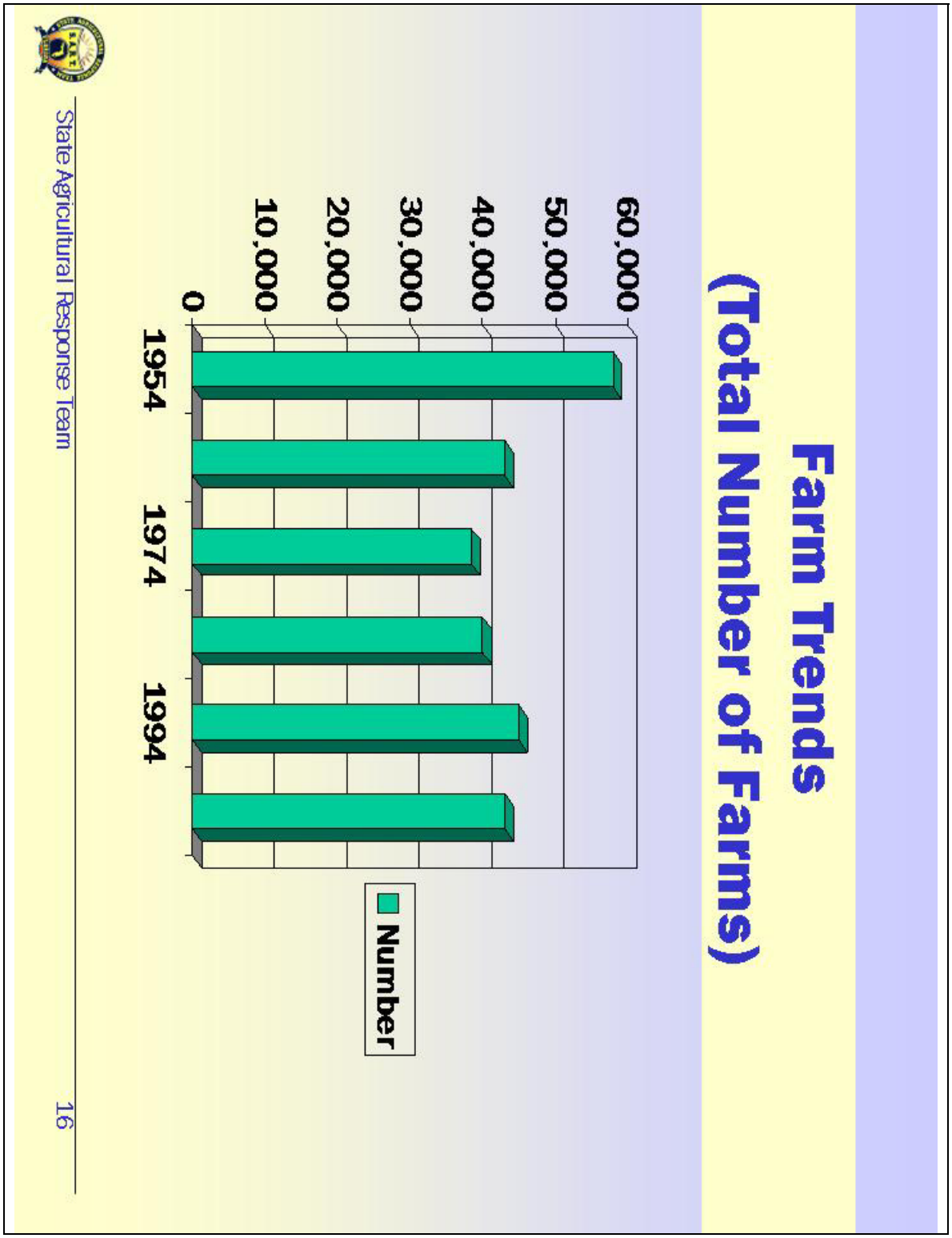
Florida Average Temperatures

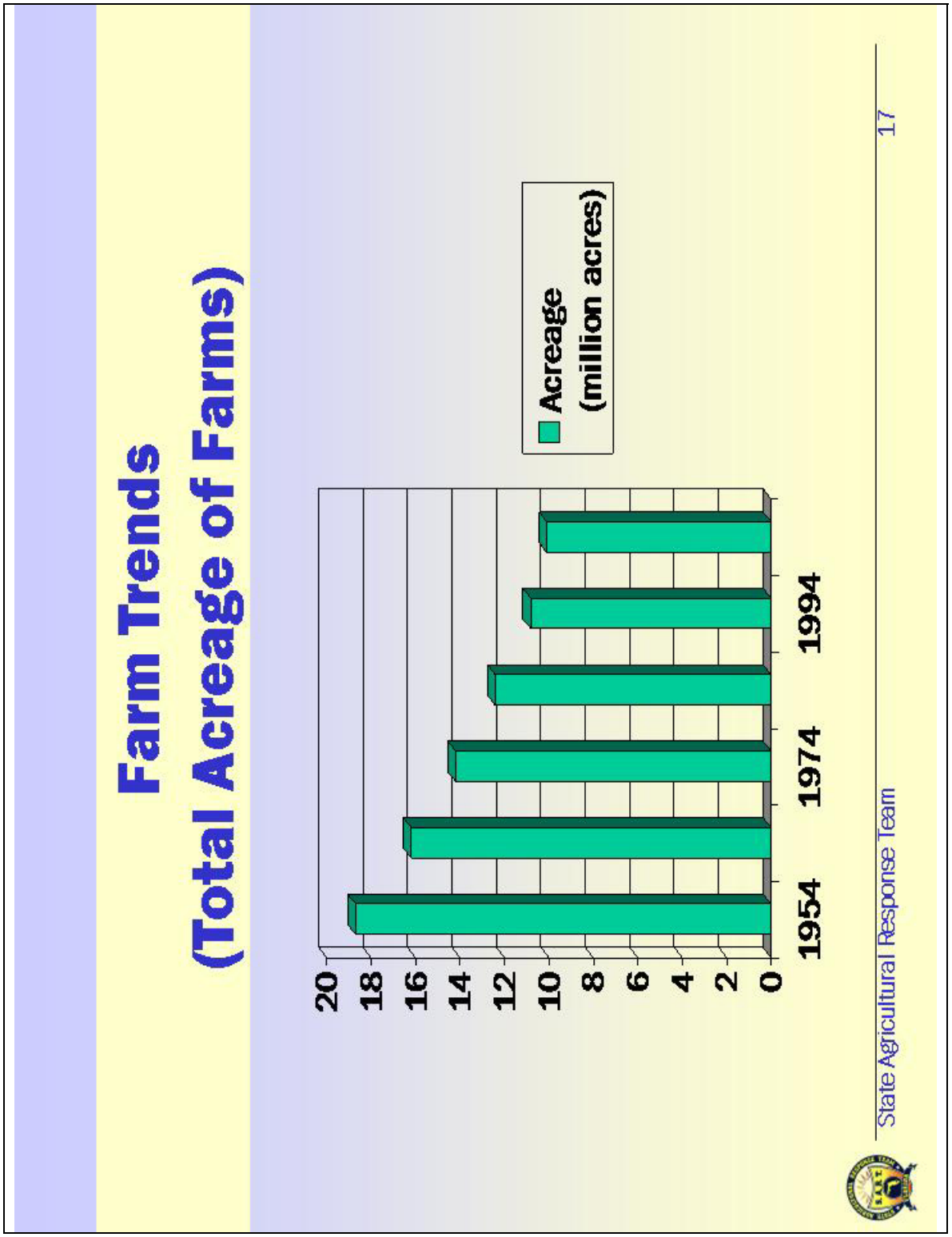
A particular day's weather cannot be predicted with certainty, but climate trends affect growing seasons, plant health and viability and practical agricultural decision-making.

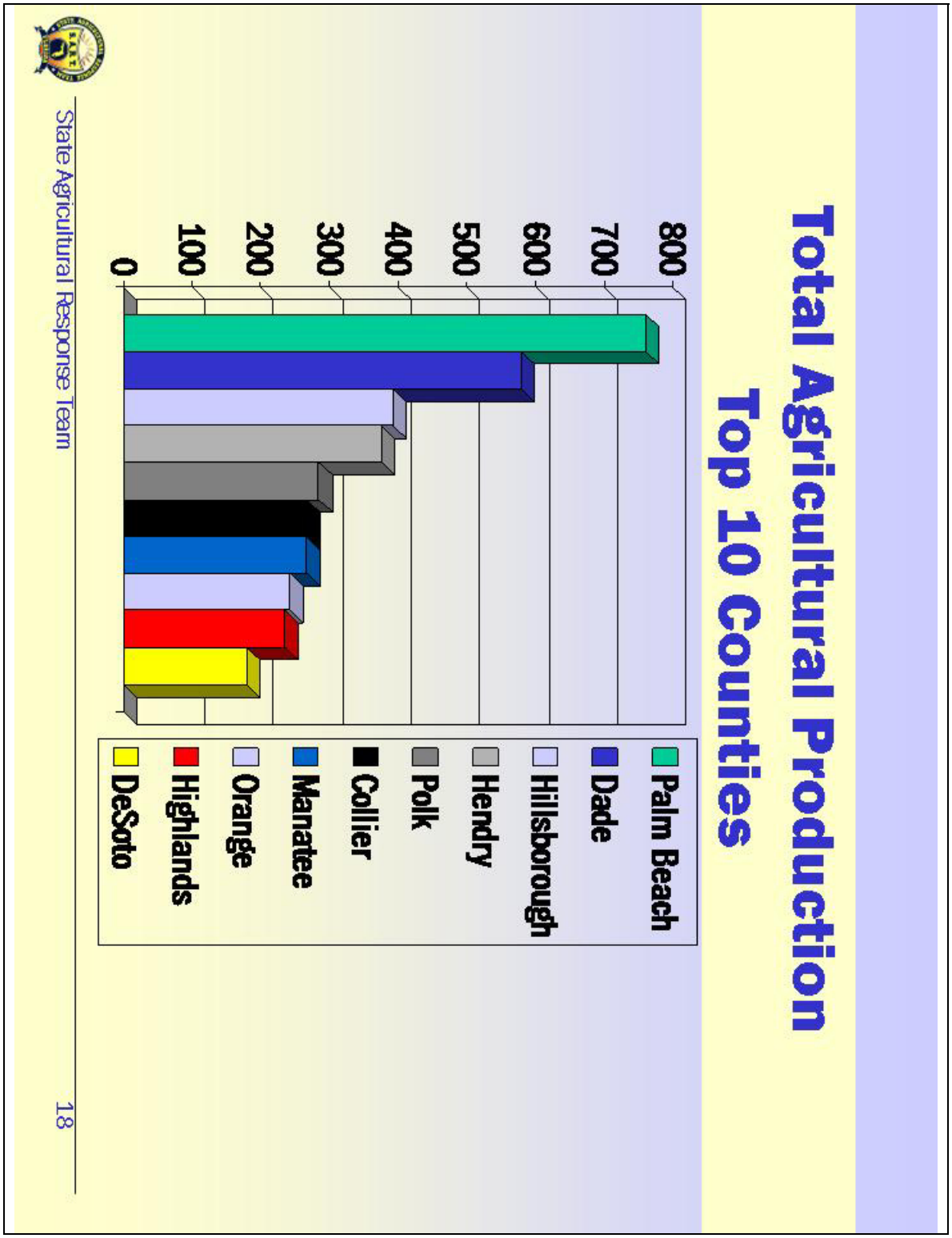


Number of Farms and Acreage

- 43,000 commercial farms (10.1 million of Florida's 35 million acres)


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)
Acreage
(million acres)
20
18
16
14
12
10
8
6
4
2
0
1954
1974
1994
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

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

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

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.

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

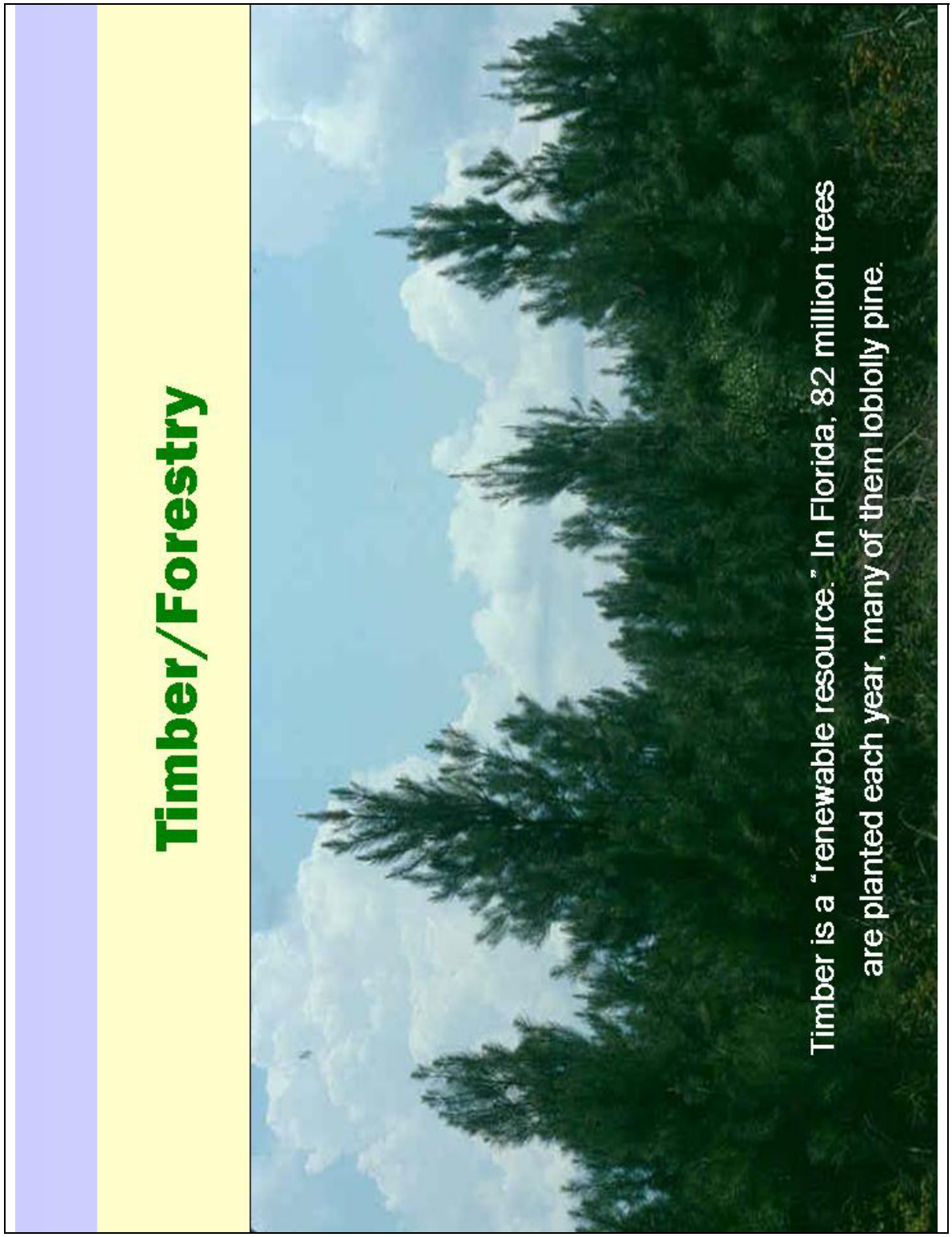
Florida's Troubling Trends

- 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

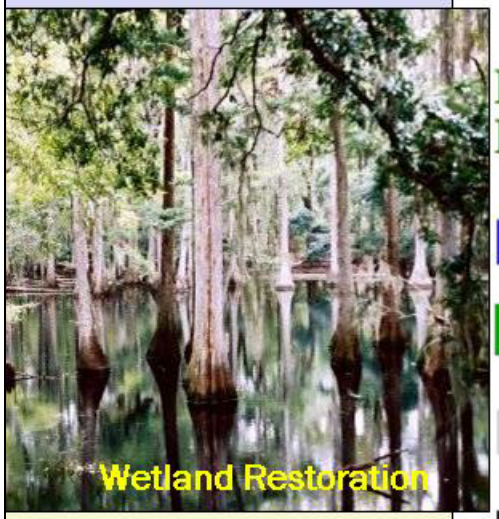

Greetings from Your
FLORIDA
FARMERS
From Our Home To Yours.
Florida Department of Agriculture and Consumer Services • Charles H. Bronson, Commissioner
Fresh from Florida

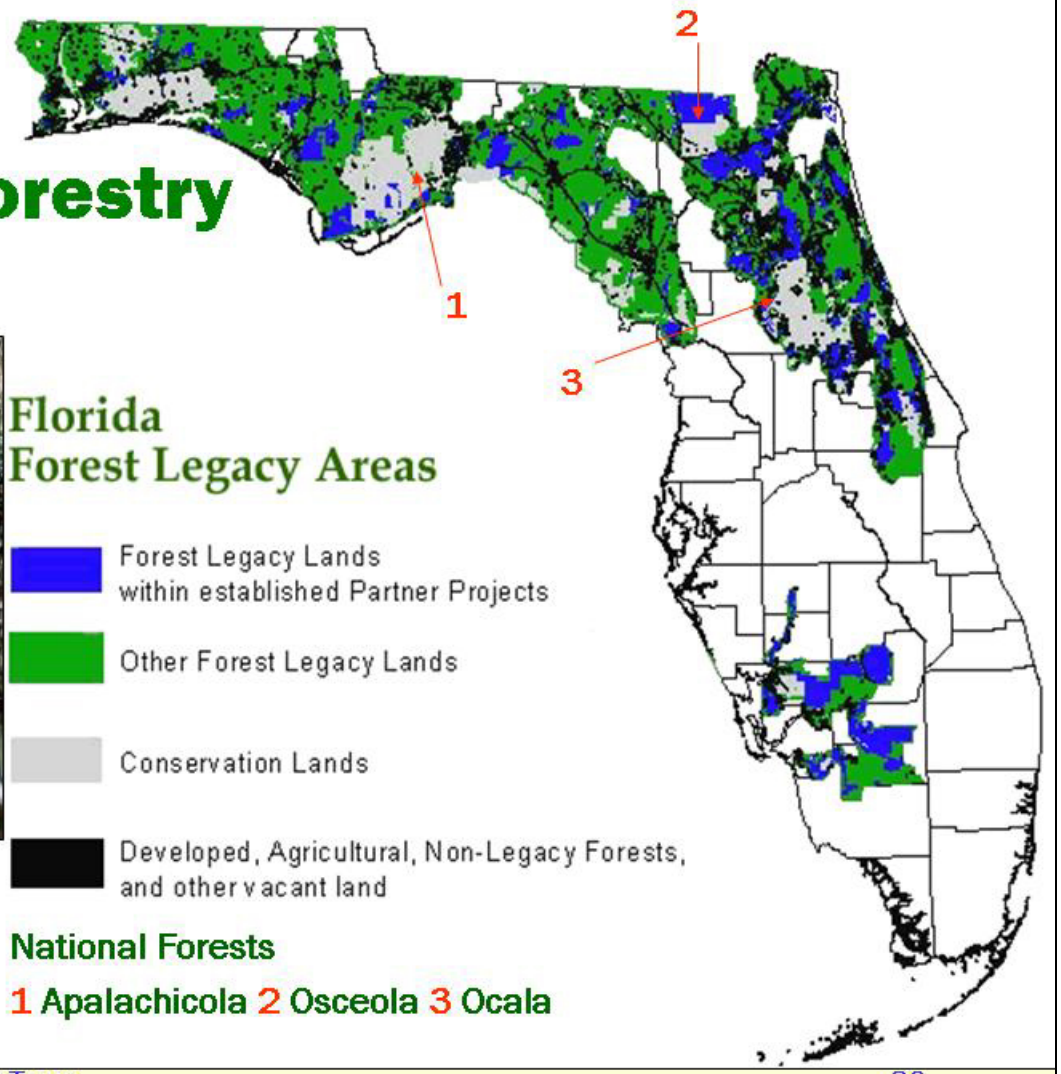
Florida's #1
Timber/Forestry

- 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


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

Timber/Forestry





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.

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.

Greenhouse/Nursery

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

Greenhouse/Nursery Concerns

Sudden oak death

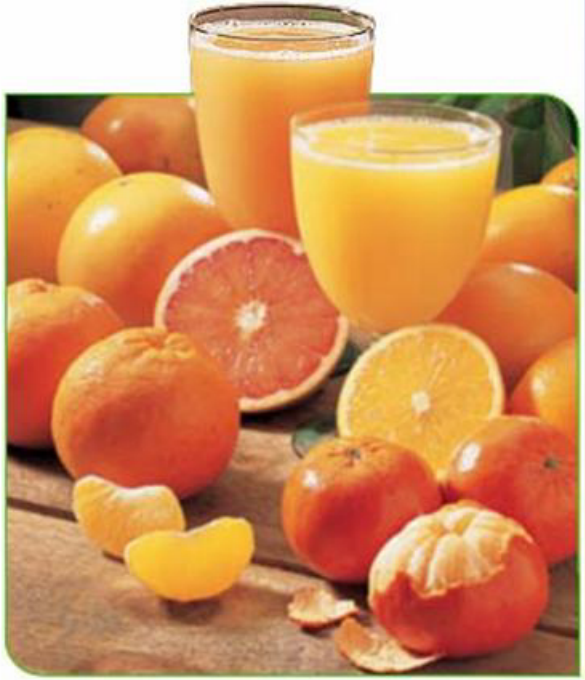
- The pathogen, *Phytophthora ramorum*, is a fungus-like organism that probably arrived in the US on rhododendron imported from Asia.
- Infection has 2 syndromes:
  - Bark canker, established on US West Coast, is lethal to some trees. Not yet found in Florida.
  - Leaf-and-twig blight, not always lethal, 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.

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



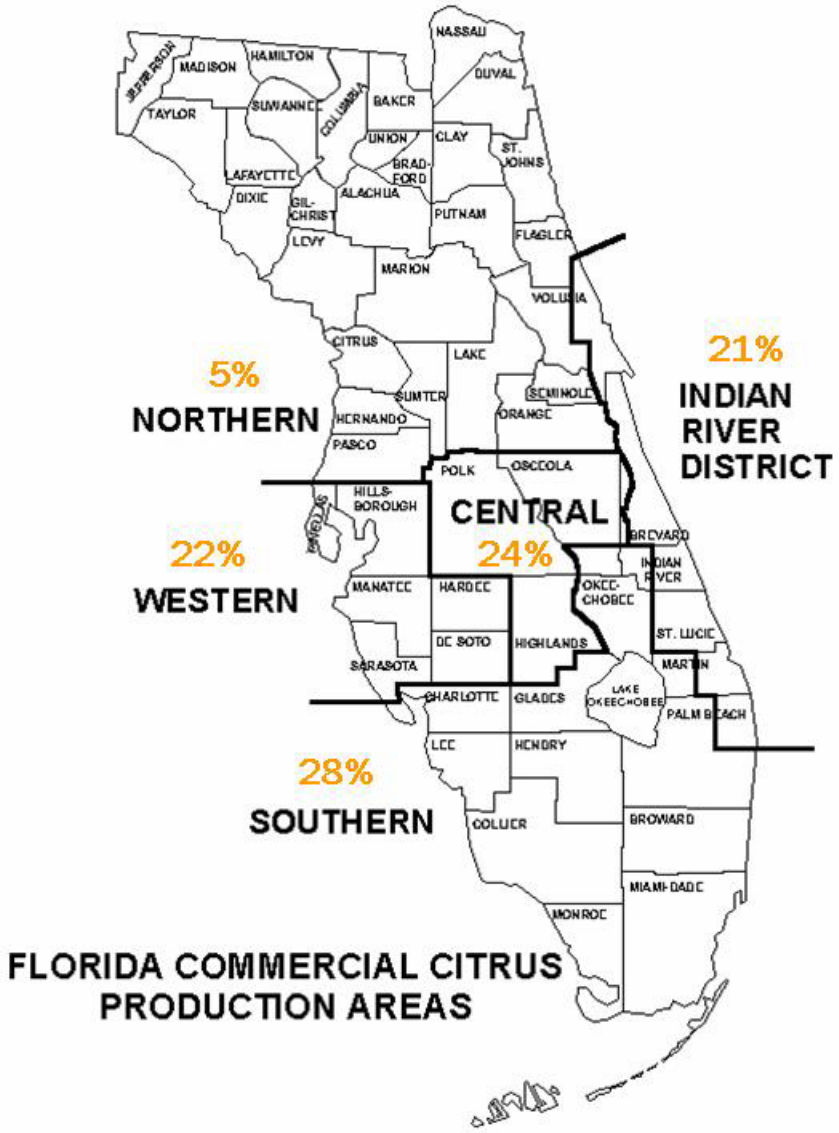
Citrus

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

Citrus

Florida Commercial Citrus Production by Area

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



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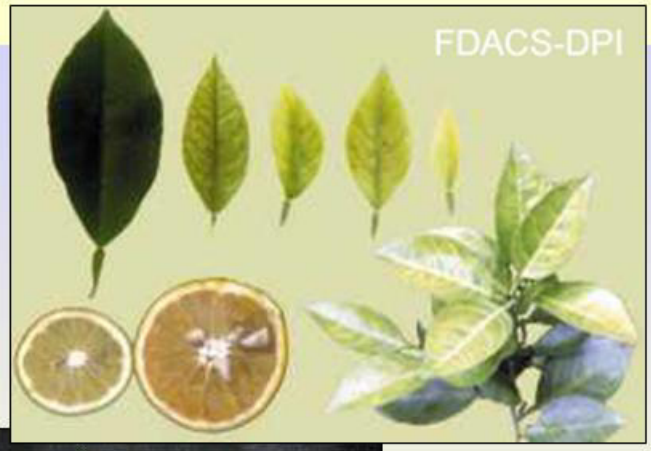
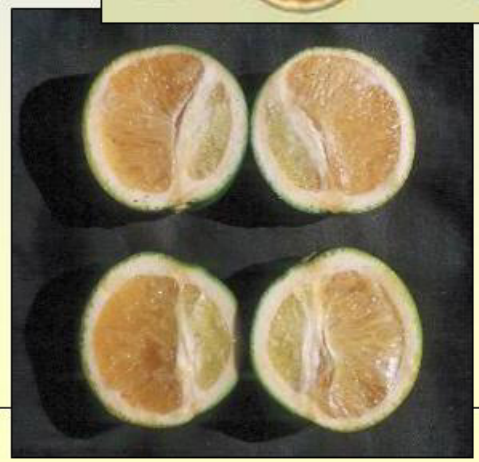
Citrus Concerns

Citrus greening
(huanglongbing)

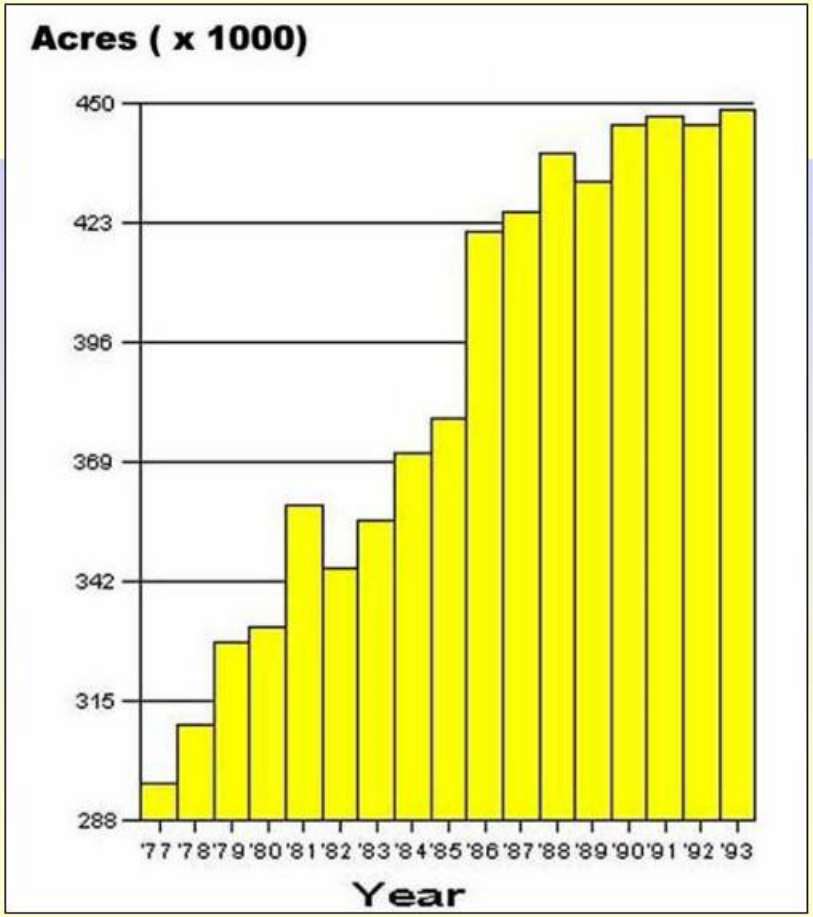
- Known in China for 100 years
- In Brazil for 7-8 years; widespread possibly due to propagation sloppiness
- Now documented in Florida
- Begins as leaf mottling and yellowing; progresses to misshapen, mis-colored and bitter fruit
- A very serious threat to Florida citrus industry





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




Sugarcane
State Agricultural Response Team
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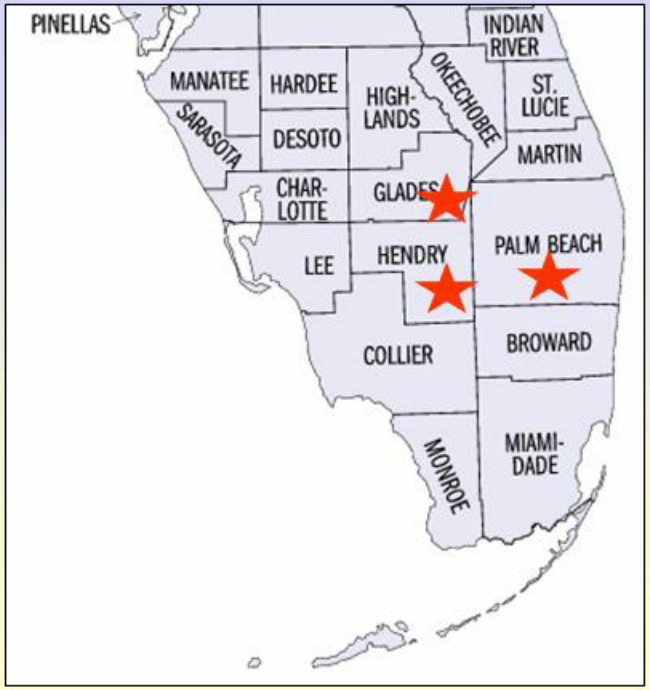
Sugarcane

- 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)

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

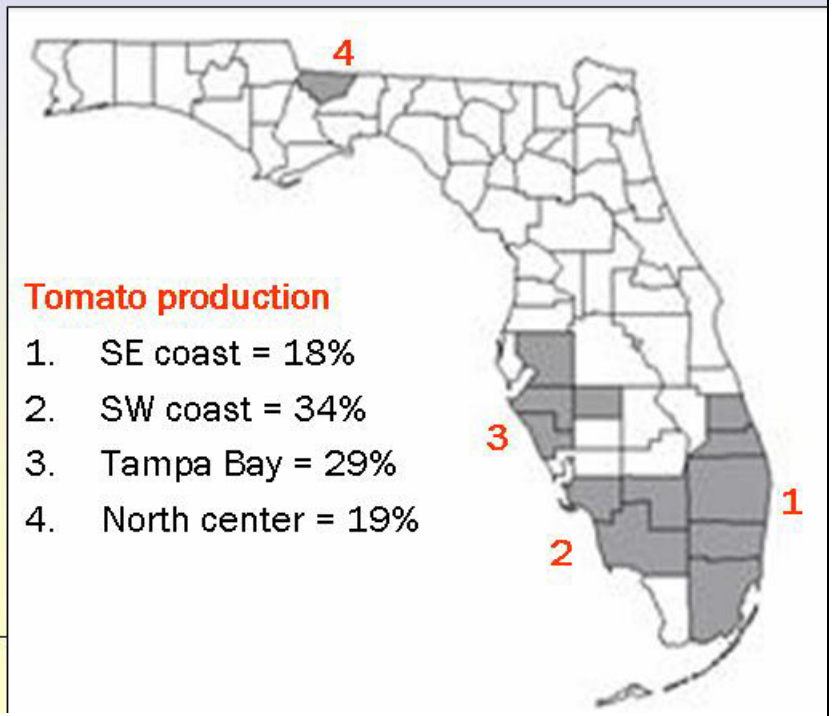


Sugarcane Concerns

- 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

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%

Tomatoes

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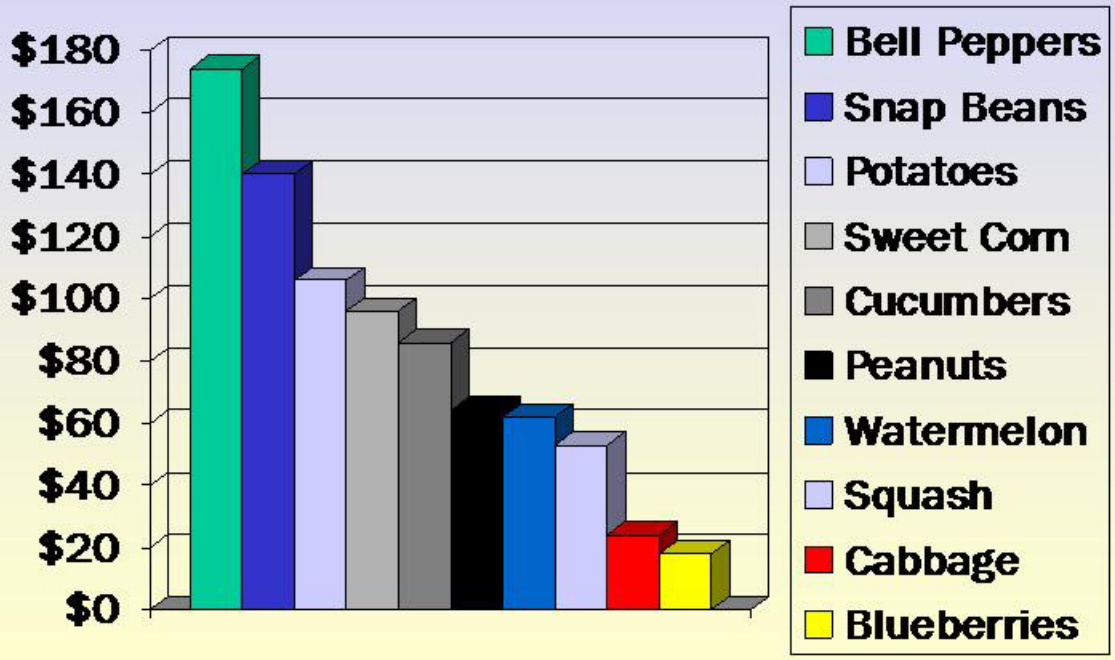
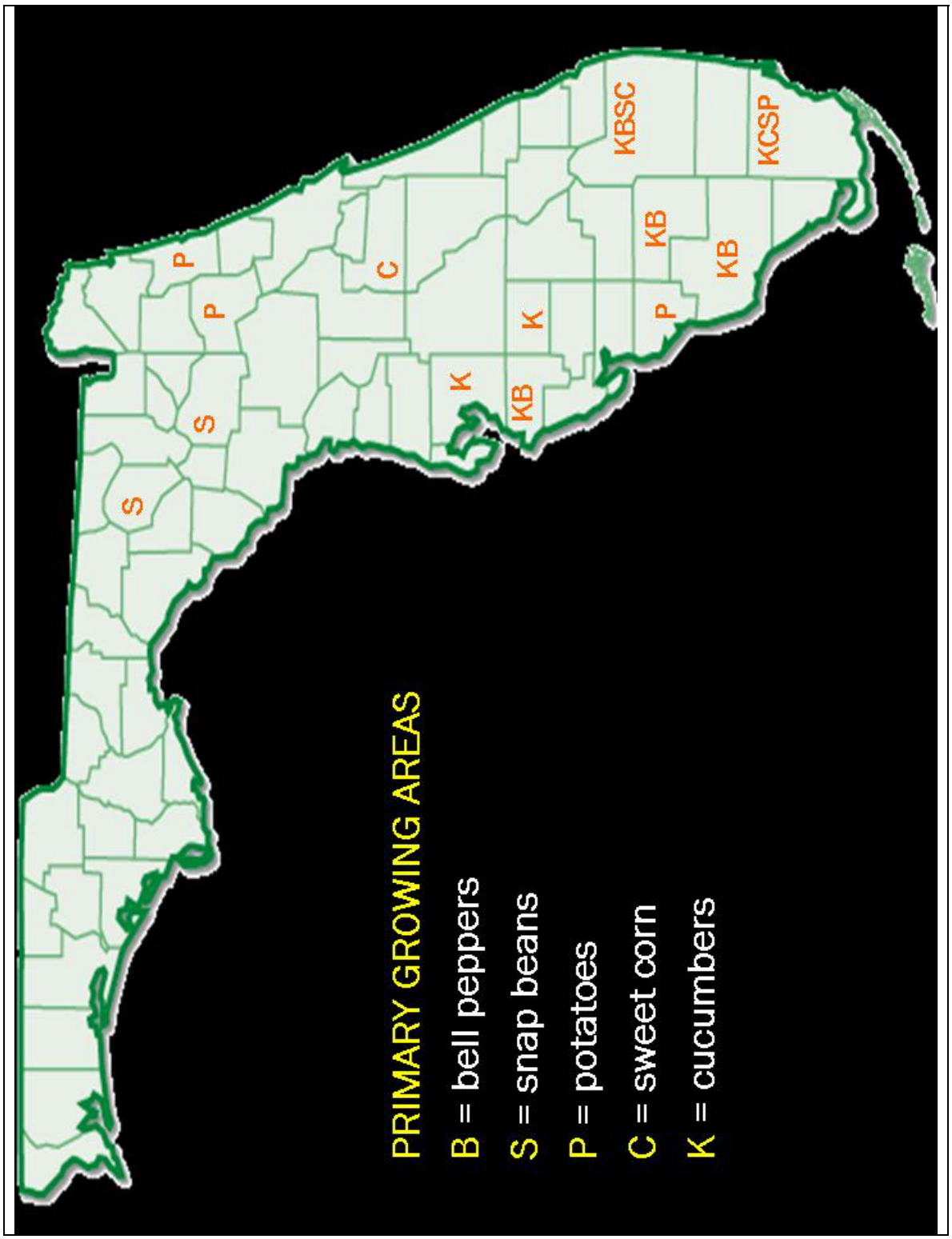
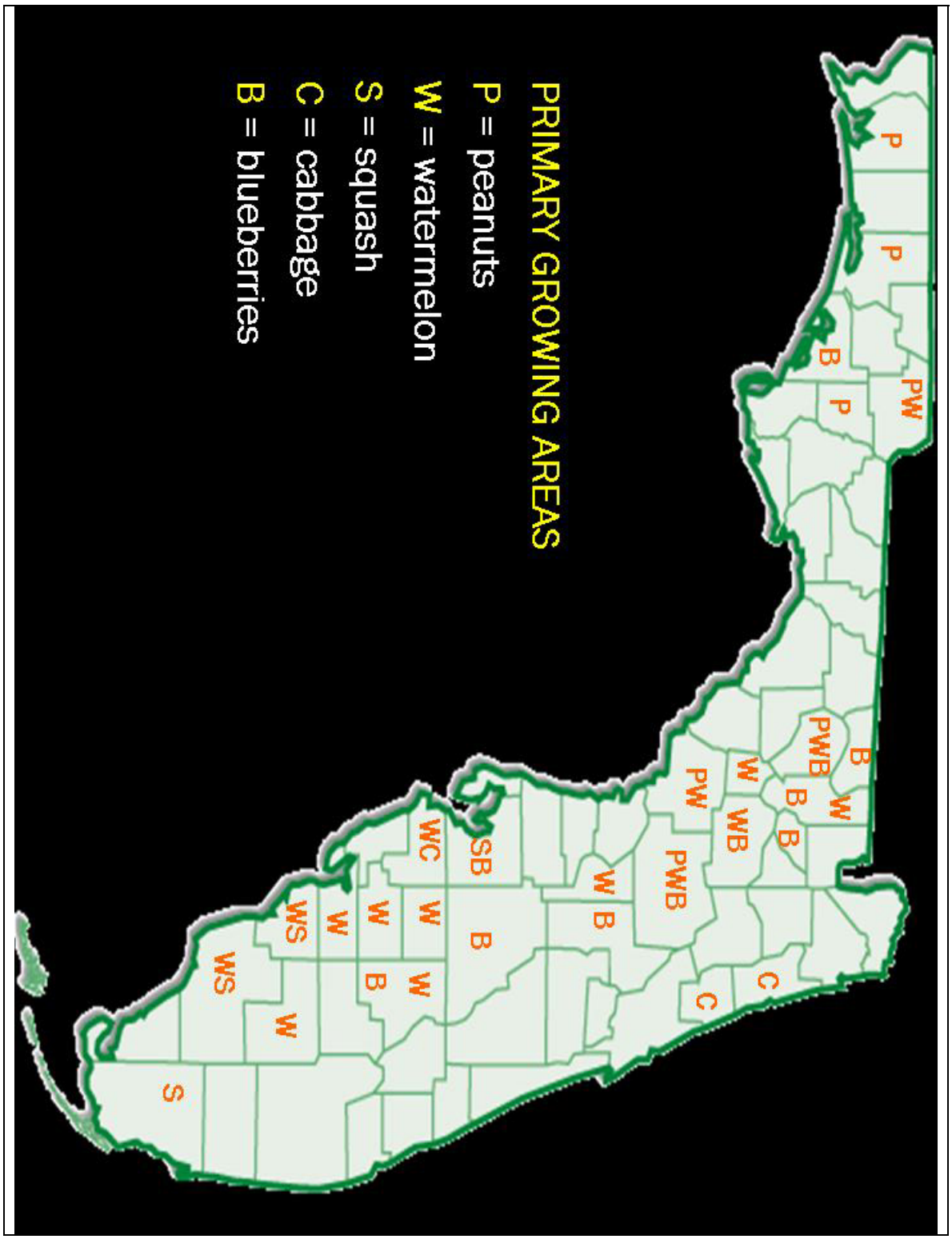
Other Field Crops and Vegetables (in millions)




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


PRIMARY GROWING AREAS
P = peanuts
W = watermelon
S = squash
C = cabbage
B = blueberries

Various Field Crop Concerns

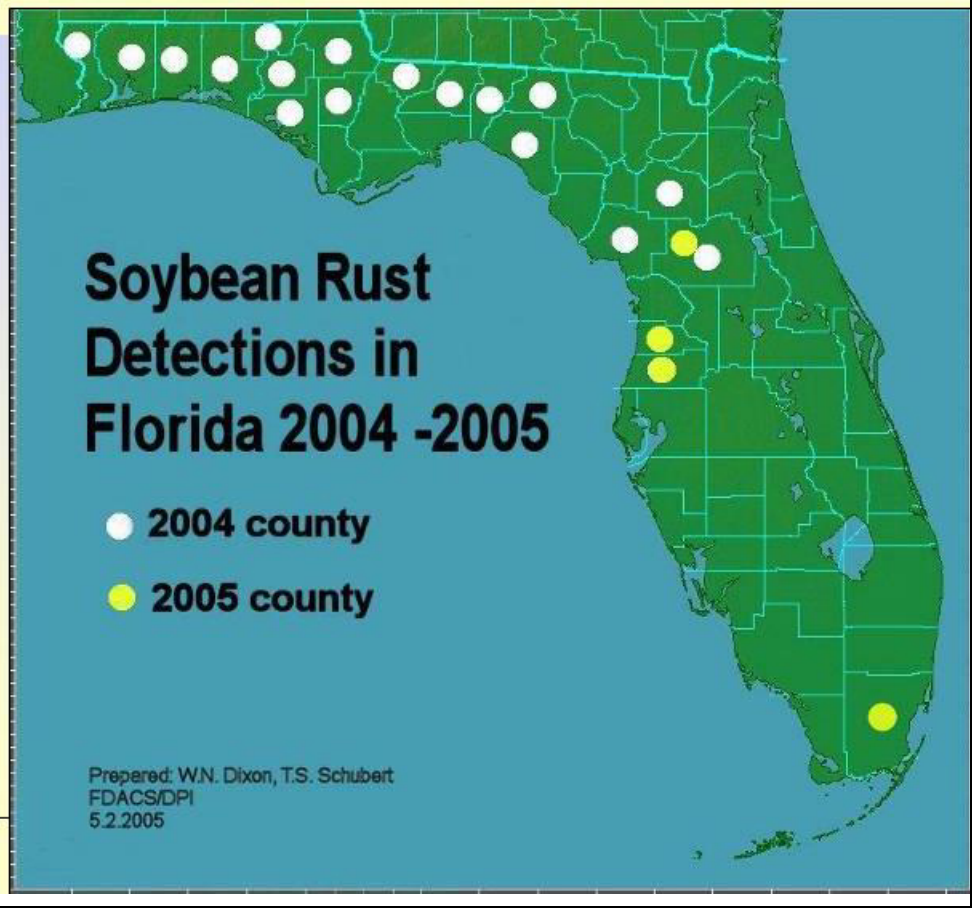
- The typical diseases such as various rusts, spots, wilt's and blights
- Introduced exotic diseases and insects for each species such as "soybean rust"

2004's Hurricane Ivan is believed to have blown spores for soybean rust into the US. Today, rust has spread throughout the southeast.

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

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.

Specialty Crop: Tobacco

- Tobacco $20 million from 6,881 Florida acres

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)

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.

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

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

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

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


Working Together To Protect
Florida's Agriculture & Way of Life
Thank You!
State Agricultural Response Team
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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 _____?

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?

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!"

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

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.

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.

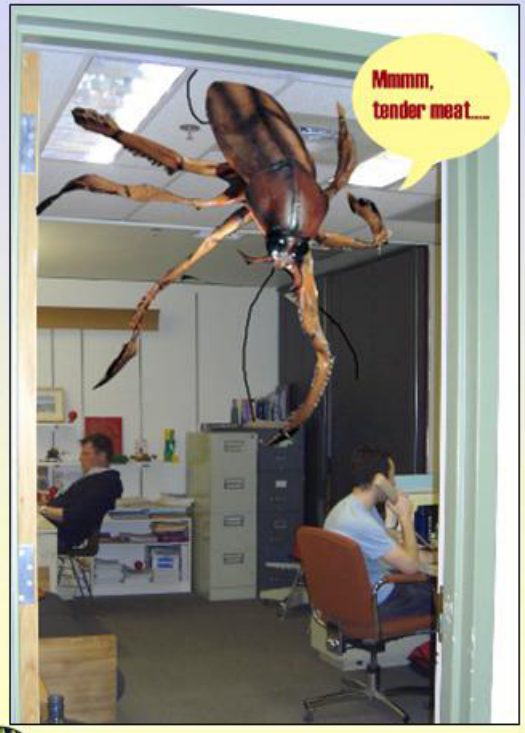
Bonus: The answers to our "Florida Ag Fun" Bonus Crossword are:

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

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 un-segmented, 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.

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

Introducing Florida's Plant Industry

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

PowerPoint Slides – Handout Pages

The *Introducing Florida's Plant Industry* PowerPoint slides are reproduced on the following pages at reduced size with space for participant notes.

Also included in the participant workbook for the *Introducing Florida's Plant Industry* available on the Florida SART web site at:

www.flsart.org


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
3

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

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

Florida SART

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

Introducing Florida

State Agricultural Response Team 7

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!

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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

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It's About People

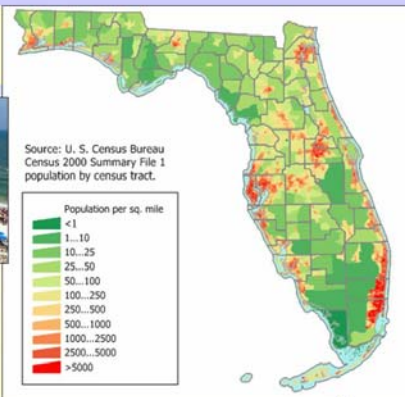
1 ¼ million Floridians of many backgrounds and speaking several languages, with English as the base, make a living from the plant industry, but all draw sustenance from it!

State Agricultural Response Team 10

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.



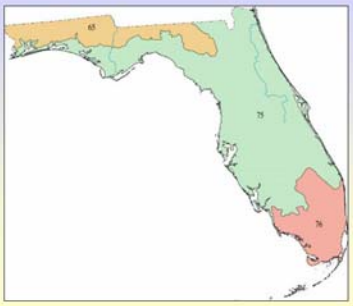
State Agricultural Response Team 11

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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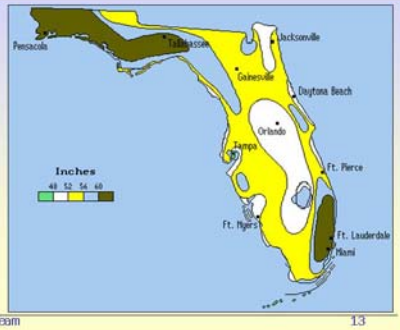
Florida Average Annual Rainfall

There are two general "wet periods" in Florida, late winter-early spring and summer. There is only one low point, the October/November period.



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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.

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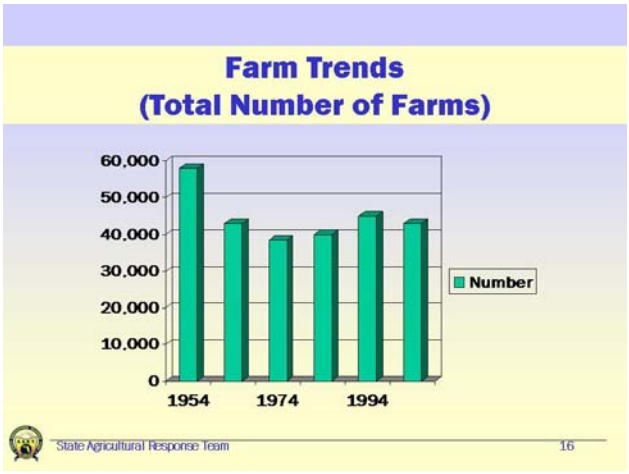
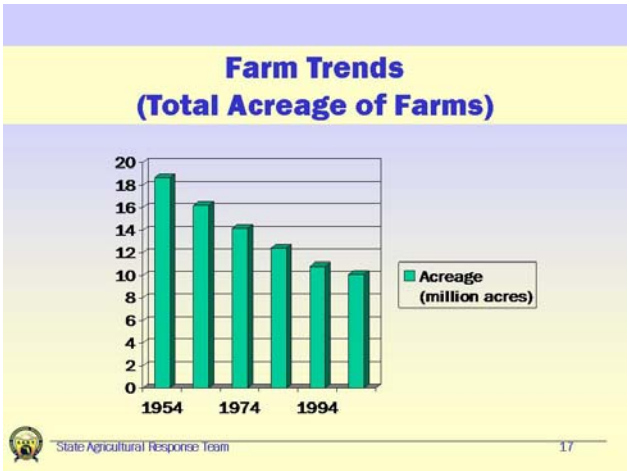
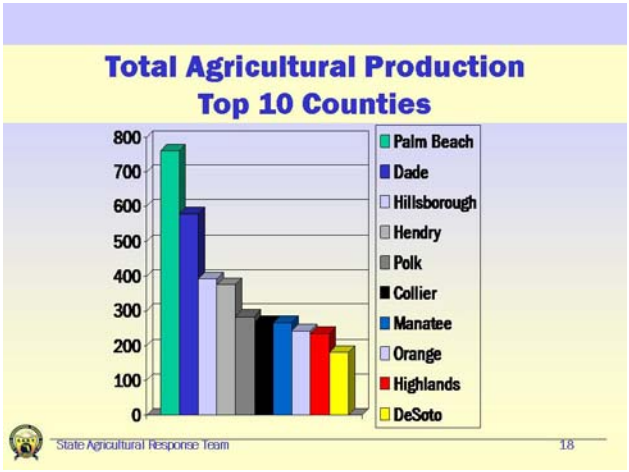
Number of Farms and Acreage

- 43,000 commercial farms (10.1 million of Florida's 35 million acres)


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

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 Okechobee $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

State Agricultural Response Team 21

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 22

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

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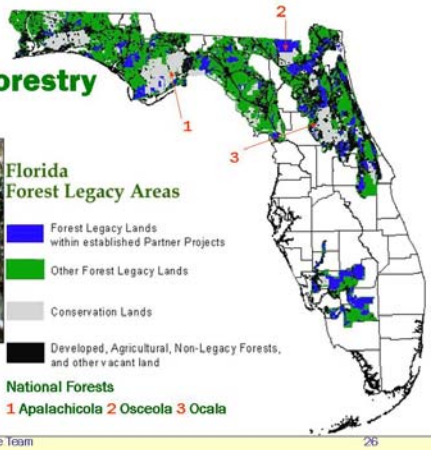
Timber/Forestry

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

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 27

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.


State Agricultural Response Team 28

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.

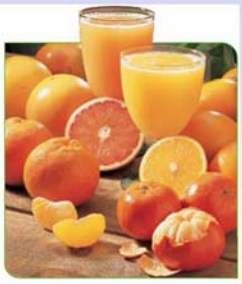

Bark canker is lethal.


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

State Agricultural Response Team 30

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

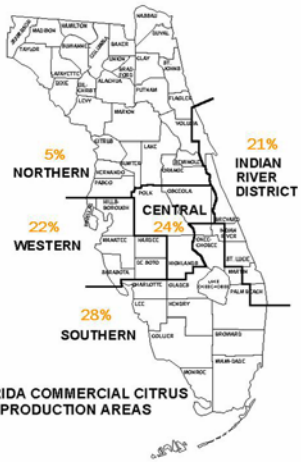
State Agricultural Response Team 32

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

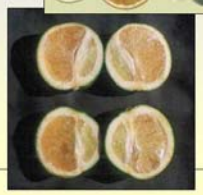


FLORIDA COMMERCIAL CITRUS PRODUCTION AREAS

Citrus Concerns

Citrus greening
(*huanglongbing*)

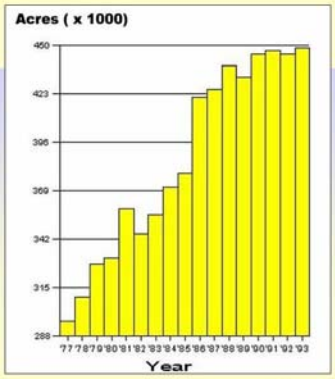
- Known in China for 100 years
- In Brazil for 7-8 years; widespread possibly due to propagation sloppiness
- Now documented in Florida
- Begins as leaf mottling and yellowing; progresses to misshapen, mis-colored and bitter fruit
- A very serious threat to Florida citrus industry



State Agricultural Response Team 34

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



State Agricultural Response Team 35

Sugarcane

State Agricultural Response Team 36

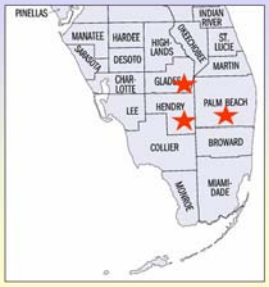
Sugarcane

- 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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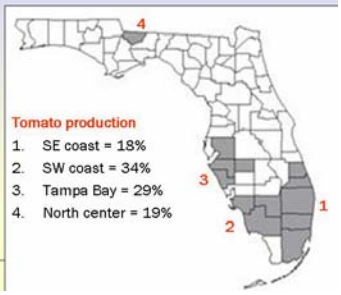
Sugarcane Concerns

- 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

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



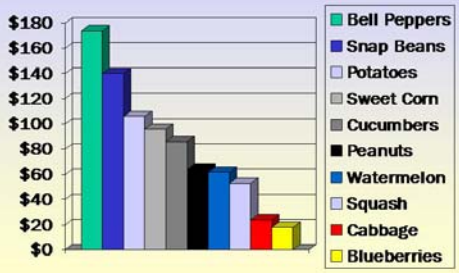
Tomato production
1. SE coast = 18%
2. SW coast = 34%
3. Tampa Bay = 29%
4. North center = 19%

State Agricultural Response Team

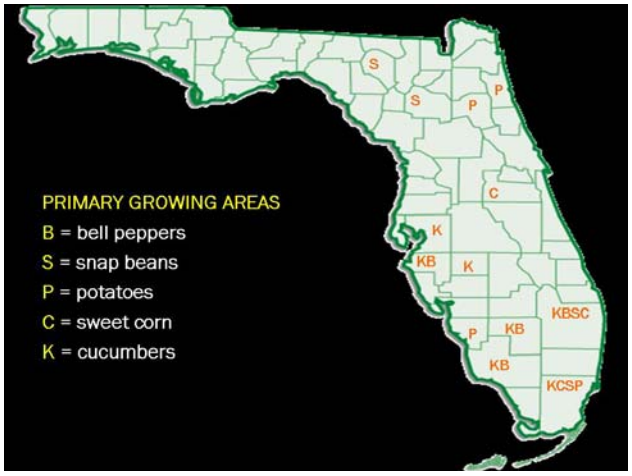
Tomatoes

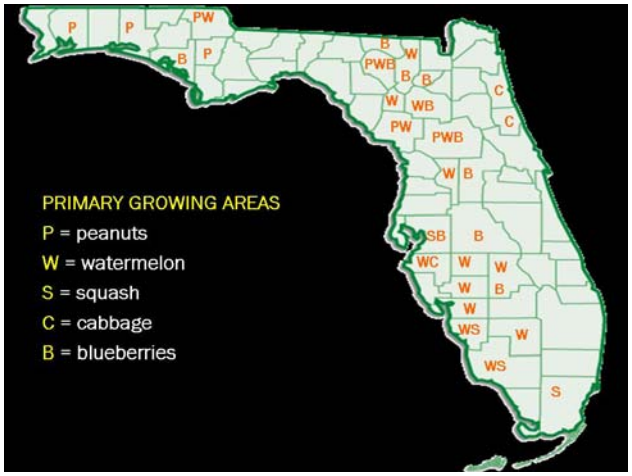
State Agricultural Response Team

Other Field Crops and Vegetables (in millions)



State Agricultural Response Team 42


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
PWB
W
B
B
W
WB
C
PW
PWB
C
W
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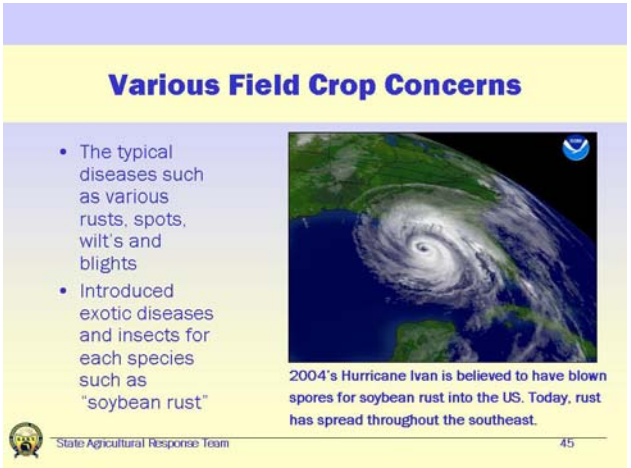
Various Field Crop Concerns
The typical diseases such as various rusts, spots, wilt's and blights
Introduced exotic diseases and insects for each species such as "soybean rust"
2004's Hurricane Ivan is believed to have blown spores for soybean rust into the US. Today, rust has spread throughout the southeast.
State Agricultural Response Team
45

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

Specialty Crop: Tobacco

- Tobacco $20 million from 6,881 Florida acres

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)

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.

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

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

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

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

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

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

Thank You!

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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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

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.

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	

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.

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

Introducing Florida's Plant Industry

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

Notes