
INTENSIVE AGRICULTURE

ETH Studio Basel
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INTENSIVE AGRICULTURE

CITRUS FARMING

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History of Citrus Industry

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AGRICULTURE IN TRANSFORMATION

Politics are not interested in protecting Agriculture
Citrus vs. Alternative Agriculture
Citrus vs. Development
Structure survives Landuse Change



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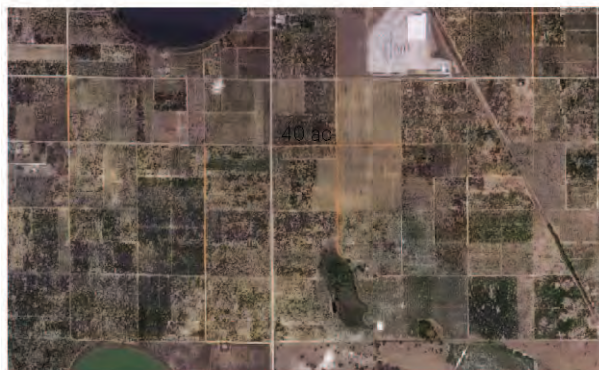
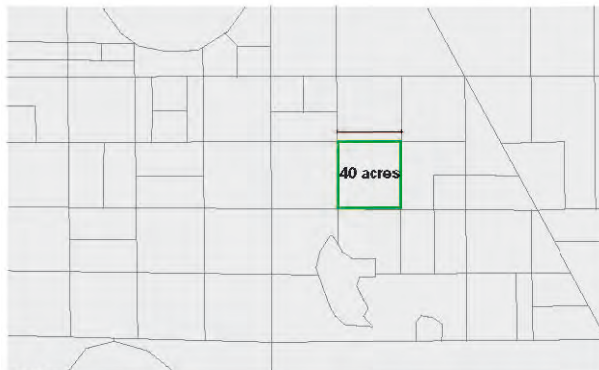
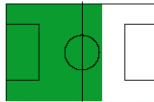
CITRUS FARMING

The landscape of Florida is deeply marked by the large scale structure of agriculture. The most cultivated product in Florida is the citrus fruit, especially oranges. The main area of this citrus production is located in the center of Florida, where the conditions are especially good for the growth of this fruit. From the beginning of the citrus industry in the 19th century until today, the citrus farming has been strongly marking Florida's identity.



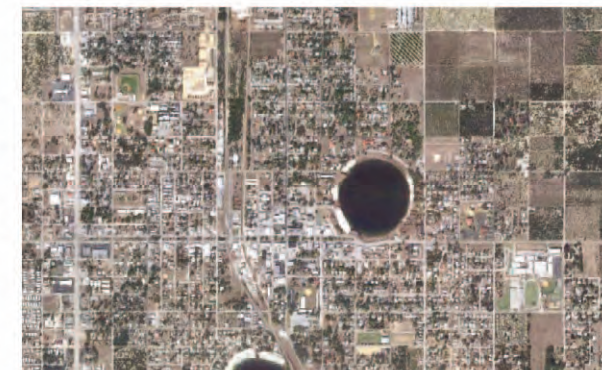
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1 acre [ac] is about 4046m²
65m x 65m



Farming Structure | Florida

Farming Structure | Switzerland



City Structure | Florida

City Structure | Switzerland

Farming Field Structures out of the Typical Large American Grid

The structure of agriculture does not form a special network as it does in Switzerland, but it adopts the typical American grid. The structure of the agricultural area does not differ from the town area.

Farming system

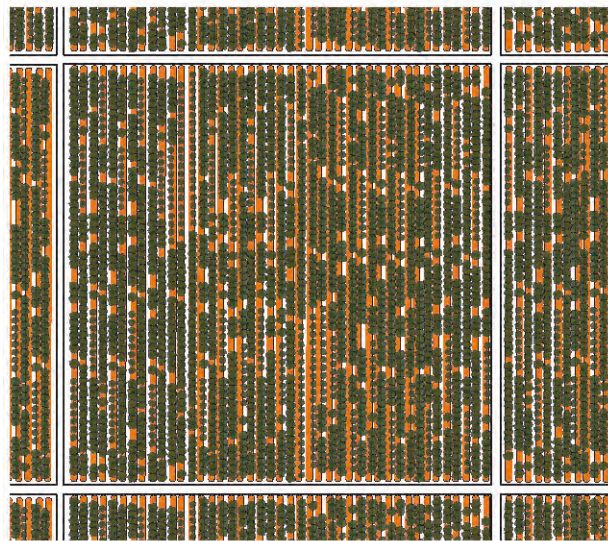
The large and strong structure system of the agricultural plantations and the strong economical impact of the agriculture, particularly the impact of the citrus industry, influence nearly all the systems of Florida.



Blueberry field



Orange field

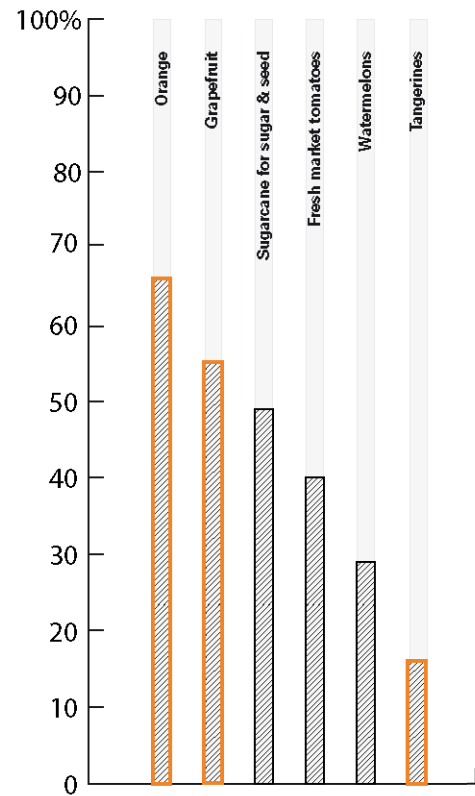


400m x 400m = 40 acres

2'200 Citrus Trees

The Field as Module

Within the grid the agricultural products are cultivated in a very strictly subdivided manner, in a very efficient way and on a large scale, one field corresponds to 17 Swiss fields. The orange trees are planted in a strong alignment and in very short distance. The distance between two lines can vary between 1.5 m and 3m.

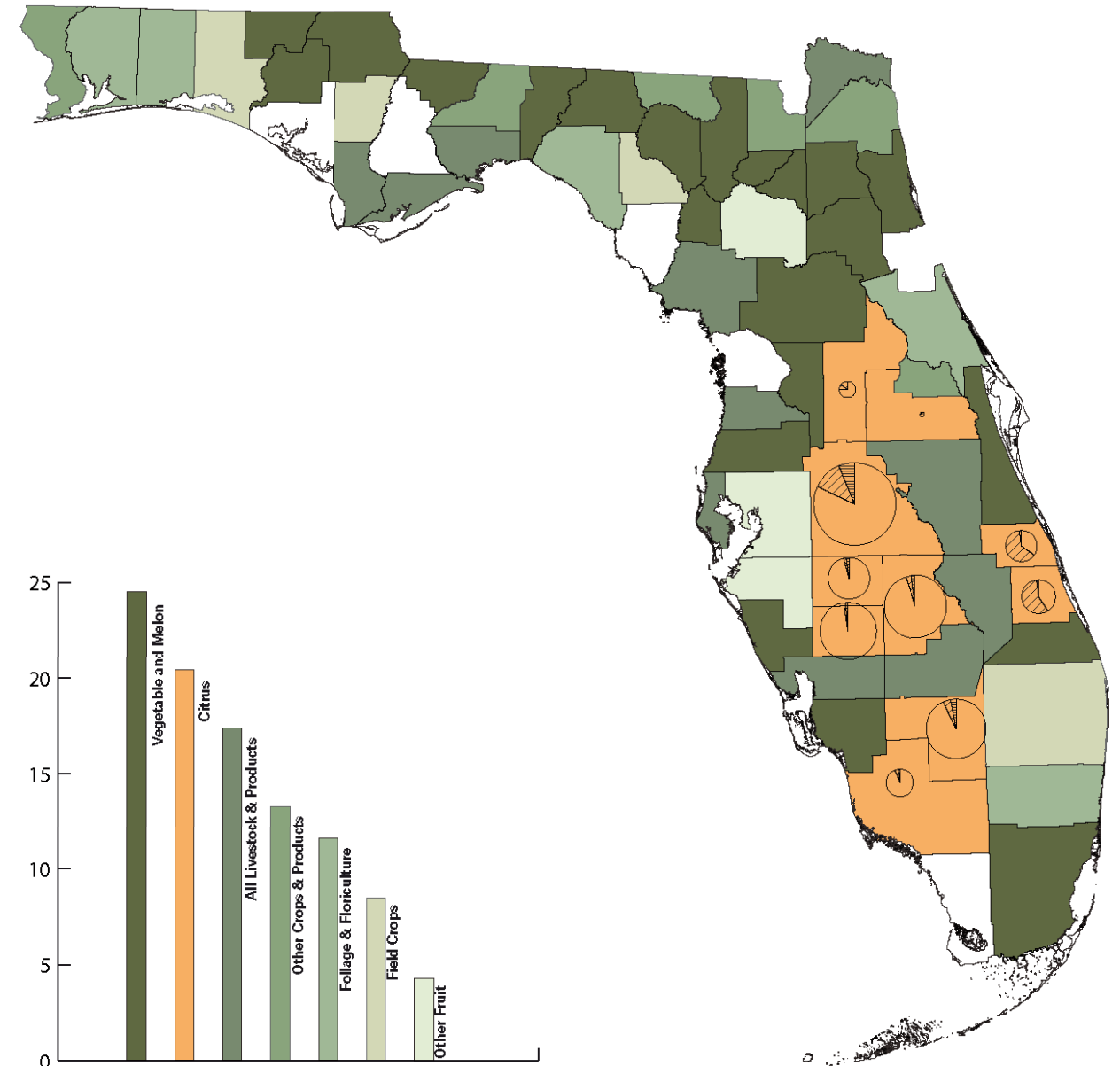


Florida Production in Term of Total U.S Value

It must be mentioned that Florida is the main furnisher of citrus fruits in the U.S. On the orange market about 65 % of the whole U.S. production come from Florida.

Total economy impact of Florida	\$ 491billion
Industry Ranking :	
1. Tourism	\$ 57.0 billion
2. Citrus Industry	\$ 8.9 billion
3. Space industry	\$ 4.5 billion

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Florida Industry Ranking
 The citrus industry ranks second to tourism in Florida and is the second highest source of income.
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Florida Agriculture Cash Receipts %

Besides citrus fruits Florida produces also some other agricultural products. However their culture is disseminated in the whole state, whereas citrus farms are mainly situated in central Florida, especially in Polk and Highland county.

- Orange production
- Grapefruit production
- Other citrus production



The Bud



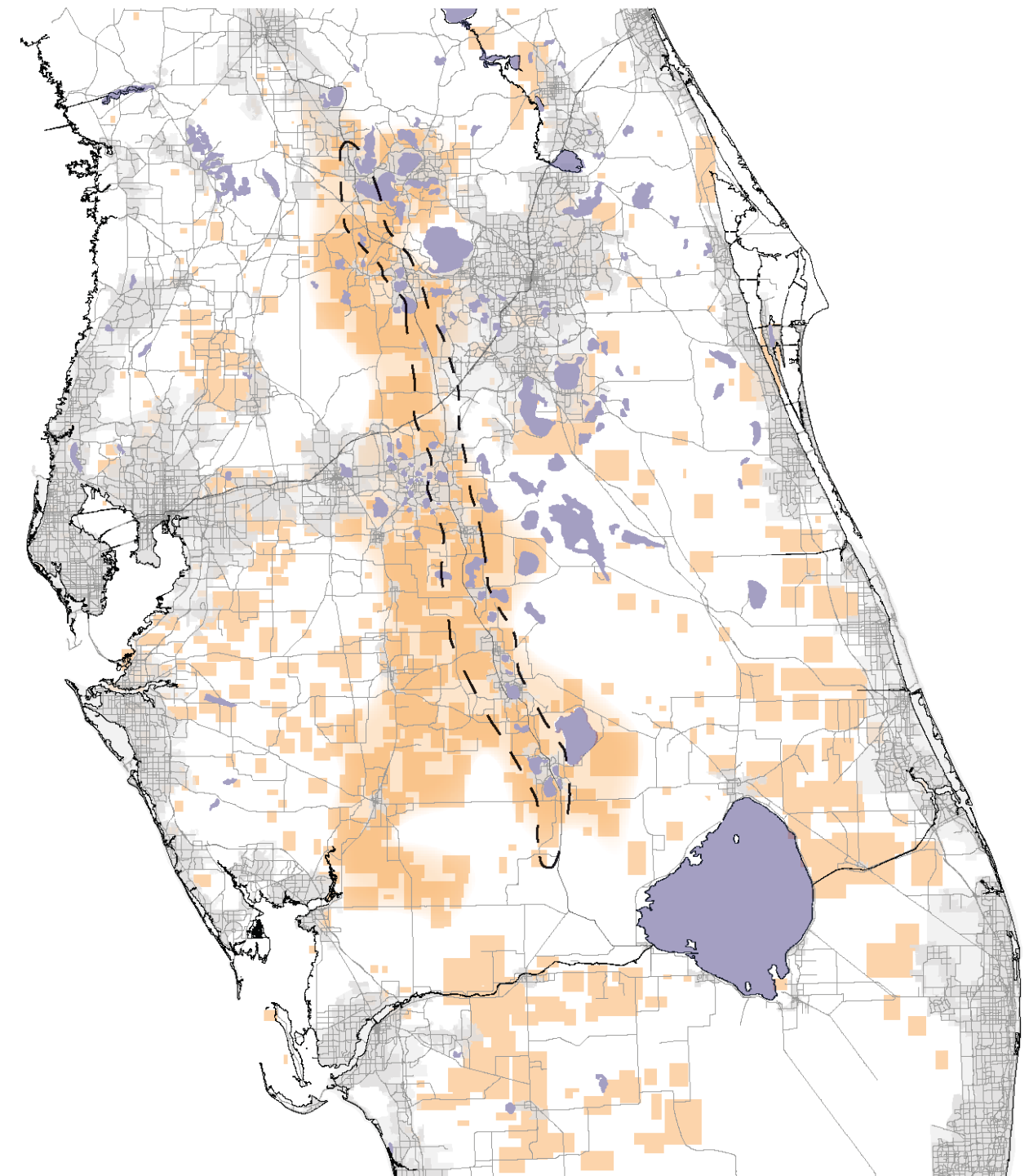
The Flower



The Fruit

Citrus Fruit

All citrus are small, spreading, evergreen trees or tall shrubs, which may reach 20-30' in height in nature, but most cultivated trees are <15'. Stems are often armed with long thorns. The flowers are solitary or in small corymbs, each flower is 2-4 cm diameter, with five white petals and numerous stamens. The fruit is a hesperidium, a specialized berry, globose to elongated, 4-30 cm long and 4-20 cm diameter, with a leathery rind surrounding segment filled with pulp vesicle.



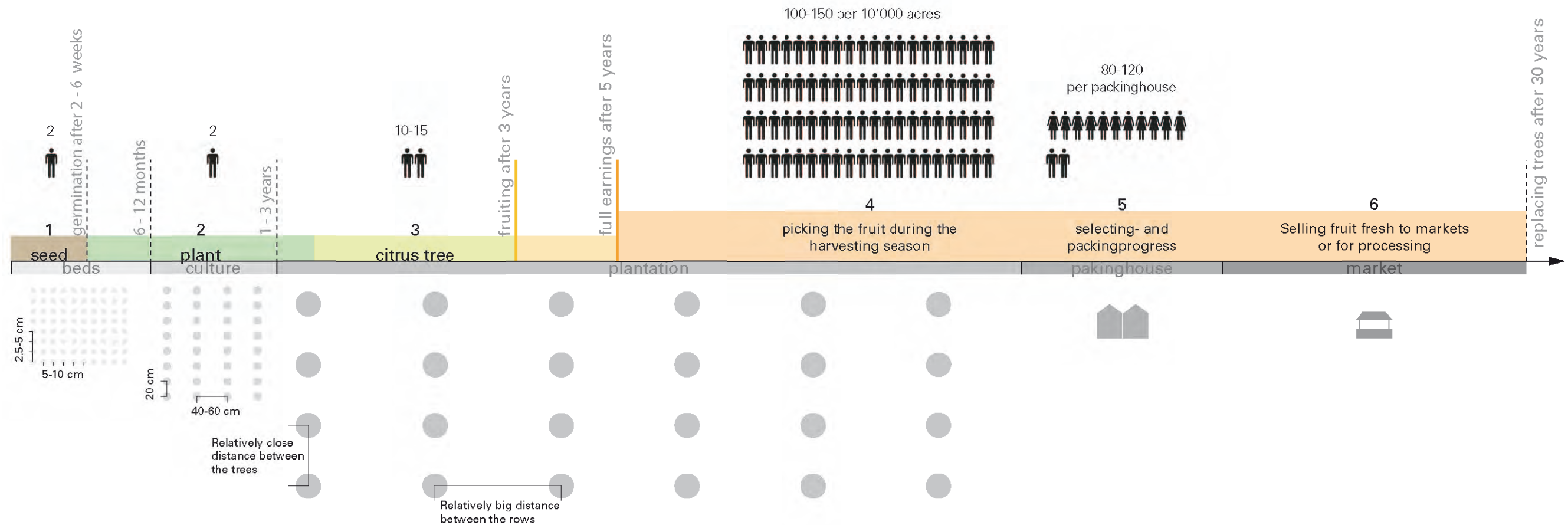
Current Citrus Farming Location - The Ridge

The citrus farming area is concentrated along the Hwy 27. This region is situated a little higher and is called Ridge. It is a geological formation from millions of years ago.

The "ridge" is a prehistoric sand bar that remained above sea level when much of Florida was underwater. This sandy soil is specially good for the grow of citrus fruits.

Citrus Farming Industry

The citrus farming in the center of Florida is very intensive and essentially concentrated around the main highways. There are several different highly industrialized proceedings until the fruit arrives at the customer. The citrus fruit market is separated in two parts, the fresh fruit, representing only 10% of the total production, and the processing market which represents 90% of the Florida citrus production.



Citrus farming Cycle - From the Seed to the Market

There are special establishments in Florida which grow the citrus plants in their early phase. Once the plants have reached a certain height in the tree nursery, they are sold to the farmers who plant them on their farms in strictly ordered alignments. On the field the trees are fruiting first

after 3 years and the full earnings after 5 years. Only few labor forces are needed to nurture the young plants, in comparison to the harvesting season, when a lot of pickers are necessary. The number of pickers in this high season situates between 100 and 150 per 10'000 orange acres.



1 Citrusnursery - Seeds in beds grow to small citrus plants



2 Citrusnursery - Small citrus plants in cultures



3 Citrusplantation



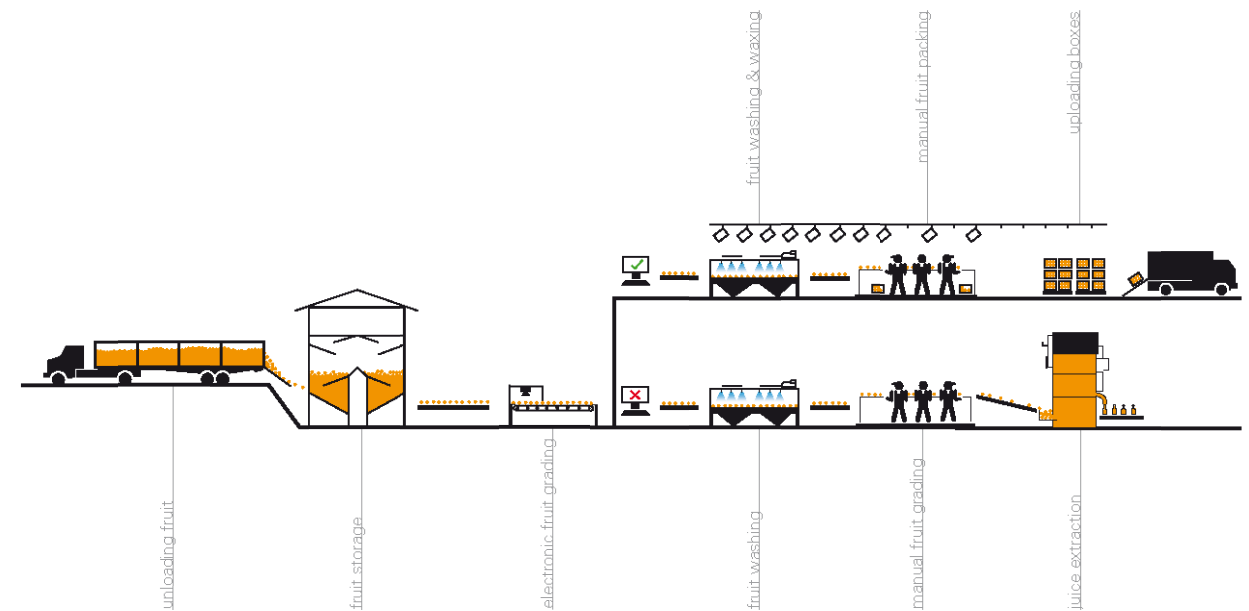
4 During the harvesting season all the fruits get picked and brought to paking houses near the plantations



5 In the packinghouses the fruit get washed, selected after colour and size and finally packed for transportation

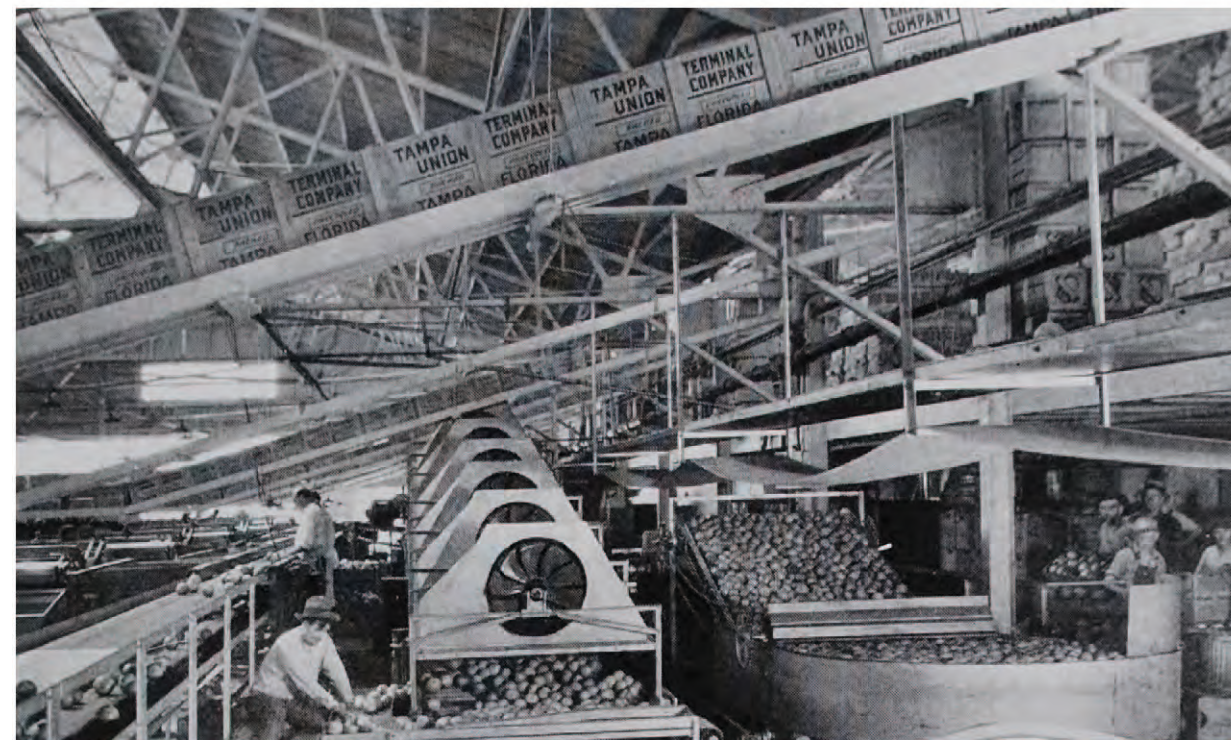
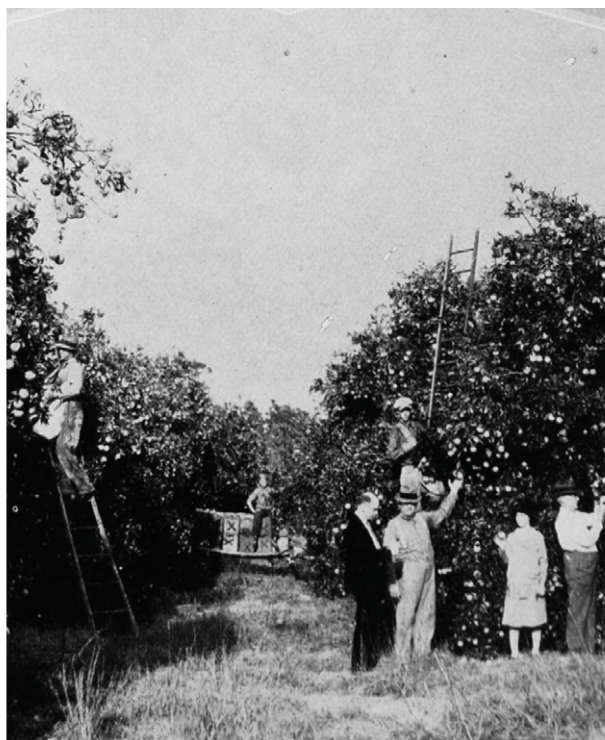
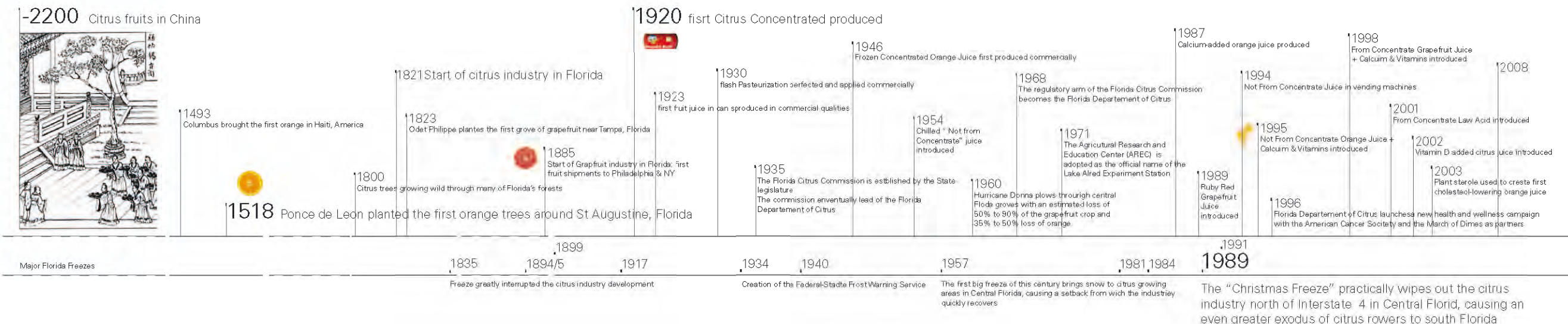


6 Good looking fruits go directly to the fresh market, the rest (about 90%) gets transported to a processing facility



Two Markets : Fresh and Processed Citrus Products

In the packinghouses the fruits get selected by computer after color and size. Good looking fruits go to the fresh market, the rest, about 90%, goes to the processing market. Than workers pack the fruits along a conveyer belt.



History of Citrus Industry

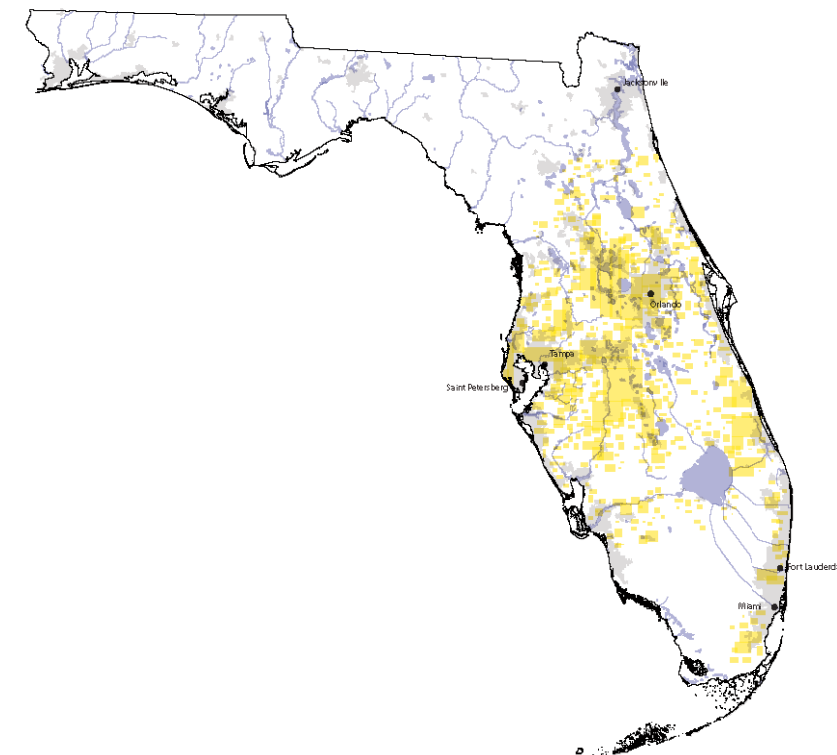
The first orange trees in USA is planted in 1518 around St. Augustine in Florida. During the 19th century the citrus trees are growing wild in many of Florida's forests. Citrus industry exists since 1821 in Florida, but the real boom of this industry started in 1920 with the production of citrus concentrates. Big freezes have strongly influenced the production during history.



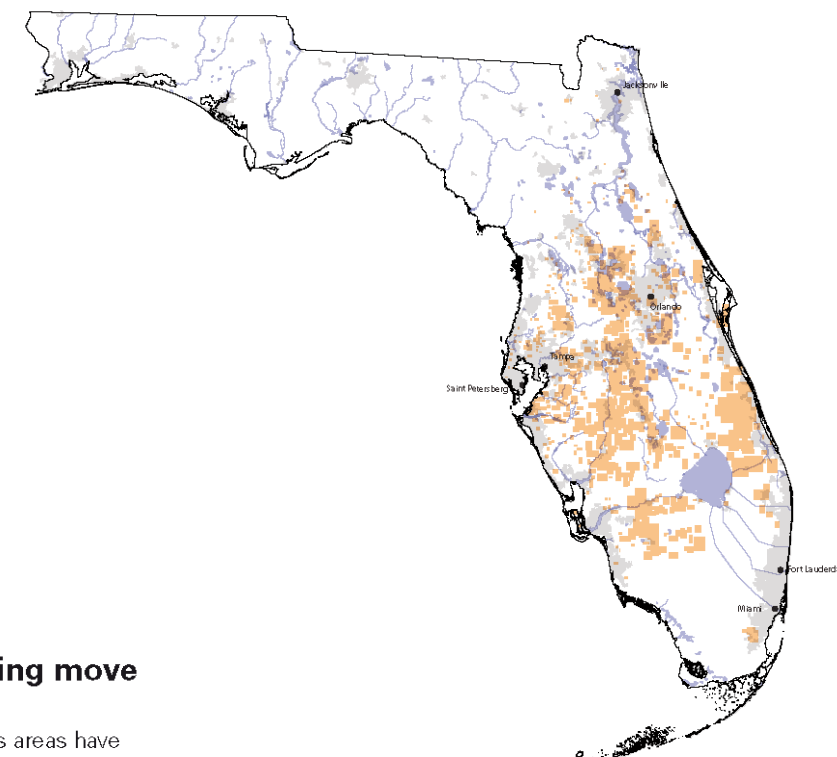
Citrus Agriculture as Identity

The citrus industry has exploded in the beginning of the 20th century and has grown to a very strong identity for the inhabitants of Florida. It is also used as a marketing strategy. Florida is very proud of its citrus industry.

1963



2004

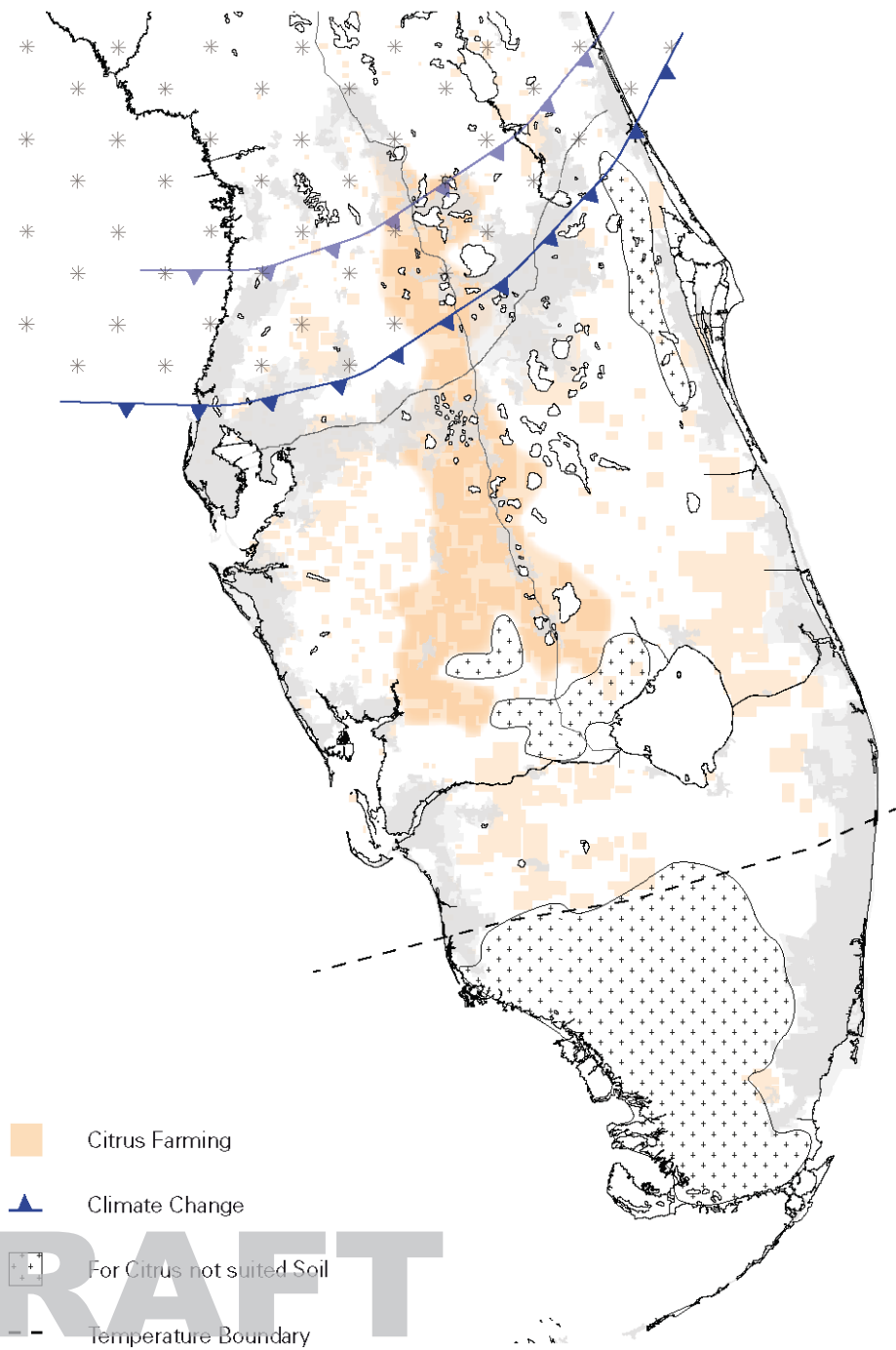


Fields size decrease and Farming move to the South

Since the big freezes in the 80ies the citrus areas have been shrinking more and more and have progressively been transferred to more southern locations. Moreover the freezes increase and occur in more southern zones.

CLIMATE CHANGE

Climatic circumstances play a crucial role due to the sensitivity of citrus trees. In Florida the climate has changed in the recent years, which had a significant impact on citrus industry. In the north the temperatures are too cold for citrus plantations and in the south the possible cultivation area is bordered by the everglades. Because of several severe freezings in the past years the citrus area is moving more and more to the south.



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lot of sun
350 sun-hours per years

temperature between
14°- 28° C

enought rainfall
min. 1200mm/ year

good irrigation

good drainage system

Quality of the soil
potassium, phosphorous,
nitrogen , magnesium

Climate Conditions

The citrus plants need a lot of sun and temperatures between 14-18°C in order to grow well and producing loty of fruits. To survive the citrus plant does not need a lot of water in comparison to other fruits like strawberries or blueberries. But totally over Florida the water use for citrus farming is enormous. The majority of this water is used for cold protection.

Location Influences

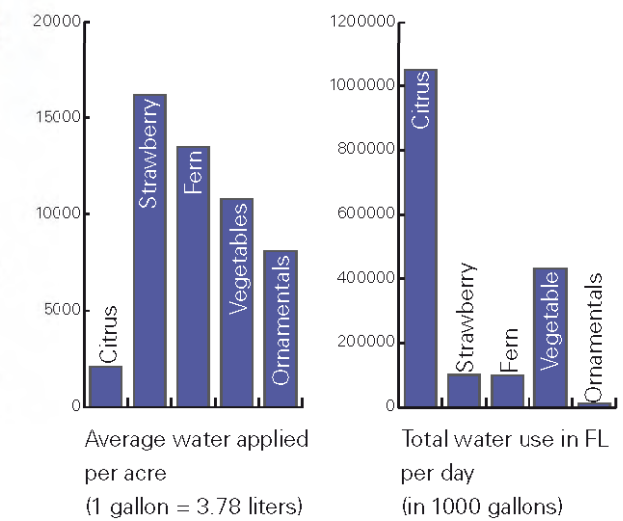
Citrus fruit only grow under certain conditions, they need specific temperature, irrigation, soil and nutrients. The citrus fruit grow depends hardly on the climate that is why they only harvest in some regions of the world.



Micro-Sprinkler System to irrigate the citrus trees

Self-supplied Water Sources for Irrigation and Cold Protection

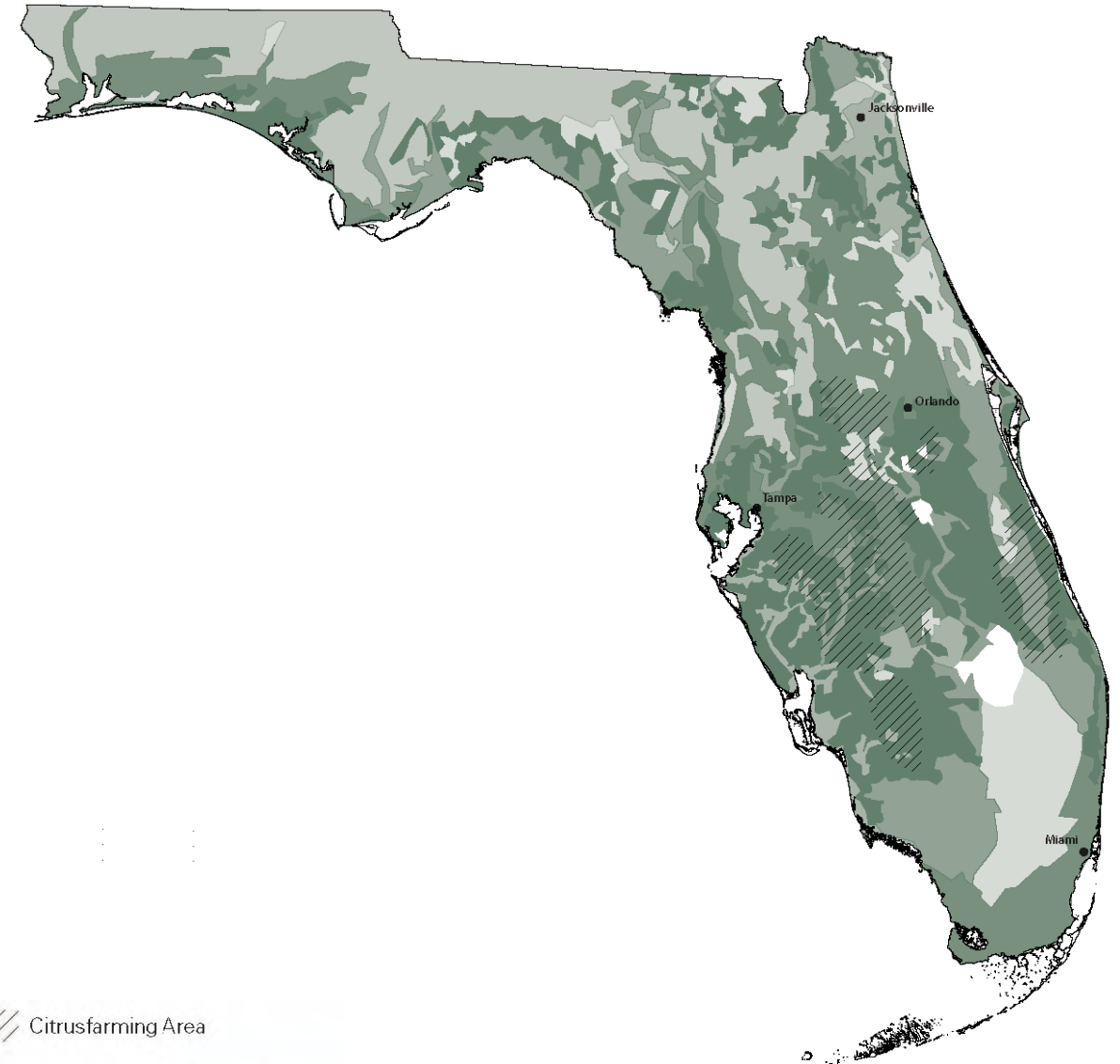
The water used in citrus agriculture is generally self-supplied, what means that the water comes from locally available water supplies like wells and ponds that are developed on the property of the growers. The problem that comes with this method is that the water usage is not under control. This leads to severe ground water problems. Other sources for irrigation include for instance Lake Okeechobee and its surrounding canals or Lake Apopka. Water from these sources feed into canals or ditches and are then pumped onto fields or groves.





Citrus Trees need specific Nutrients and Soil Conditions to reach full Earnings

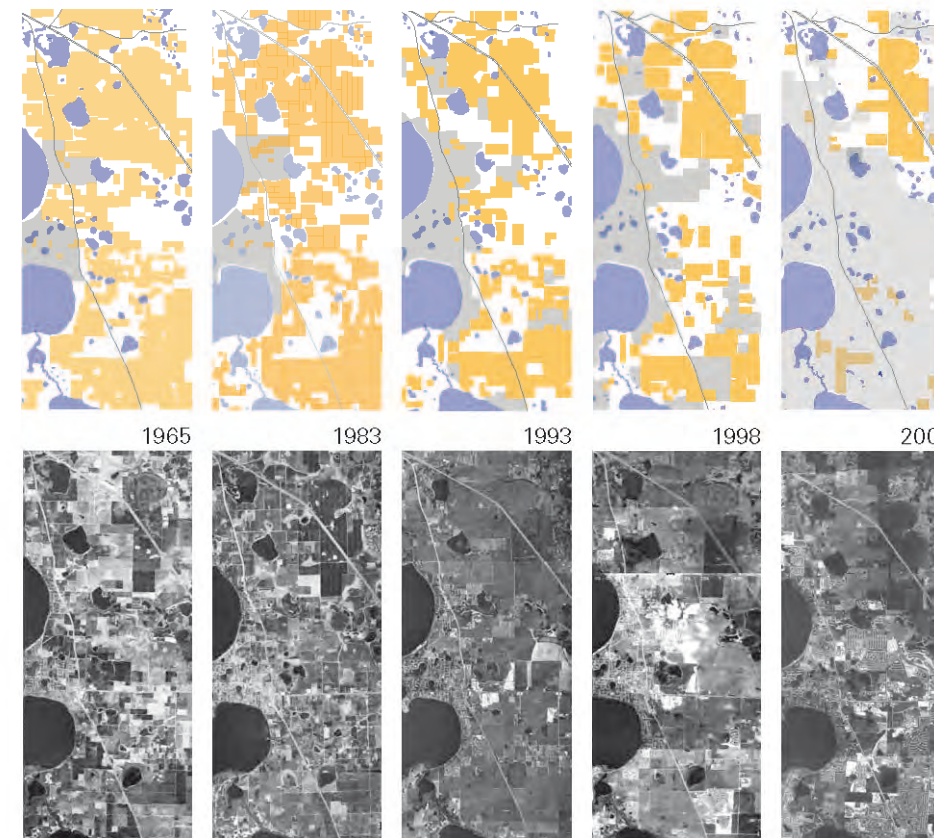
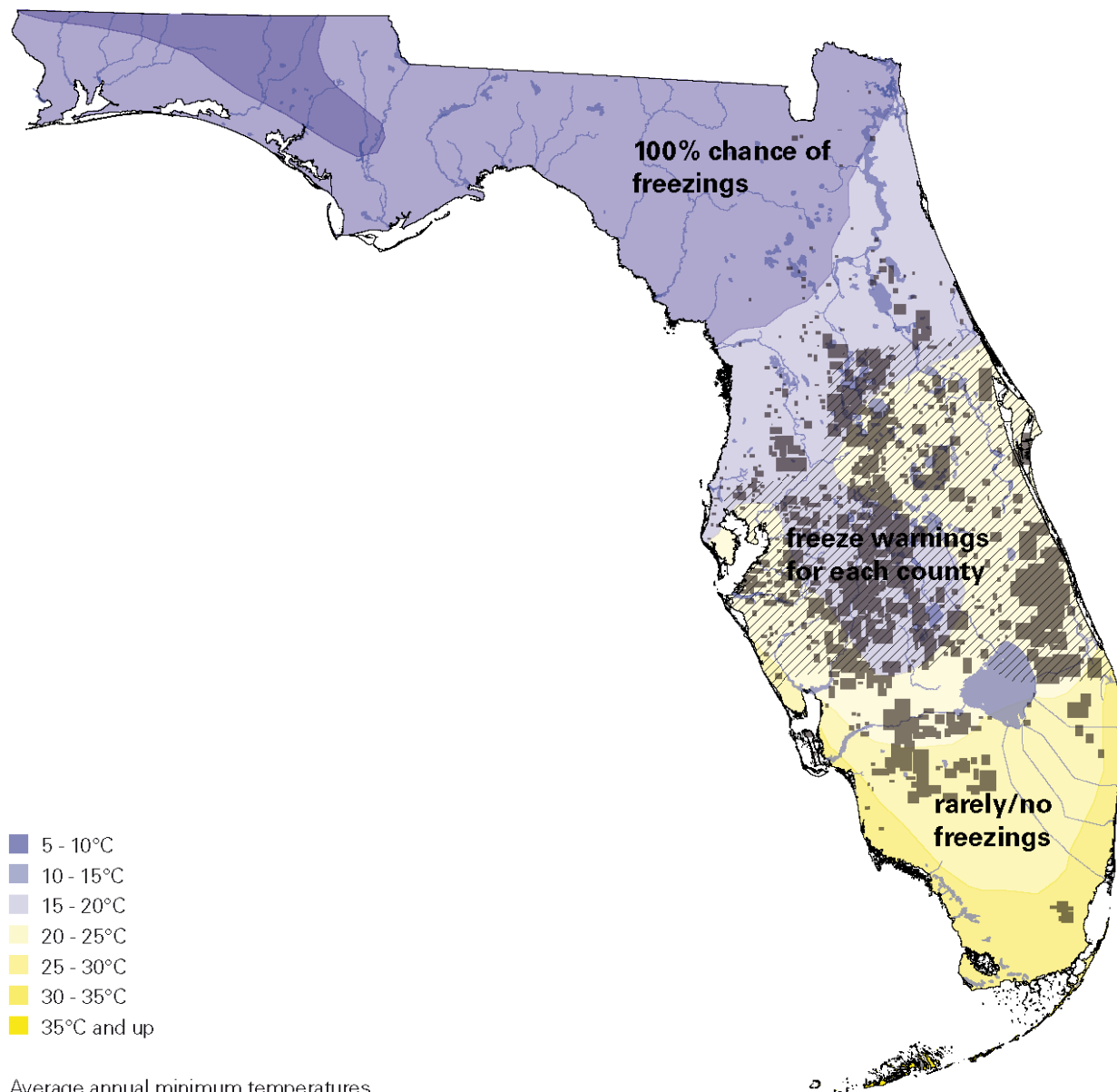
In Florida there are six different kind of soil of which two are suitable for citrus plants. That is one of the reasons why citrus areas are manly located in central Florida. The best soil condition for citrusplants is a very sandy ground with a lot of nitrogen.



/// Citrusfarming Area

Best soil conditions for citrustrees

■ Spodosol very acid, deep layered, coarse-grained, sandy ground, perfect for citrus	■ Entisol plain, fertile sand ground	■ Alfisol deep clay layer, very fertile and very useful for agriculture	■ Mollisol contains a lot of Mg, K, Ca, Na high humus content	■ Ultisol very acid forest ground, not practical for agriculture	■ Histosol lots of carbon, common saturation, only few nutrients, nearly no plants



Minneola, Lake County, Florida



1960



2011

Northern Citrus areas suffered under major Freezes in the late 80ies

After severe freezings in the late 80ies it was not profitable anymore to replant the citrus areas in northern regions, that's why most of the area developed. Nowadays there are a lot of markets or tourist attractions that remind on the

golden citrus years, but most of the plantations are gone. This climatic change can be recognized in a extreme way for instance in Minneola in Lake County. Citrus areas have almost disappeared since 1965.

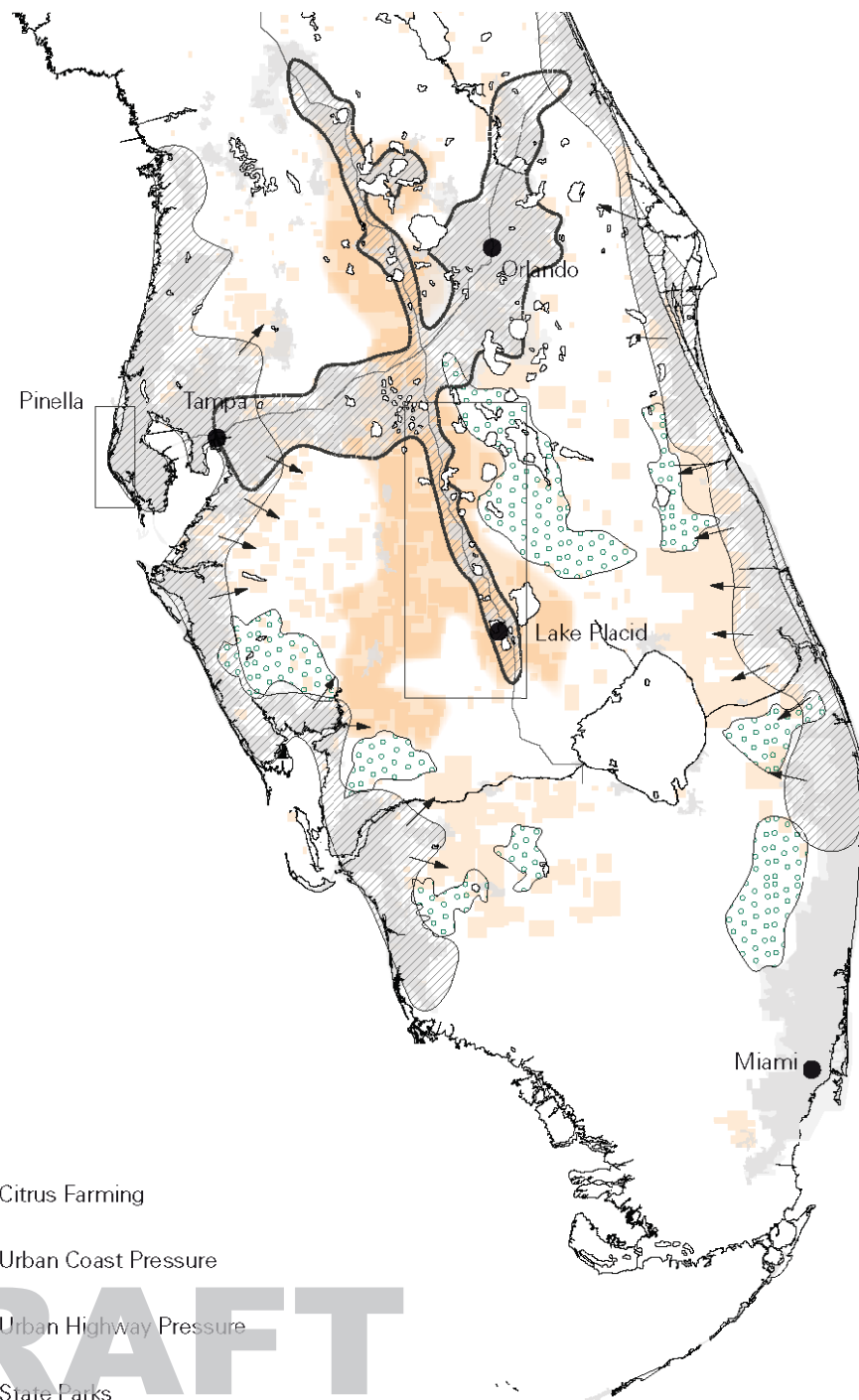
Temperature Conditions

Citrus fruits grow only on certain locations around the world, because of their highly dependence of dedicated temperature and soil. Citrus growing is just possible in central Florida because the temperatures in the northern

regions are not warm enough and the possibility of freezings is almost 100%. In the central Florida farmers always have to watch weather and freeze warnings to protect their crop.

URBAN PRESSURE

Florida has evolved in the last years principally from tourism. The coast is the most urbanized area, but also the area around the main infrastructures has highly grown up, specially the regions around the main cities as Tampa and Orlando. The citrus areas in those regions are suppressed by the urbanisation which is the strongest force.

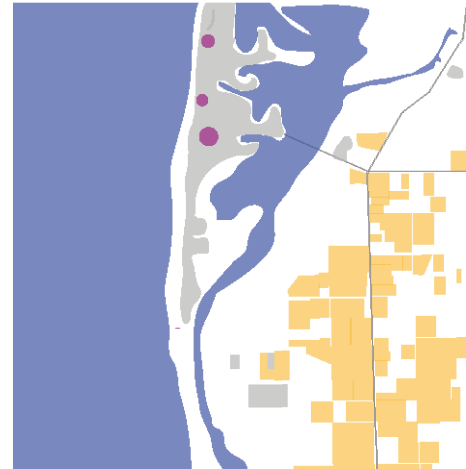


- Citrus Farming
- Urban Coast Pressure
- Urban Highway Pressure
- State Parks

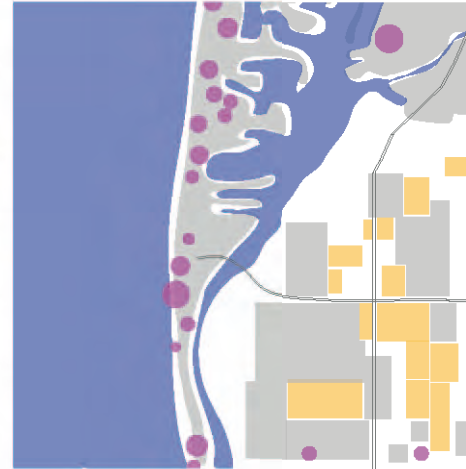
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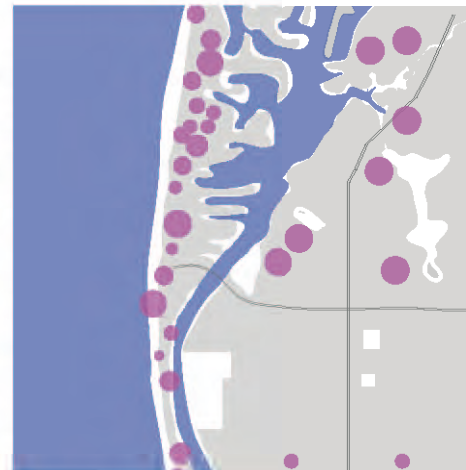
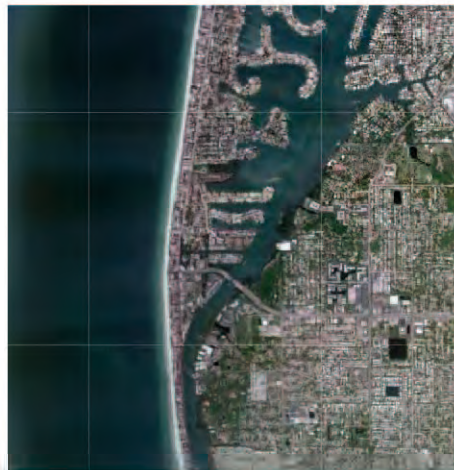
1951



1970



2011

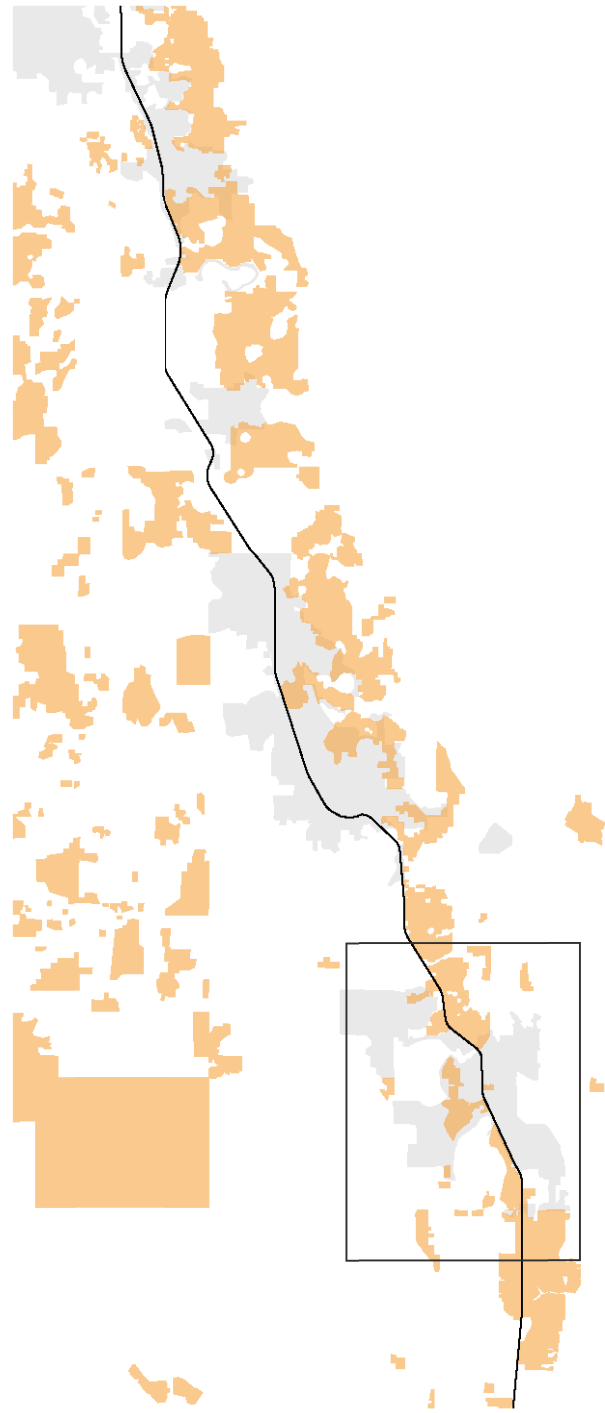


● Tourism



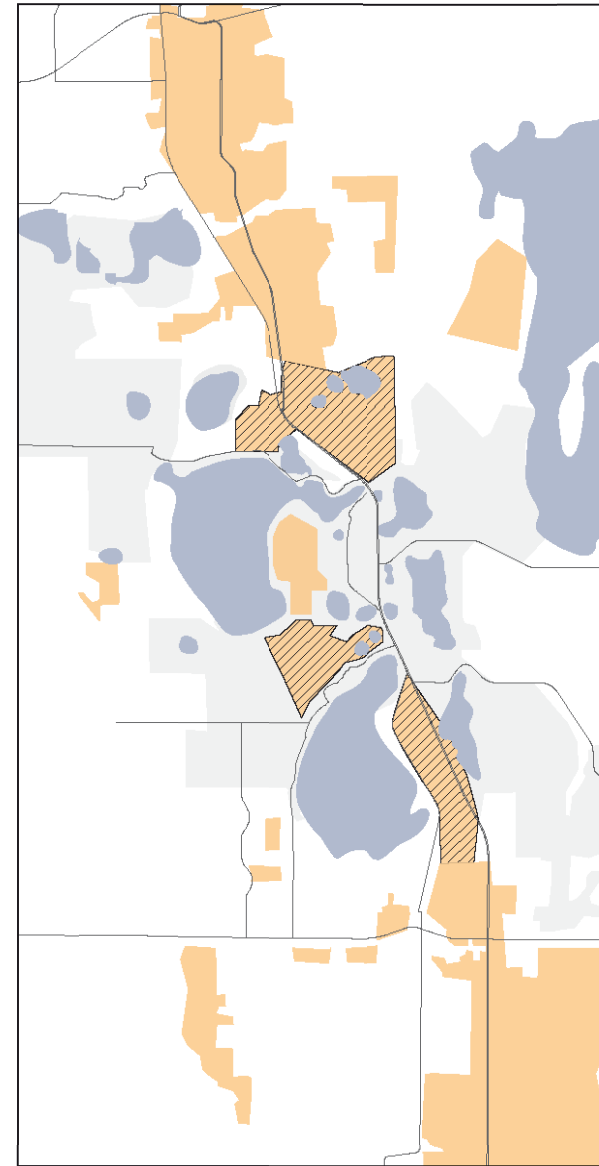
The Coast - Tourism vs. Farming

Especially on the coast the citrus farming is more and more disappearing due to the high urbanization. The first farming loss's factor on the coast is the high demand from tourism. Whereas in 1951 there were a lot of citrus groves in Pinellas County, today it is totally urbanized.



Density around the Highway

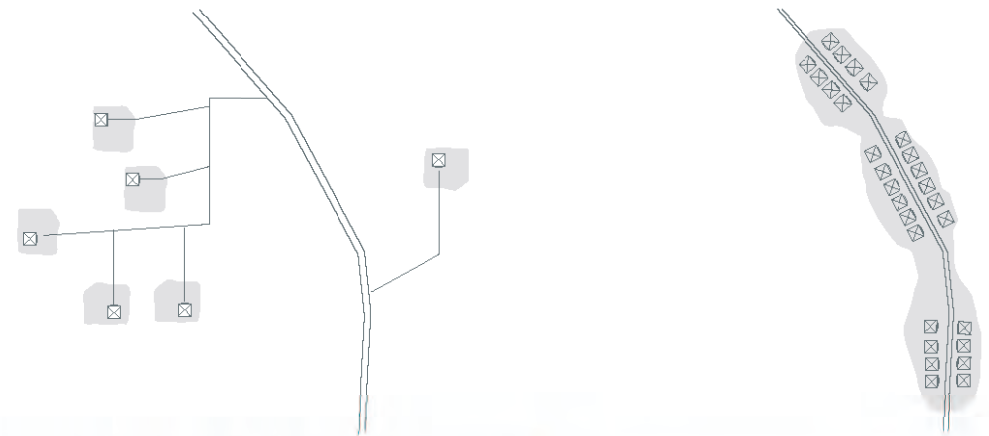
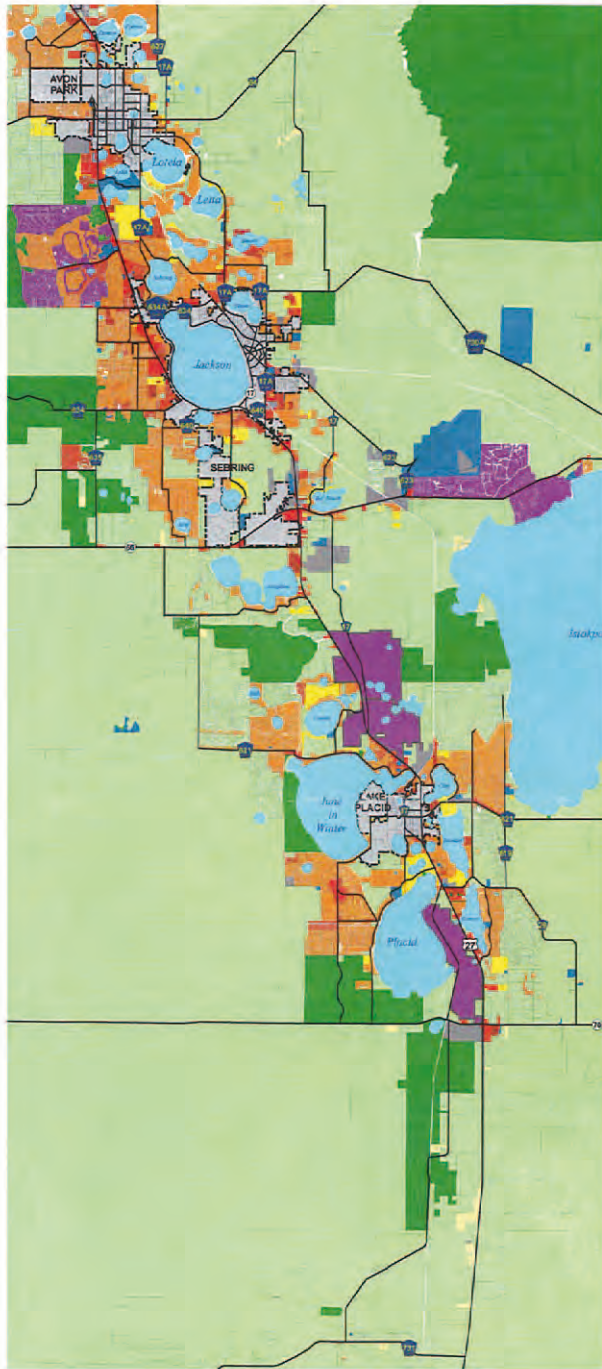
The north-south axis of the highway 27 passes through the Ridge, which is the best cultivable acreage for citrus fruit. This region is also perceived as a part of the agglomeration of the main city of Orlando and is therefore highly urbanized. This high development occurs to the detriment of citrus plantations. The citrus farming is more and more pushed out of town. In those regions around the highways the urban pressure is stronger than farming industry.



- Citrus Farming
- Urbanized Area
- Planel Development

Development in Lake Placid

Lake Placid is a farming city situated on the south of the Ridge, where the citrus farming is the main industry. Although future developments are planned on existing farms, even in this farming city the urbanization is stronger than agriculture.



Privat Vision - lot of Space

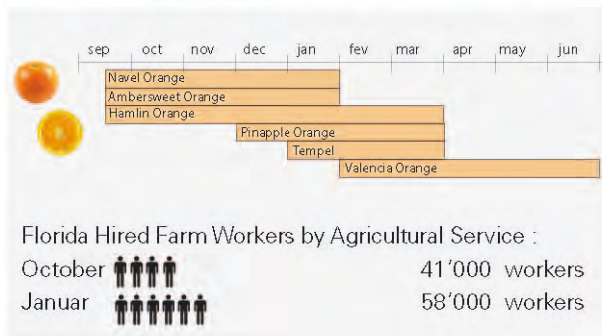
Americans desire a lot of space. The dream of a own house on a big green area prevails. In Florida everybody who owns land can build on it, but he has to organize himself the infrastructure. The only law prevailing is that you can build no more than one house per 5 acres.

Public Vision - Density

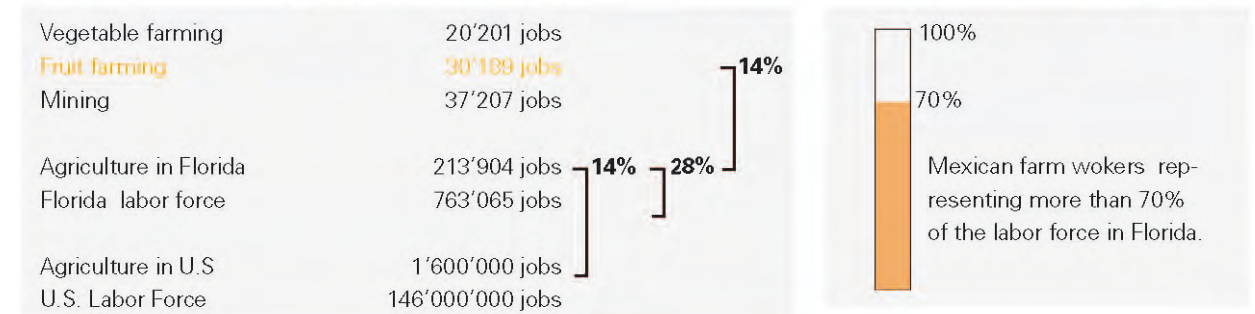
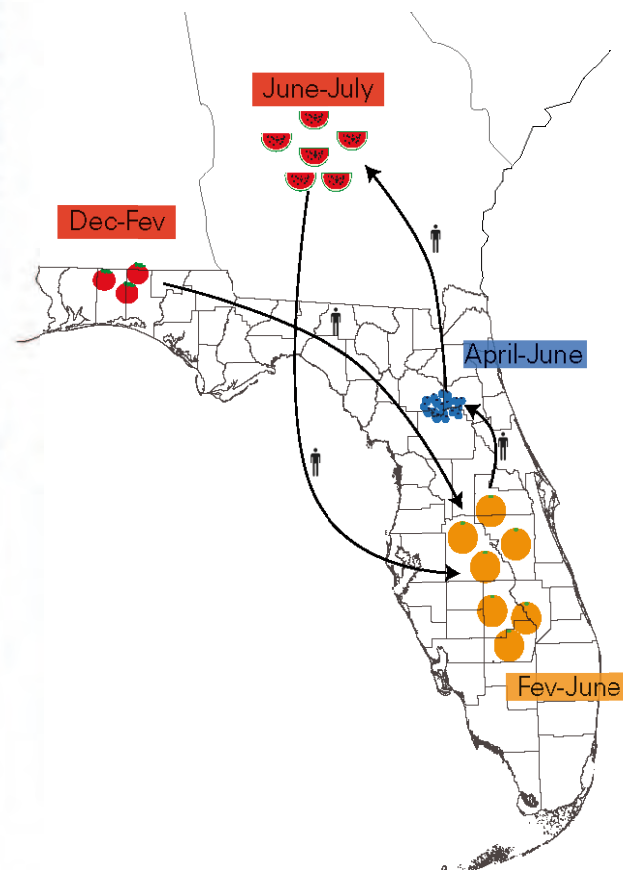
The Public Planning Councils plan really in a different way than the privates would wish it. They want to densify the territory so that the public services and infrastructures can be used in a more efficient way. They have to find some investors who are interested in a high density community.

Vision 2030 for the Ridge - Masterplan

In the same way as in Lake Placid, a densification is planned for the Ridge. Finally the citrus farming areas around the highway 27 will be situated out of town only.



Migration depends on the harvesting season

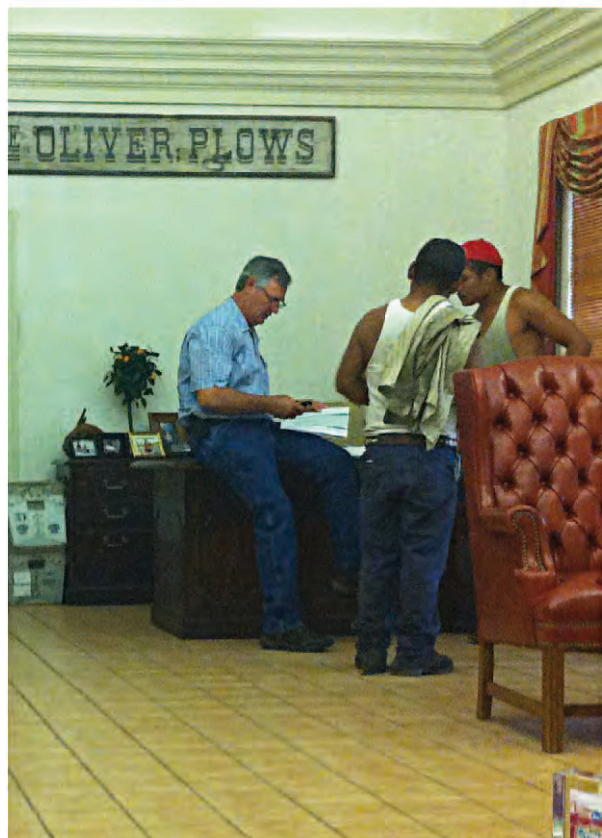


Temporary Urbanisation - Labor Force Migration

A significant percentage of people who work in the harvesting aspect of agriculture (across a wide range of different fruits and vegetables) are “migrants”. They move from crop to crop and from location to location. They may pick oranges in Florida, then blueberries in Georgia, then watermelons in Indiana over a 6 month period. Most of the folks that work in Florida crop in North Carolina and Georgia as well. That’s why the harvesting season of the different fruit generate a temporary urbanization in those places.

Employment Impact

28% of the Florida labor force are working in agriculture industry, therefrom 14% are working in the fruit framing. Mexican farm workers are representing more than 70% of the labor force in Florida. In the U.S workers on the field or in the agriculture industry are considered by the society as being on a very low social rank.



Labor Force Business - Production Flexibility

The pickers don't need a particular formation or experience to get a job. In this way they will be engaged in a very short term, but also only for a short time - for a few days or weeks. By this mean the farmers can very quickly adapt the number of employees depending on how the production is running.

Monday

08:30 am Interview with farmer,
Fill out a form

Tuesday - Friday

06:00 am At the farm house -
Hygiene, hand wash

06:15 am Drive on the field

06:30 - 11:00 am Picking

11:15 am Back to farm house -
Noontime

14:30 - 18:30 pm Back on the field - picking

18:45 pm Back to farm house -
Salary

Friday

19:00 pm Sending money to Mexico



Pickers' Work Planning

The pickers working time is around 9 hours a day.



Work on the Field as Picker

The work as picker is really a hard job. Most of them are men coming from Latin America. Often they are only engaged for a few weeks or months, depending on the harvesting season of the fruit.



Work in the Industry as Packer

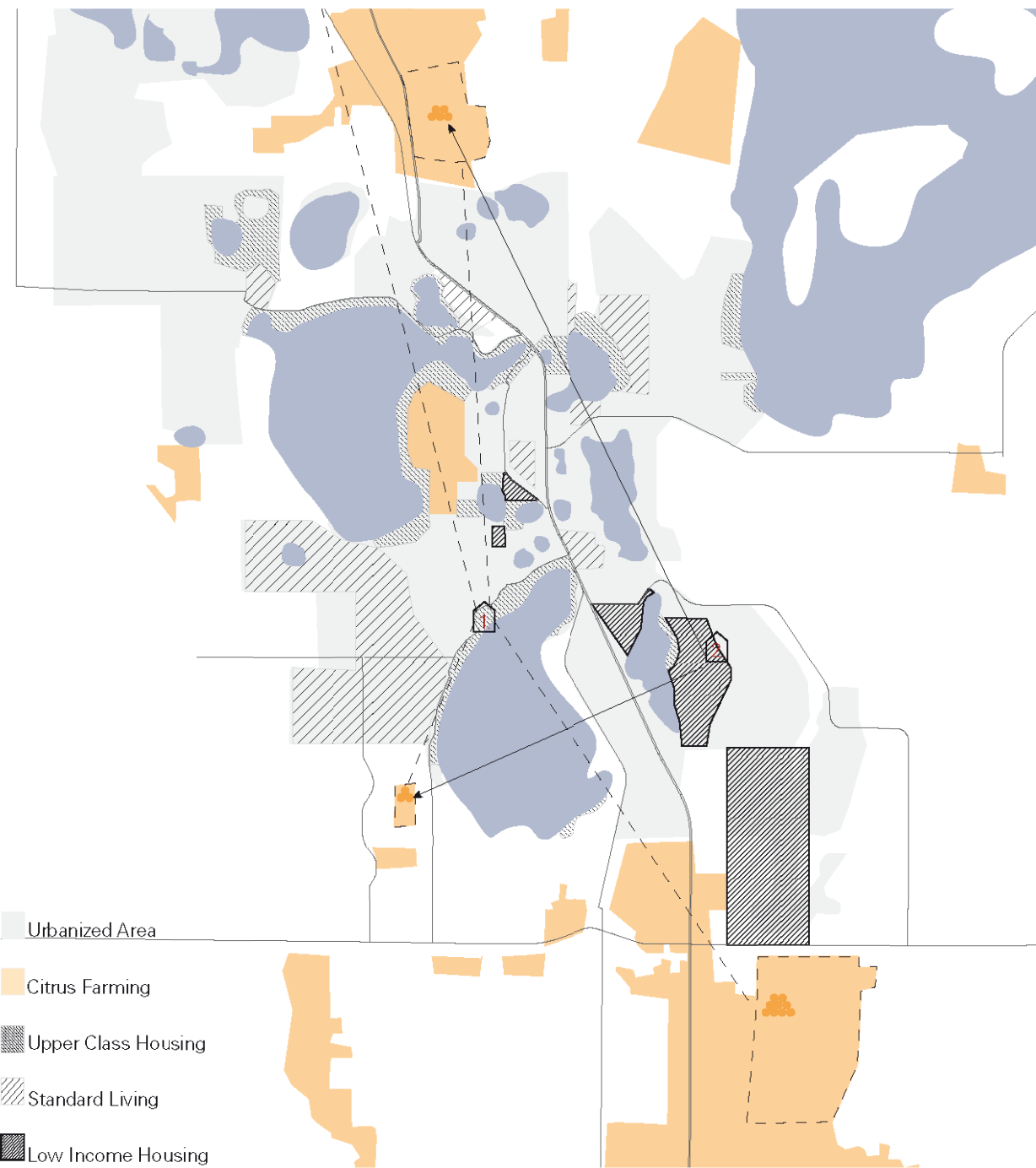
The most of the workers in the packing houses are women from Latin America. They are generally engaged for a period of 6 months. The work speed is really fast, the packers who are working for lots of years can load a orange box of 80 fruits in 1 minute.

Wages paid on the field per crop

October	8.90 \$/🕒	or	8.90\$/🍊
January	9.60 \$/🕒	or	9.60\$/🍊

Two Salary Systems

As worker in the industry or farming services you can choose to be paid per hour or per loaded boxes. The salary is also depending on the harvesting season and the economy. In the high harvesting period the salary is higher because the farmers need a lot of workers.



No direct Connection between Living Space and Farming Space

The living place of the labor force is really affected by this harvesting migration. Most of them have two or three different living spaces, depending on where they have to work. Often in each village where agriculture is present, there is a labor force community quarter, which is the

most poor place of the village. In Lake Placid, farmers and farm managers own houses around the lakes and own agricultural areas outside of the town, they haven't a direct connection to their plantations. The labor force picking the fruits are living on the leftover spaces in the town.



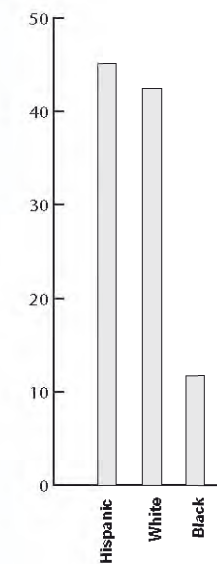
Plantation Owner - Upper-Class Housing at the Lake



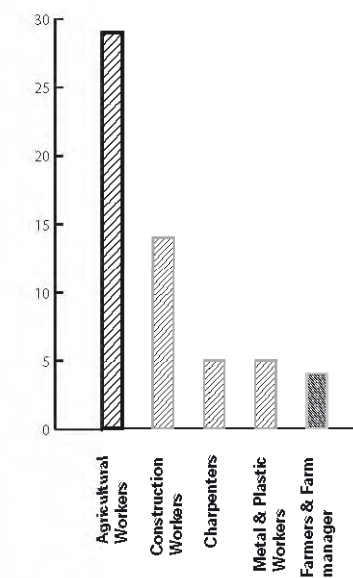
Plantation Worker Living



Standard Living



In Lake Placid 45.1% of the population are hispanic



In Lake Placid 29% of the population are working in the agriculture



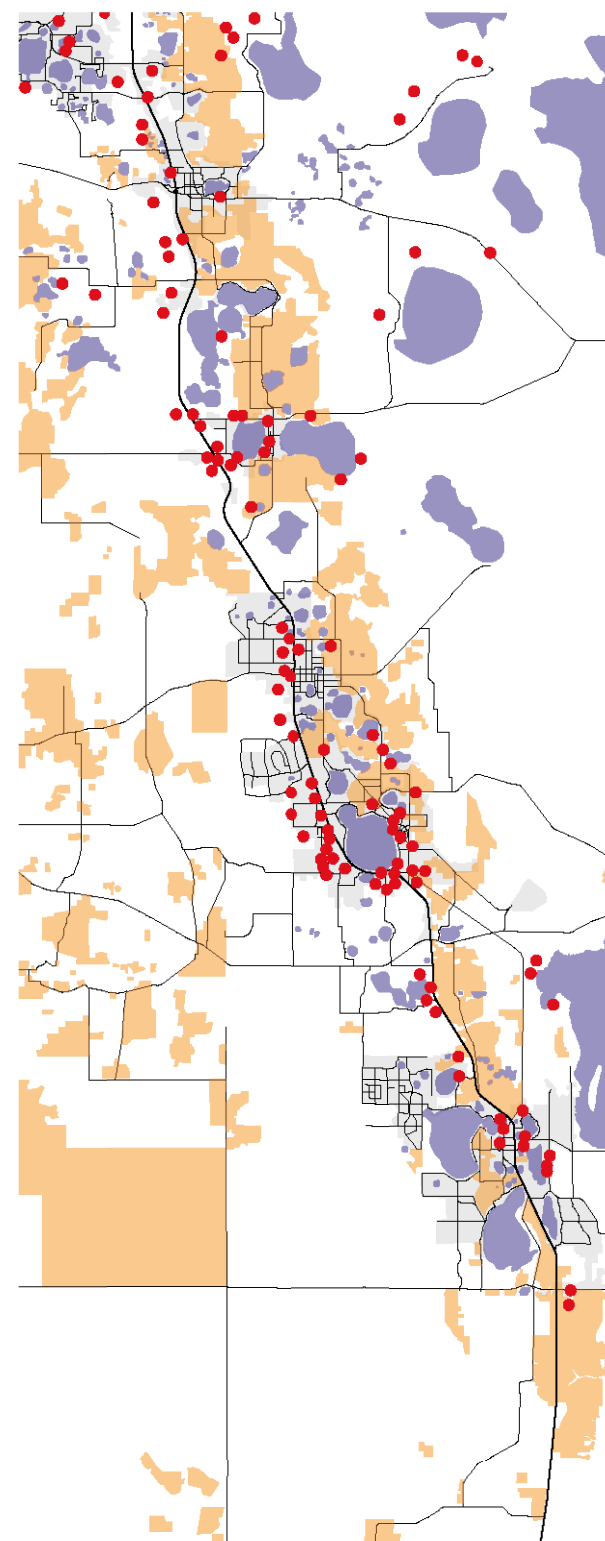
Self organized Home

The most extended labor force living in Florida is the mobile home. In most of the towns around the highway 27 no mobile homes are allowed anymore. This can be a problem for the workers to find a place to live. The existing mobile home parks can stay but there are no new planned anymore.



Farm Managers provide Home for Workers

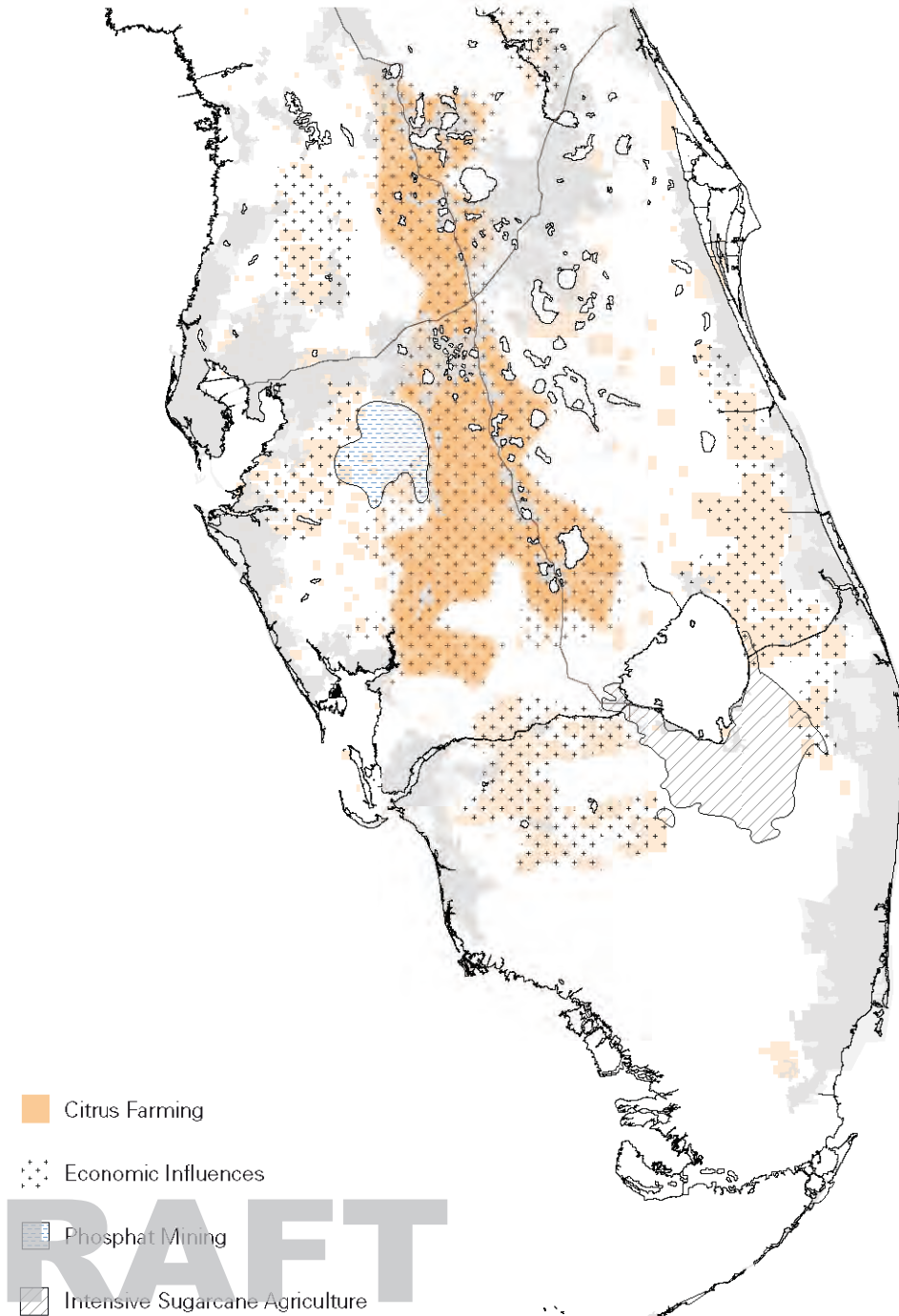
Very few farms provide houses for the pickers. They only provide infrastructure if the farm is situated in a isolated location to be sure to get enough people to work there during the harvesting season.



- Citrus Farming
- Mobilehome Park

ECONOMIC INFLUENCES

The main concurrence of Florida in citrusmarket is Brasil. That is why they do intensive researches to advance technologies and increase the efficiency of the process. Florida's citrus industry is highly industrialized and leading in defending deseases. The citrus areas are manly concentrated in central Florida and generate lots of working places. Due to this concentration in this region the industry is strong enough to resist against urban pressure and climate changes.



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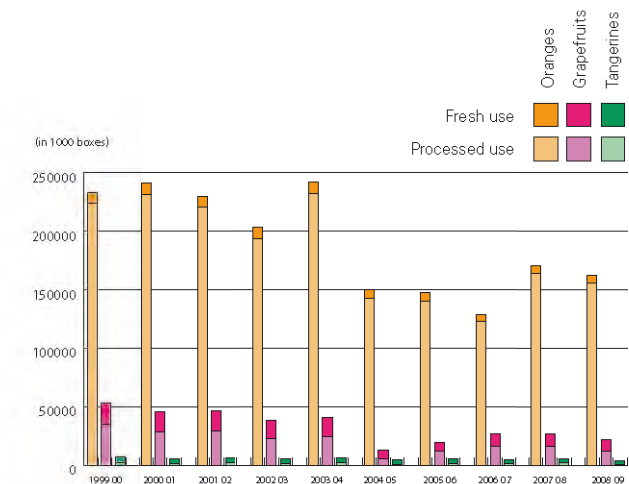
50 years ago the citrus plantations have been wide and open. The distances between the trees have been large.



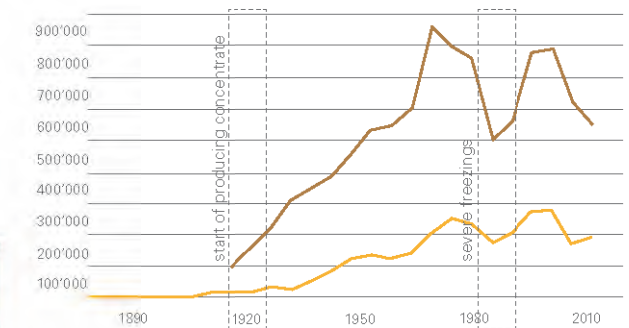
Nowadays the production of citrusfruits is still rising but the farming areas got more and more smaller, that's because citrus trees are plant much closer to each other.

Progression of Efficiency and Production

To be able to keep up with the global competition citrus farming has become more and more effective during the last years. Furthermore there are institutions like the citrus research center (CREC) in Winter Haven who do lots of researches to defend the crop of diseases, find new technologies or ways to increase the production. The production extended more than 4 times since the industrial production started in 1920.



Citrus production of the past ten years



Growth of — production (in 1000 boxes) and — acreage (in acres)



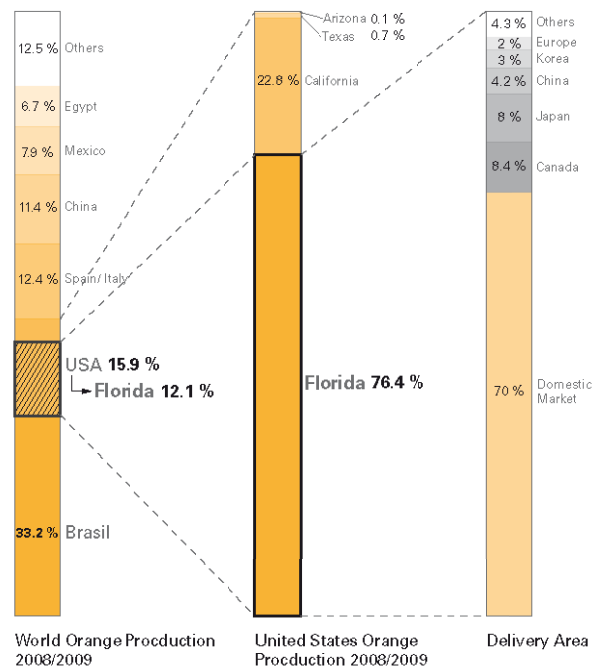
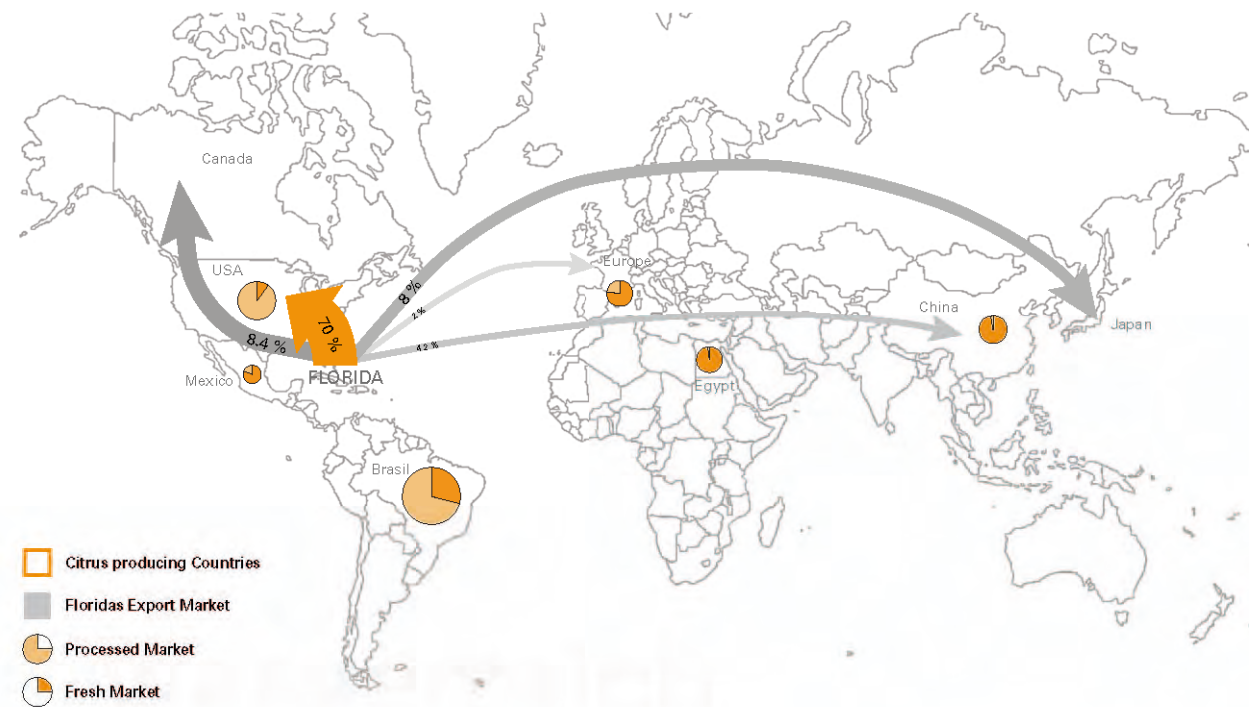
Citrus Canker and Citrus Greening

Citrus Research Center CREC

The research center is a part of the University of Florida and teaches everything about citrus. The facility is directly connected to the growers and support them through annual reports. Main topics investigated by CREC are the frozen concentrated orange juice, the control of citrus greening and canker and the impact of nutrients on citrus. The goal is to find tools to grow better, protect the fruit and genetic solutions to get more efficiency.

	N	P	K	Mg	Irrigation
Juice Quality					
Juice Content	Green	Grey	Orange	Grey	Green
Soluble Solids (SS)	Green	Grey	Orange	Green	Orange
Acid (A)	Green	Orange	Green	Grey	Orange
SS/A Ratio	Orange	Green	Orange	Green	Green
Juice Colour	Green	Grey	Orange	Grey	Orange
External Fruit Quality					
Size	Orange	Grey	Green	Green	Green
Weight	Orange	Grey	Green	Green	Green
Peel Thickness	Green	Orange	Green	Orange	Orange

Influence:
■ positive
■ neutral
■ negative

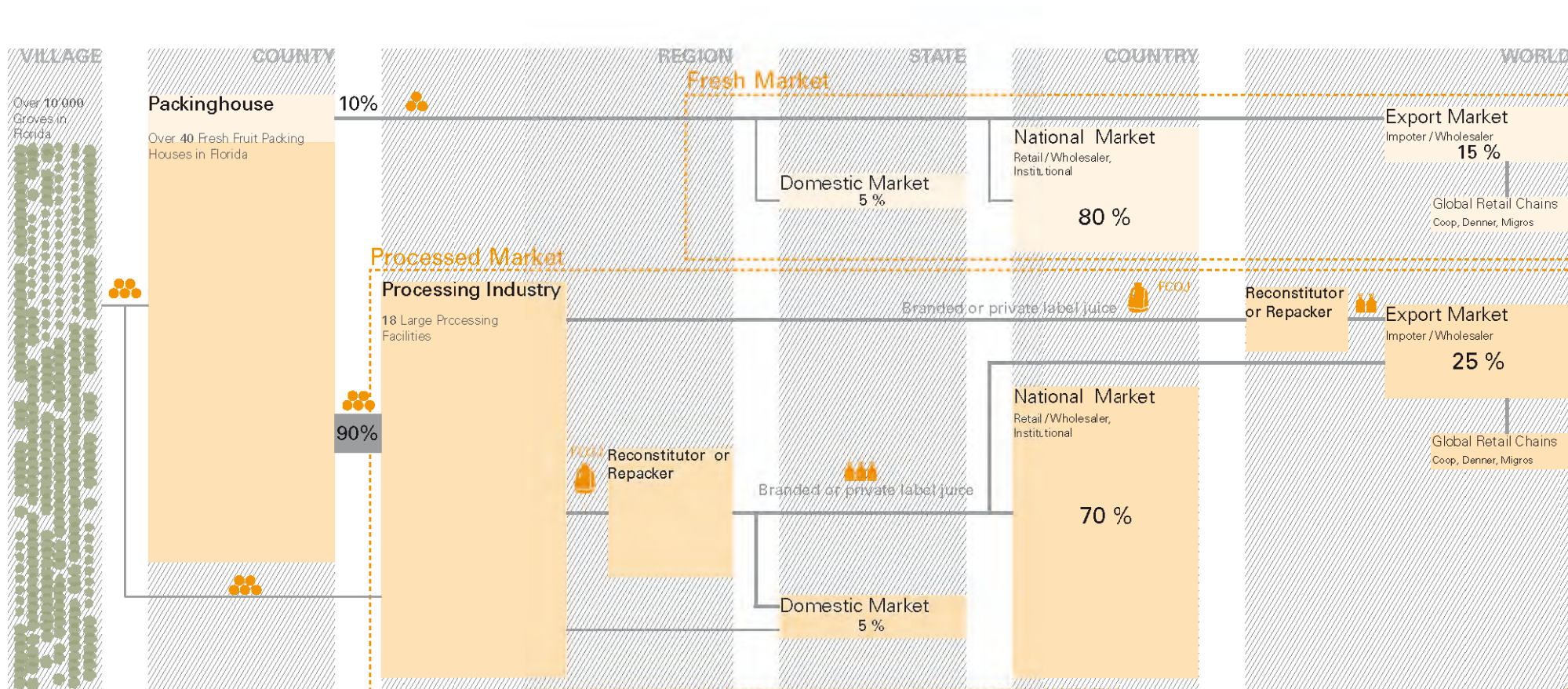


Export Market

Orange juice is very popular in the United States that is why 70% of Florida's orange production stays in the US whereof 75% as processed juice and 25% as fresh fruit. The main export market is Canada followed by Japan and China.

Global Competition and Trade

USA's orange production equals 15.9% of the World orange production and out of this 75% is produced in Florida. Although Florida contains just a small growing area compared to other citrus countries but it is so efficient that it produces 12.1% of the world citrus production.



Citrus Business, Companies and Labels

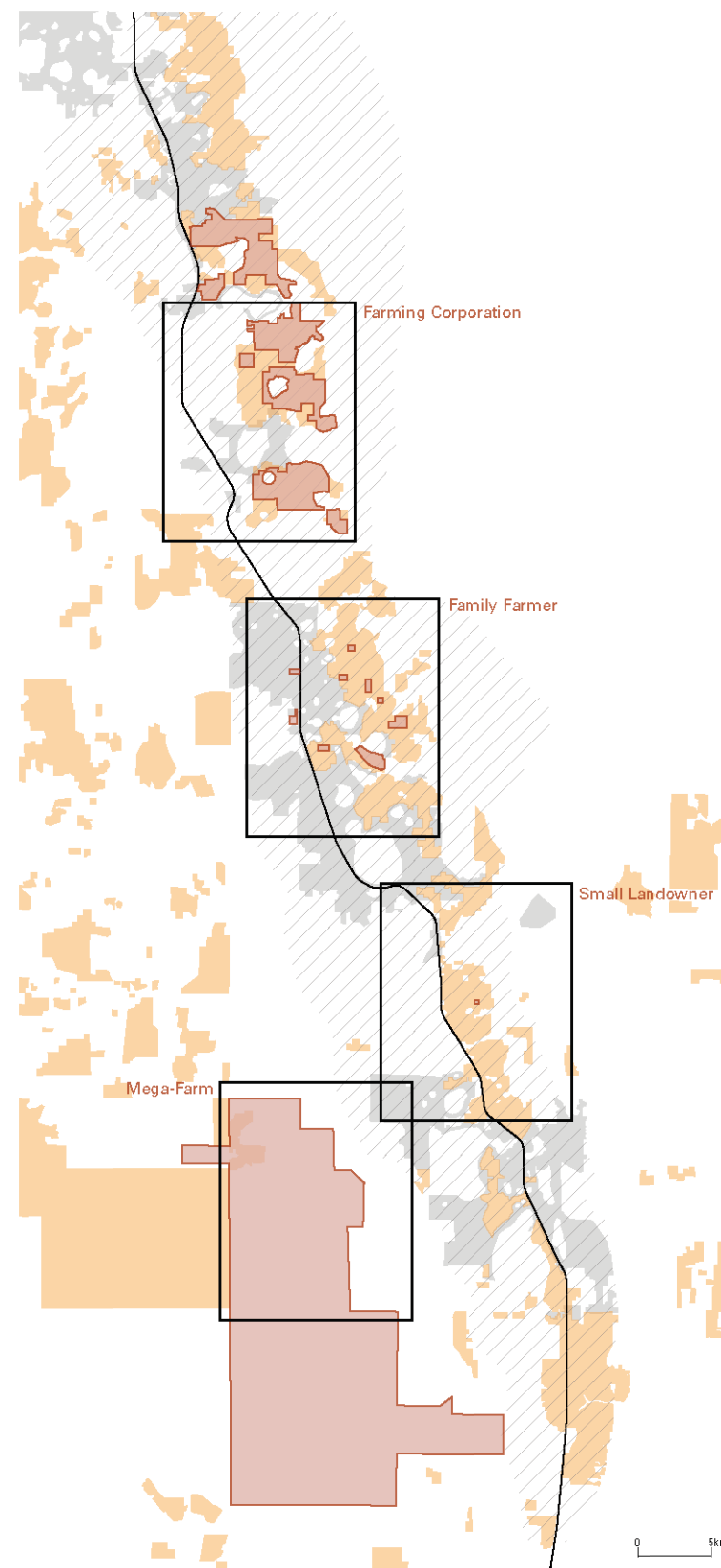
The citrus industry is mainly divided in two markets: Fresh and processed fruit. 90% of all citrus crop goes to processing industry where the fruit is getting frozen concentrated orange juice. In the majority of cases one of the big citrus labels is working together either directly with farming corporations or processing facilities.



Price per Box of Citrusfruit: around 10 \$

Size of one Box: 90 Pounds
Box of 80 or 100 Oranges

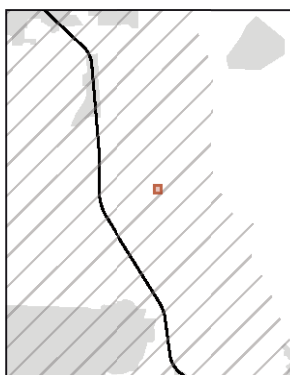




Mega-Farms:	6
Farming Corporations:	20
Family Farmer:	1120
Small Landowner:	8978
<hr/>	
Total Groves in Florida:	10'124

Internal Forces: Restructuration

Besides global competition and efforts to raise efficiency in technologies it is noticeable that there is something going on within the structure of Florida's citrus industry. Today you can generally find four different farming types. These types mainly distinguish in size of farming area, diversity of products and their trading connections. Small landowners more and more give up their land to big business farmer.



Small Landowner

Farming Area	50 acres
Workforces (during harvesting season)	10 - 15
Orange Production per Year	34'000 Boxes
Diversity of Products	Navel Oranges 100%
Sentimental Connection to Citrusfarming	

= 50'000 boxes
 = 10 workers



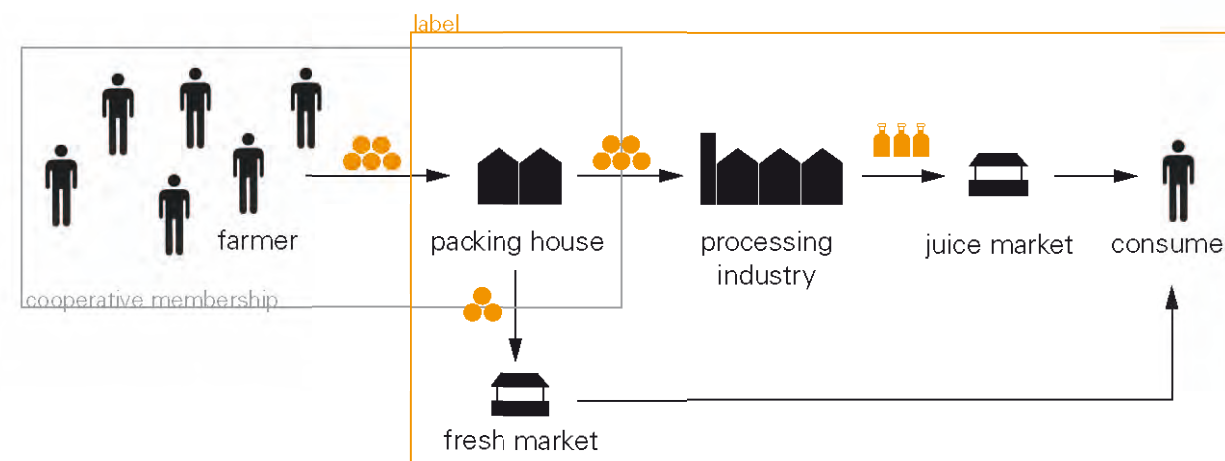
Farming for Living

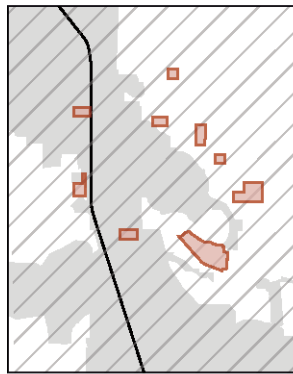
Small landowners are still the majority in Florida. They have studied citrus or live in citrus growing regions and opened an own business just to cover the living costs. Everyone in Florida can buy some agriculture acres in the right regions and begin to harvest citrus. Normally these small farmers have a membership in cooperatives to sell the fruit to better prices.



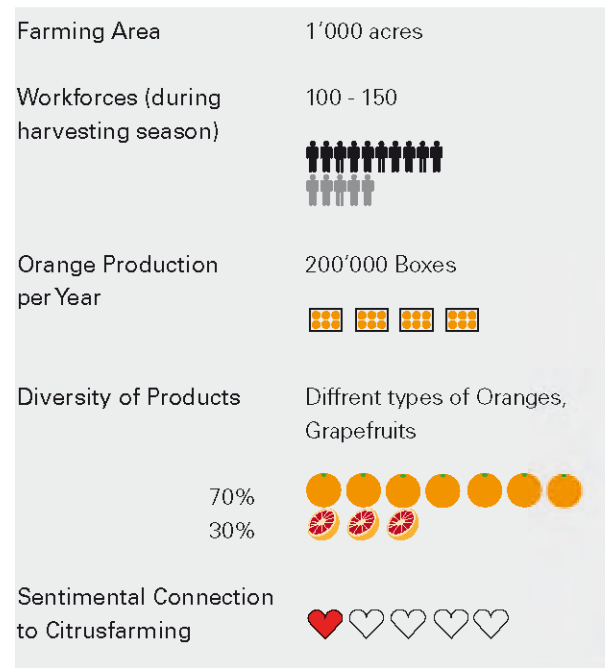
Grower Cooperative Assotiations

"Formed in 1948, Mutual has served the Florida citrus grower for more than 60 years. Led by a board of 21 member-elected directors, Mutual is the largest cooperative association dedicated to helping Florida citrus growers produce and market their crops at a profit. We're looking out for the best interest of the growers every day, whether it is in the halls of Congress or the groves of Florida's citrus belt."



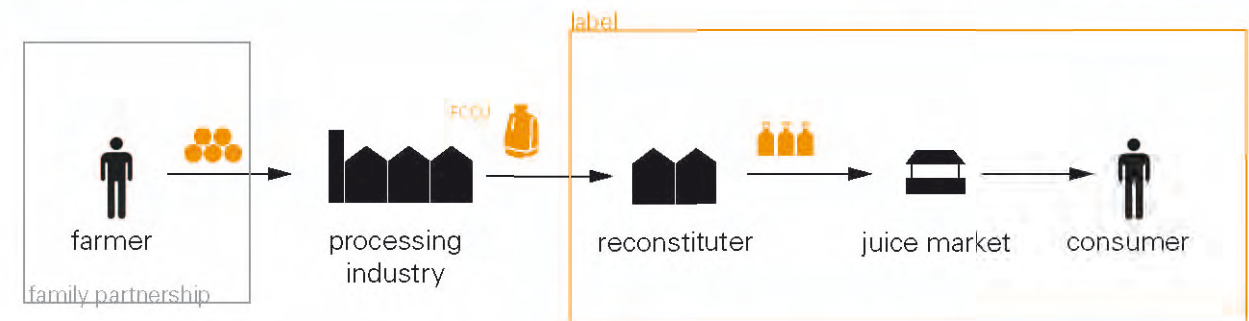


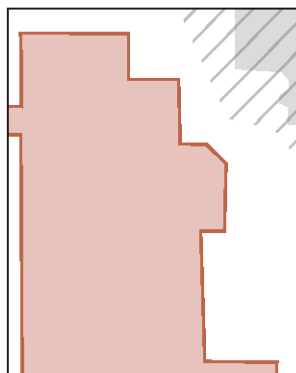
Family Farmer



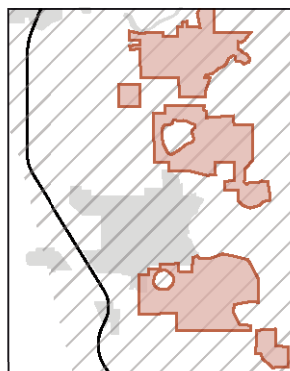
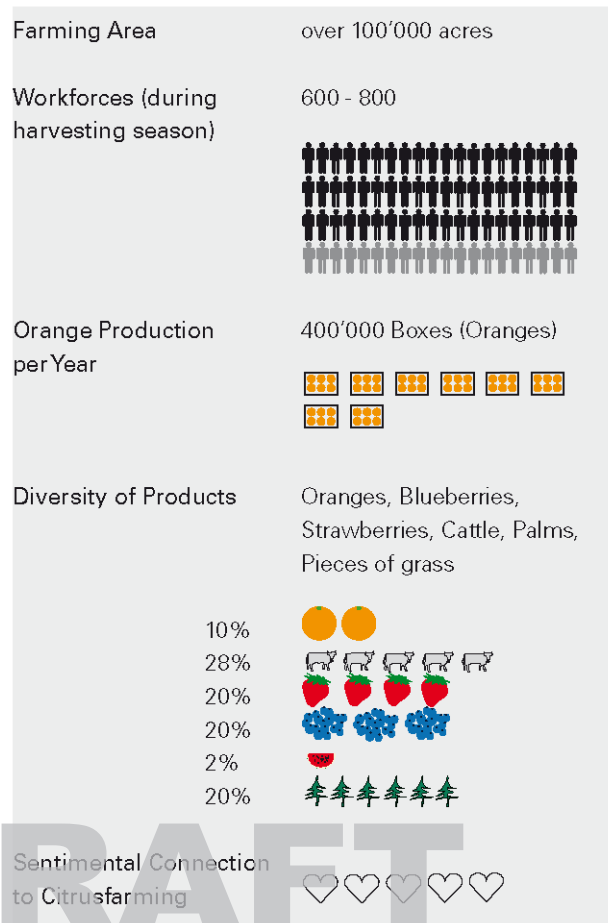
Farming as Family History

Next to small landowners there are farming structures existing who base on family dynasty. Grand grand fathers who worked in other businesses came down from other states to Florida and bought some acres to build a new commercial activity. This became family tradition and most of the children and grand children take over farming affairs. Lots of children from family farmers also marry other children from family farmers.

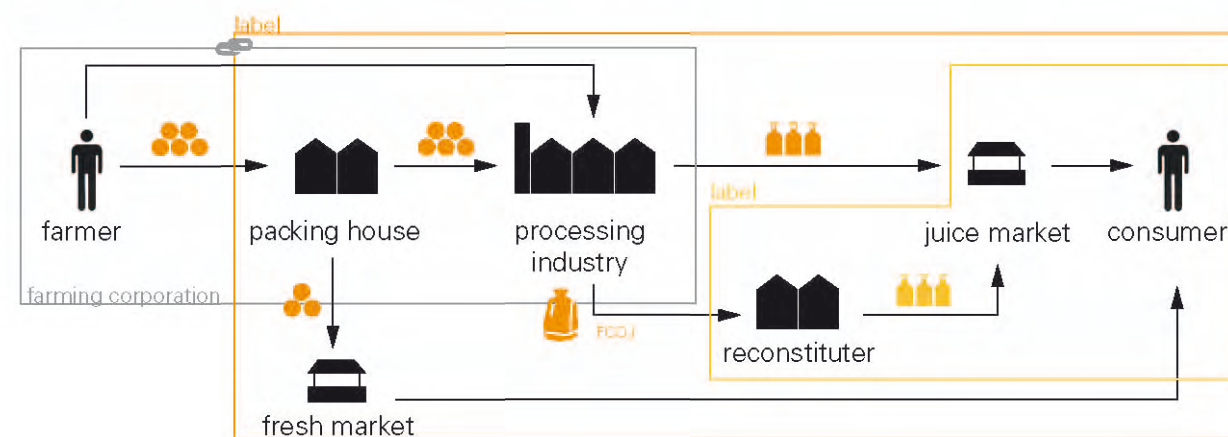
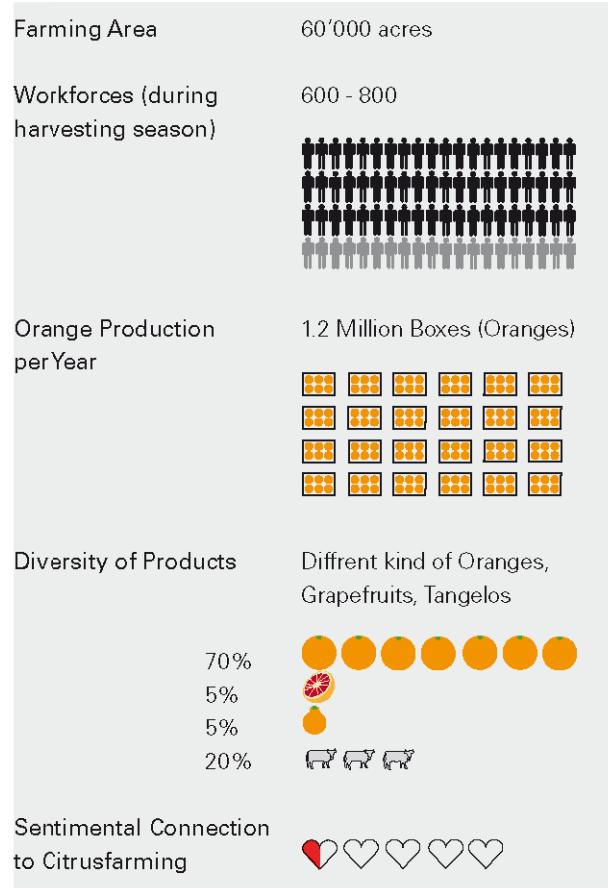




Mega-Farm



Farming Corporation



Highly Profitorientated Farming

There are just a few mega-farms and fistful big farming corporations in Florida existing. They grow various products and in most cases they own a packing house and a processing facility. Normally they closly work together with

a big citrus label and buy in addition fruits from small land-owners. They often are not closely sentimental connected to citrus farming, it is just business. The main goal is to get a profit as high as possible.

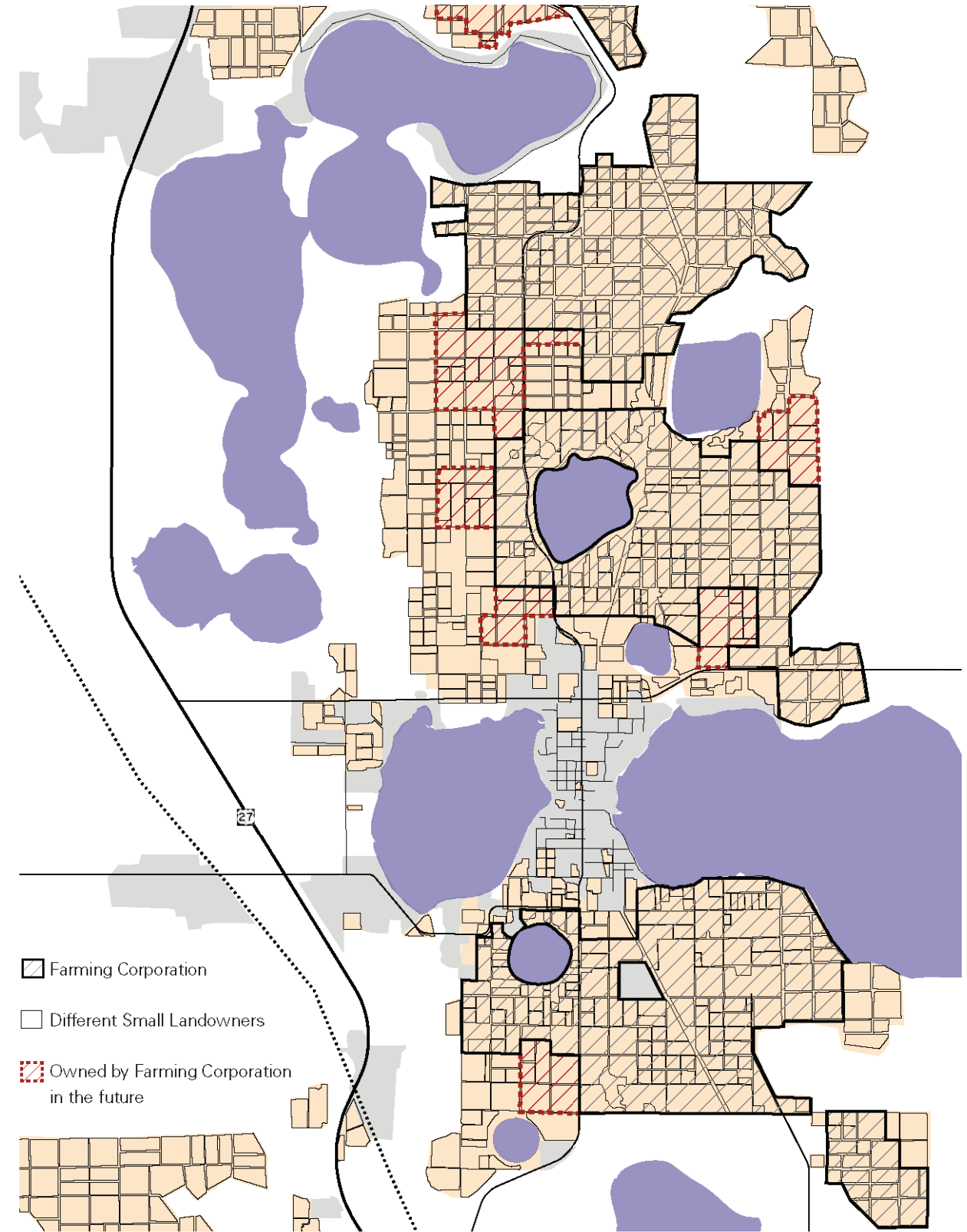


Frostproof 1965, Polk County, Florida

**Extinction of small Landowners -
Remaining of a few Business Farmers**

Today there are about 9000 small landowners existing in Florida, this is nearly 90% of all growers. However it looks like that the future trend is that business farmer more and more buy all the land of small farmers and get bigger and

bigger. In the end the result will be several mega farms and business farmer in Florida and the extinction of small landowners.



Frostproof 2011, Polk County, Florida

AGRICULTURE IN TRANSFORMATION

Especially in northern regions agriculture land is sold for other purposes, particularly along the highway 27 where it is not profitable anymore to harvest citrus crops. Though it is possible that the new buyer is going to cultivate other crops or does other agricultural affairs. However in the majority of cases near by highway 27 the landuse got changed into residential, commercial or industrial landuses.

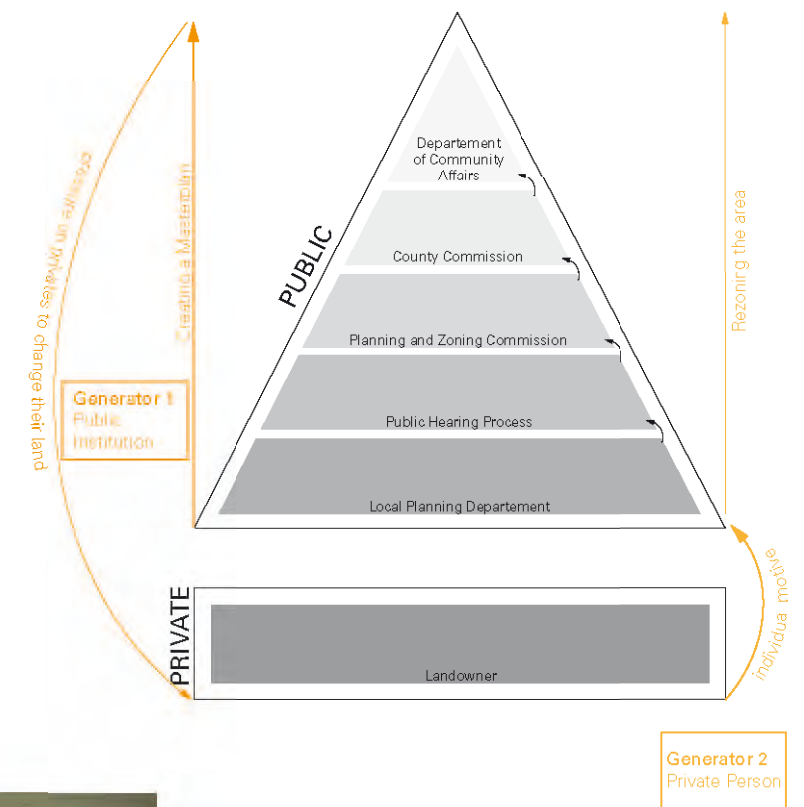


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Politics are not interested in protecting Agriculture

In Florida there is no political movement existing to protect the agricultural settings. The government seems not to be interested in agriculture policy, whereas local farmers represent the most effective force in regulating the industry.



Two kind of Generators to change Landuse

1. A public institution like a regional planning council initiate a new masterplan for their region. This masterplan shows the future zoning plan with the accordant uses. Out of this masterplan the local private landowner can decide whether they want to change their land or not. The public institution always has to dispute with the private owners.

2. A private landowner has an individual motive to change his agriculture land into an other use like residential or commercial (possible motive: agriculture is not profitable anymore). He has to go through several steps of public institution.

The entire process can often take at least one year or perhaps several years.



No law Protection and no Subsidy

Farmers feel that the government is not interested in their business and they do not receive any help or subsidy like in Switzerland. However the agriculture industry is such a strong economic sector that it survives anyway.



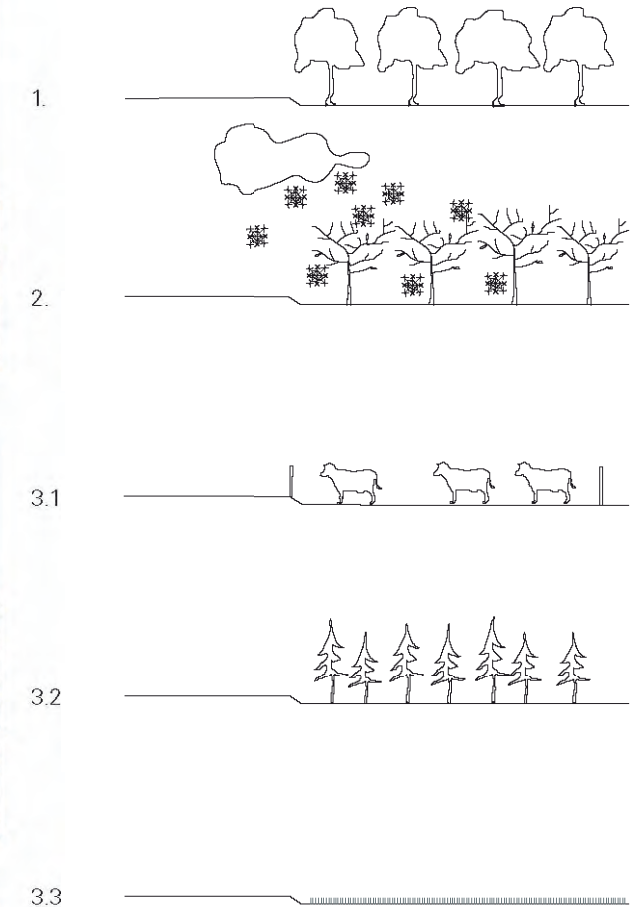
3.1 Cattle Ranching



3.2 Christmas Tree Farming



3.3 Pasture Land Farming for instance for Golf Courts



Climate Change & Economic Influences

1. Citrusplantation of northern regions
2. Freezings destroy the crops and often also the trees
3. Citrusfarming is not profitable anymore in this region, so they let the trees dying
- 3.1 The land is used now for alternative agricultures like cattle ranching
- 3.2 or christmas tree farming
- 3.3 or pastureland farming for instance for golf courts

Citrus vs. Alternative Agriculture

If citrus farming is not profitable anymore (due to different reasons) or climate protection is not possible and no demand for urban development is existing the area is often used for alternative agriculture forms. Such as pine tree farming, cattle ranching or christmas tree farming.



Citrus vs. Development

Different factors lead to replacement of citrus areas into residential or commercial building areas. On one hand due to climatic circumstances on the other hand, an more important, due to urban pressure along the coast or around the highways. In these specific areas urban pressure always wins the battle against agriculture. However in Floridas heart are still regions where citrus agriculture is stronger than any other influences.



Urban Pressure

1. One of the reason which push a landowner to change the use of his land is the comparison of the price of agricultural land to residential land
2. The trees got killed...
3. ...and removed for new developement
4. New residential buildings got built
5. The price for the same land after the landuse change depends on a lot factors: infrastructure, location, soil quality, water ressources and so on.



Polk County, Babson

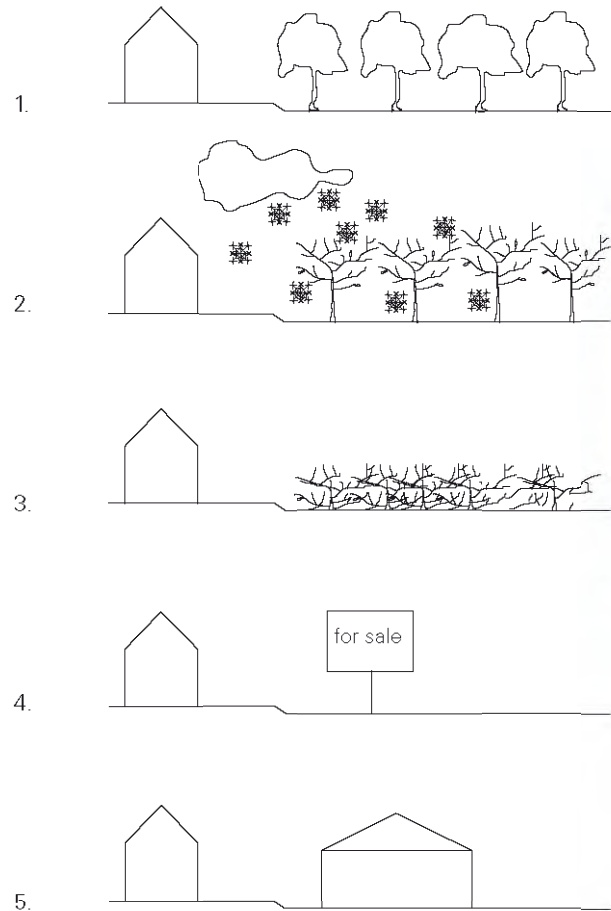
Now: Citrus Farms
34.41 acres

\$ 27'000 per acre

New use: **only development**



"20 Acres mature Hamlin Oranges and 10 Acres Sunbusrt Tangerines with Orlando Tangelo polinator. Development is going toward this area"



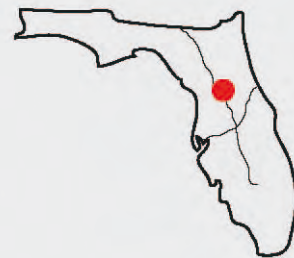
Climate Changes & Urban Pressure

1. Citrus plantations in northern regions
2. Freezings, cold periods and diseases destroy the crop and the trees
3. The trees die...
4. ...and do not get replaced. The farmer decides to replant somewhere else and sales the area
5. Usually the area got changed into residential or commercial use



Lake County, Minneola

Farm
87.44 acres
\$ 25'000 per acre
New use: Mixed use



"Excellent Investment. Mixed use, 125 single homes, 120 condominiums, and 13+/- acres of commercial property. Ideally located just minutes from Hwy 27 and Florida Turnpike, area schools, shopping and restaurants."

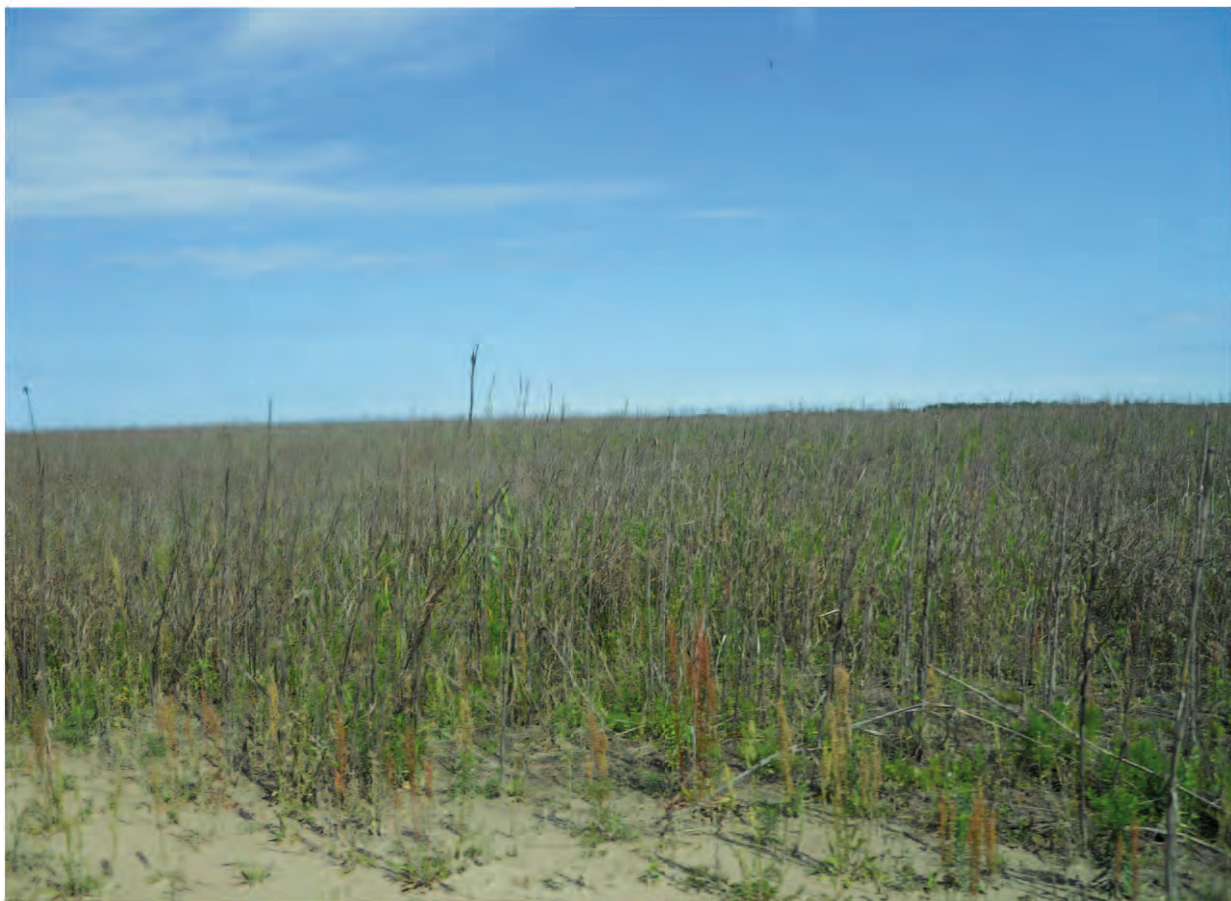


Orange Tree Village, Lake County



Citrus as Promotion for new Development

Due to certain circumstances like climate change or urban pressure citrus basically disappears but the idea of the image of citrus and its significance for Florida is still there as a brand and to promote the new urbanized areas.

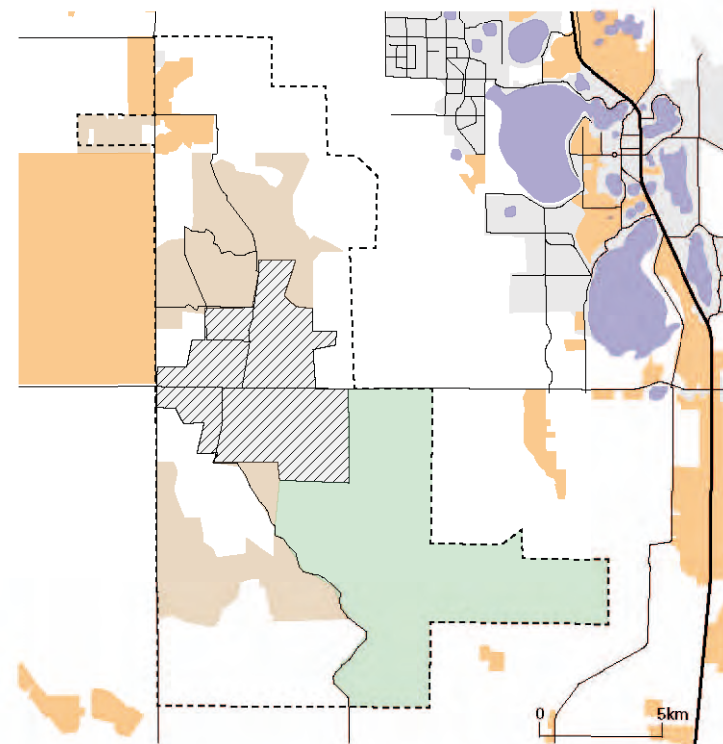


Recreation Areas as Ecology Strategy

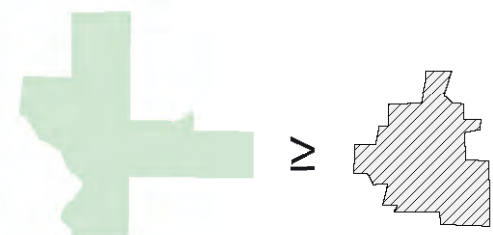
Most of the land in Florida is owned by private owners. Normally the rule is that for each 5 acres of land somebody can built one house on his property. For owner of large estates who want to make money with new residential developments on their property this rule is not conducive.

It is possible to get permission for large development areas but they have to make sure that the balance with recreation areas is guaranteed. On this land they neither built nor cultivate.

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- Atlantic Blue Ranch (Mega-Farm)
- Citrusfarming
- Cattle Ranching and other Crops
- Planned Development Area
- Planned Recreation Area

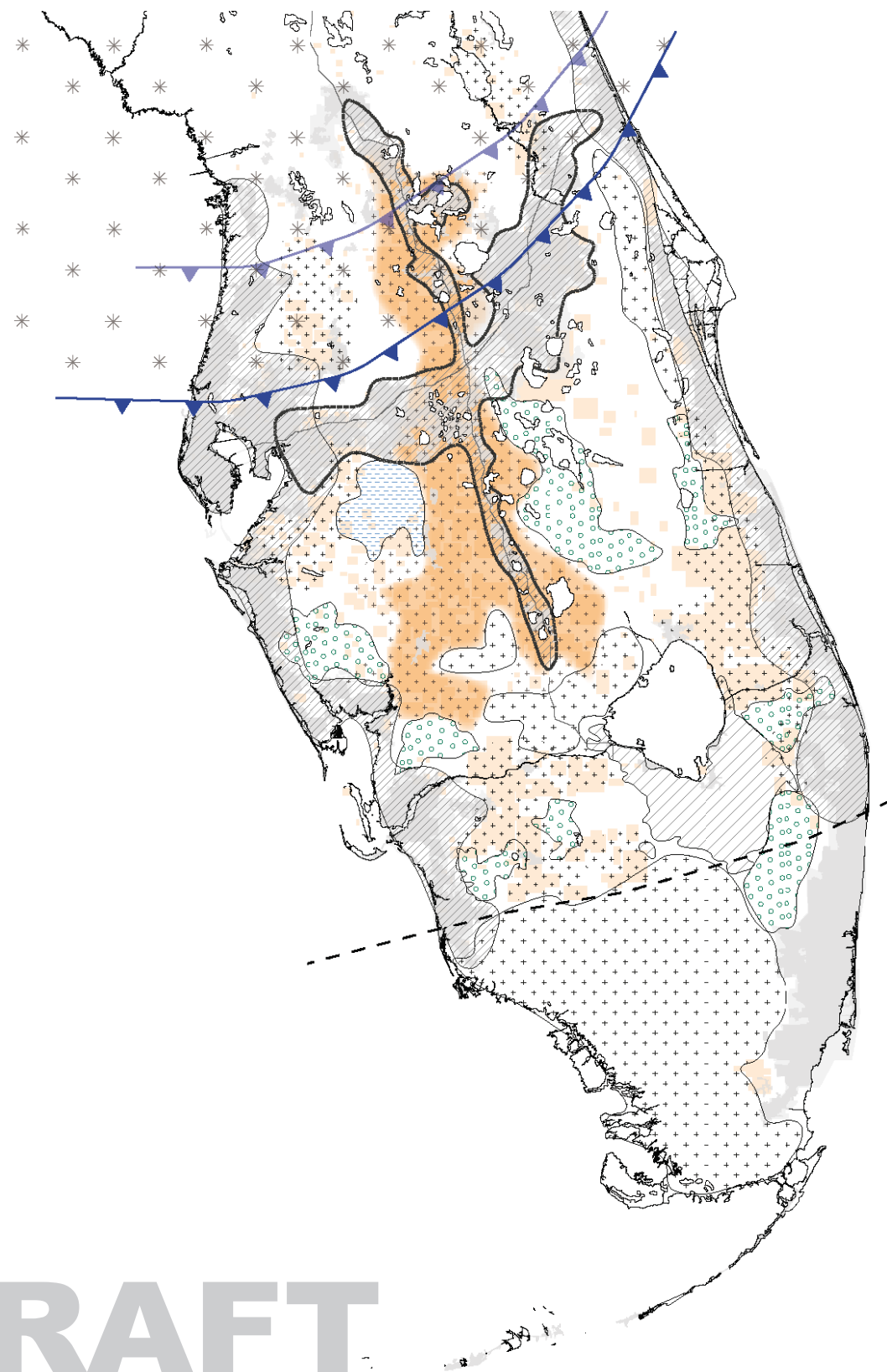


Owner of a large estate who wants to create residential areas must give up an equal area for recreation.

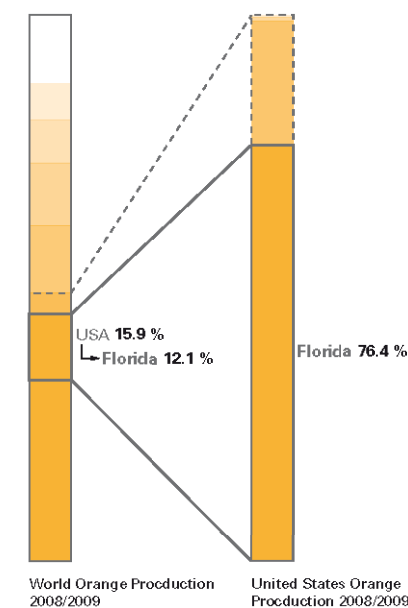
Recreation Areas - Atlantic Blue Ranch

Atlantic Blue is an example for a mega-farm in Florida. It is situated near Lake Placid next to highway 27. Besides

harvesting different fruits they have large areas of cattle ranching and they get involved with new urban plannings.

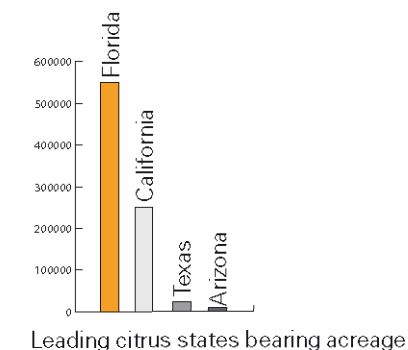


- Climate Change
- Coast Pressure
- Pressure along big Infrastructures
- Economic Influences
- Not suited Soil
- State Parks
- Phosphat Mining
- Intensive Sugarcane Areas



Industry Ranking :

1. Tourism	\$ 57.0 billion
2. Citrus Industry	\$ 8.9 billion
3. Space industry	\$ 4.5 billion



Citrus Farming resists Urban Pressure and Climate Change thanks to the strong Economic Impact

Nowadays there are almost no more spaces left for the citrus agriculture to dispread. National forests and phosphate mining border the citrus area even like soils that are not suited for citrus agriculture and in northern regions the temperatures are not warm enough. Besides the urban pressure along the coast and the highways. What makes the citrus industry survive is the very strong economic impact in Florida and strong concentration of the citrus area. After tourism citrus agriculture has the second largest economy impact of Florida. Furthermore the industry generates lots of workplaces.



Pinellas County 1951

Pinellas County 1970

Pinellas County 2011

Structure survives Landuse Change

In Florida they always build the infrastructure first. In the majority of cases the infrastructure is built as a grid with defined distances. All different kind of landuses are then fitted in this grid. Therefore the agriculture structure is highly geometric and after landuse changes the structure of the agriculture fields are still present. The structure always survive doesn't matter which use the area has.

For instance 60 years ago there has been a lot of citrus in Pinellas County and today every part is urbanized. Nevertheless you can still find the main structures of the citrusplantation.



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Joe Murphy, Farmer, Frostproof, Personal Interview (24 March 2011)

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IMAGE CREDITS

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