The Brazilian citrus industry

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“Sailing west to reach east...”

Cabral reached Bahia in 1500...

Picture: https://br.pinterest.com/pin/443041682068775993/
“Indians” used to paint things with an ink extracted from a tree named ‘pau-brasil’

Hence, Brazil is a name of a tree (almost extinct by that time...)

Picture: http://cplantar.com/tag/pau-brasil/
1st report to the King of Portugal:

“...anything you plant here in this land will certainly grow...”

Someone brought citrus seeds...

1530 citrus in Cananéia SP...
In 1808, Portuguese Royal family escaped from Napoleon and came to Brazil

Emperor Pedro I declared our Independence day: 7 Sep. 1822

Citrus cultivated in São Paulo, Rio de Janeiro and Bahia

In 1867 cultivated in Miranda Valley (MT), 1880 in Ceará,…

Citrus became “native” …
Transition to the XX Century…

Exporting Oranges

- 1880s, Seedling trees…
  - Long waiting for fruits
  - Root rot

- 1900s, Grafting…
  - Sweet oranges grafted on Sour
  - "Magnificent combination"…

1915, SP State distributing young trees on Sour Orange Growers around Limeira (SP)
1918, citrus in Boquim (SE)
1920’s, SP and RJ exporting to Argentina
1926, Taquiri Valley (RS) exporting to Uruguai and in 1933 to England. Trees on Sweet orange rootstock.
1928 Created the Experimental Stations of Limeira and of Sorocaba (IAC), and in 1931 in Taubaté
Vila do Jeru (BA), Bahia orange
1930’s, SP and RJ exporting to Europe (1million boxes by Santos harbour)
Limeira (SP) with more than 20 exporting companies
1930, Experimental Station in Deodoro, RJ
1930 to 1939: “the Golden time”
Bahia (navel type) and Pera oranges
1931, Viçosa (MG), prof. Peter H. Rolfs´ report about Rangpur Lime

Source: Donadio et al, 2005; Map: http://www.guianet.com.br/
After 1939..., 2 wars:

Images: 1) http://sgforums.com/forums/1164/topics/391077; 2) R.Lee; http://ecoport.org/ep?SearchType=pdb&PdbID=1315
A sad time ("Tristeza") for citrus growers..., ~ 10 million trees decimated.

Dr. Sylvio Moreira, “the architect” of the Brazilian citrus industry

Old lines of Bahia, Baianinha, Pera, Barão,…

Rangpur Lime

Pictures: 1) E.F.Carlos, SP; 2) http://www.fao.org/docrep/u5000e/U5000E0v.htm
Old lines of Bahia, Baianinha, Pera, Barão,…

By 1950s, viroids…

- nucellar clones from IAC-Limeira’s Experimental Station (from 1936 experiments…)

By 1960s, nucellar clones rebuilding the Citrus Industry…

- 1963 IOCV, Campinas, SP

Picture: http://www.fao.org/docrep/u5000e/U5000E0v.htm
Tribute to many growers...

Ludwig Eckes, Glynn Davies and Carl Fisher

Casa Peter Eckes, Europe retailer

Florida Orange businessman

german naturalized brazilian

Source: Citrosuco archives
Tribute to many growers...

Citrosuco, Matão, SP, 1975

Em 1975, o crescimento da indústria já contribuía para o desenvolvimento da cidade de Matão.

Source: Citrosuco archives
Tribute to many growers...

Edmond Van Parys, José Cutrale Júnior and Carl Fisher, RJ, 1982

Citriculture in Paraná (~ 32,000 ha)

Pictures: E.F.Carlos, P.Emerson, I.Lopes; Cocamar archives, Citri and Prats archives

Tribute to many growers...

Gilberto Pratinha

Pictures: E.F.Carlos, P.Emerson, I.Lopes; Cocamar archives, Citri and Prats archives
...end of 1980s

Citrus Variegated Chlorosis (CVC)

Pictures: Fundecitrus
Protected nurseries

Up to 1980’s ...

Rangpur lime rootstock: good tolerance to drought!

But, in 1990’s ...

Map: http://www.guianet.com.br/
Citrus sudden death!

Rangpur lime being replaced by...

Swingle citrumelo and others...

Picture: E.F.Carlos
Bebedouro, north of São Paulo State, dry season of Sep. 2006, ~ 90 days without rain
Valencia orange/Swingle Citrumelo

Solution ? Many groves started being irrigated...

Effect of drought on a non-tolerant rootstock

Picture: D. Mattos Jr
The concept of Flower induction...

flowering induction  flowering  fruit set  yield
In 24 years, production raised 82.2% (~2.5 MT/year).

Source: http://faostat3.fao.org
World production of Total Citrus 2013: 140.3 MT

- China, mainland: 32.6 million tonnes
- Brazil: 19.7 million tonnes
- United States of America: 10.1 million tonnes
- India: 10.09 million tonnes
- Mexico: 7.6 million tonnes

Source: http://faostat3.fao.org
In 24 years, China raised 10.2x !!!

Total world production of citrus (source: FAO)

Source: http://faostat3.fao.org
In 24 years, USA reduced to 0.9x

Total world production of citrus (source: FAO)

Millions of Tons

- China
- USA

Source: http://faostat3.fao.org
In 24 years, Brazil raised 1.3x
Then, the year was 2004...

HLB in SP
March of 2004
CCSM and Fundecitrus

Araraquara

Pictures: E.F.Carlos, 08 Jul 2005

Texeira et al (Plant Disease, v.89: 107, 2005)
Colleta-Filho et al (Plant Disease, v.89: 848, 2005)
Normative Law number 10, March 18th 2005, “Greening Task Force”:

1) Inspection

2) Tagging trees

3) Help

4) Corrections

Sep. of 2006: new law, farmers need to do the inspection

2008: new law again, removal of affected blocks
Tribute to all academy
Tribute to all academy

Quality citrus program!

Source: http://www.centrodecitricultura.br/
Citrus pathogen sequenced

Journal of Fundecitrus, 1995, Sabará orange, 9 m high, 34 box / tree

Source: http://www.fundecitrus.com.br/
What does the future reserve to us?

- HLB impact?
  - Actual citrus belt with ~ 200 million trees
  - So, yearly losses…
  - Regular grove renew of ~ 2 to 5 % per year
  - New citrus area in the Southwestern SP, Northern Paraná, …

- Will we be able to keep (expand) market?

For any given way, we need: more stable and sustainable solutions!

Joining competences...

- Private + Public services
Quality products!

Muito obrigado (thank you!)

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