

The Orange Juice Value Chain

Citrus Summit, Port Elizabeth – South Africa 14/03/19

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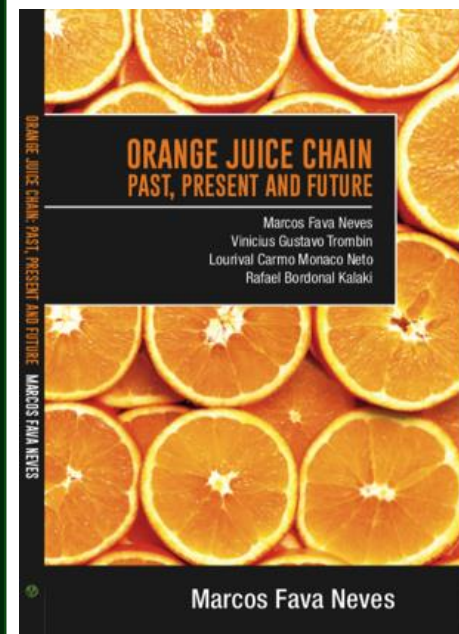
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LECTURE 1.092 (BRASIL 804 / INTERNATIONAL 288 in 22 COUNTRIES)



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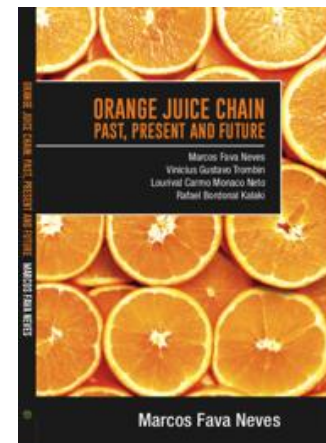


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Agenda



> Introductions

1

> The Future of Citrus Business

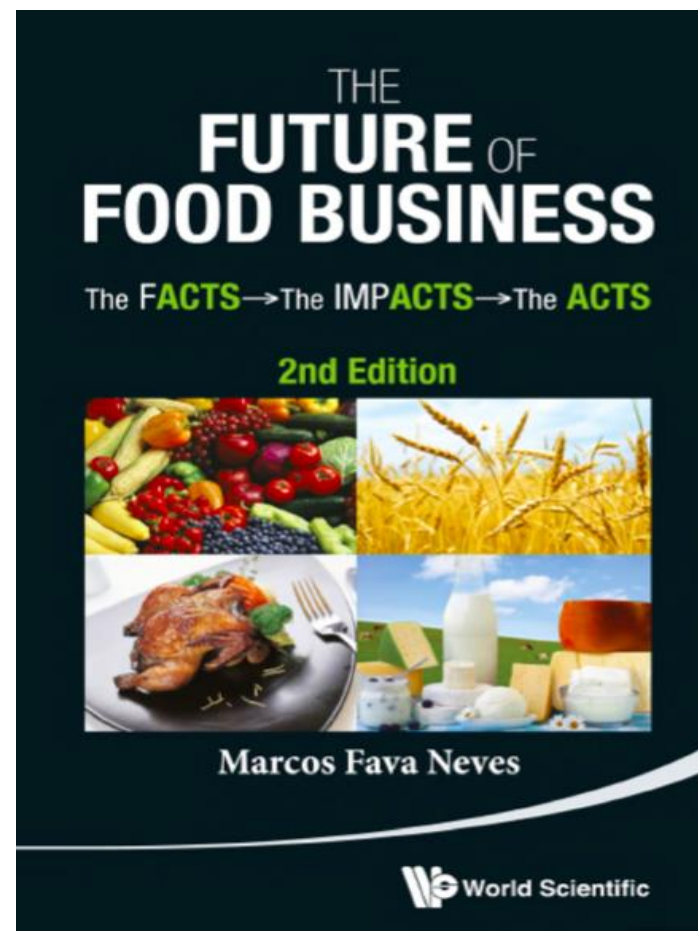
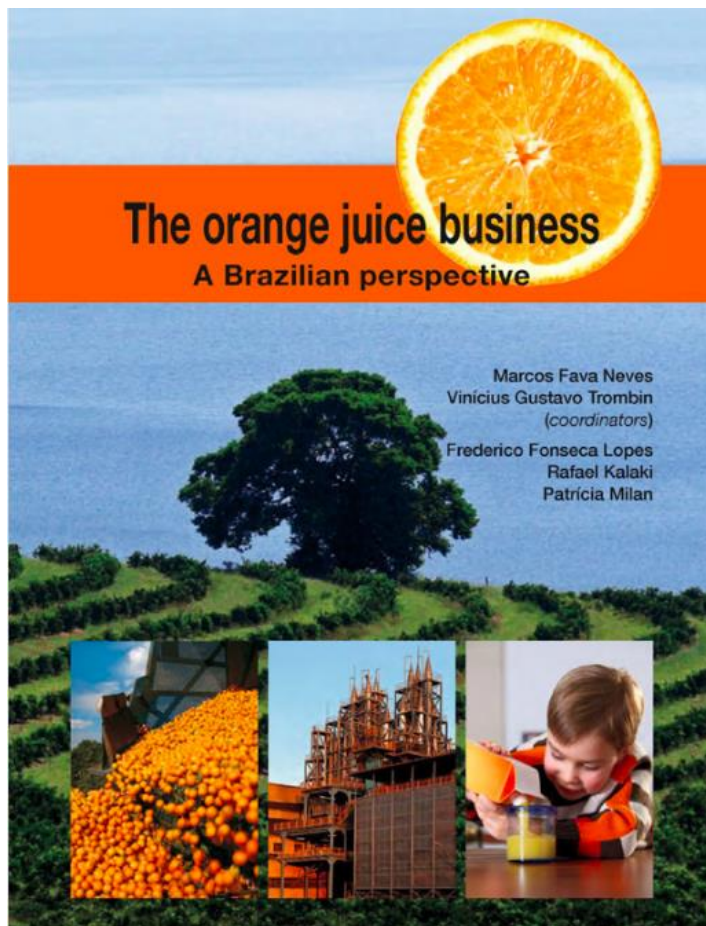
2

> Creating Value and Building Margins

3

> Final Messages and Opportunities

4



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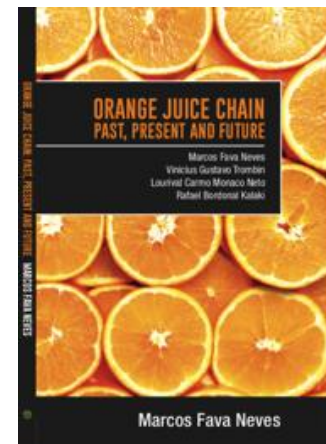
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Agenda



➤ Introductions

1

➤ The Future of Citrus Business

2

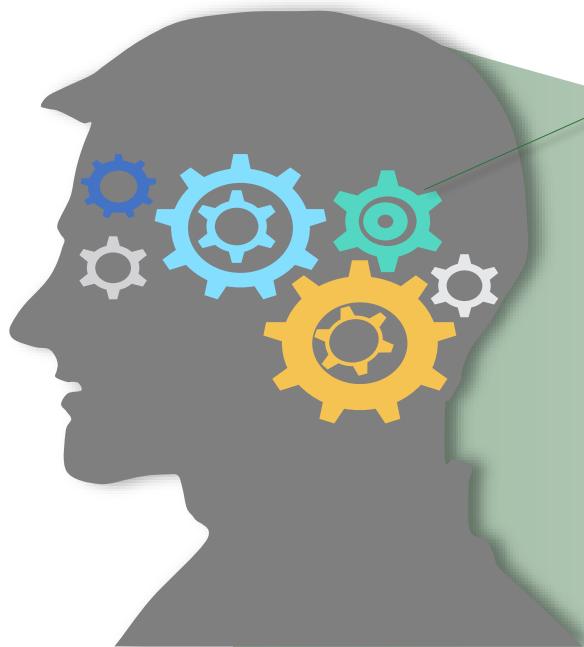
➤ Creating Value and Building Margins

3

➤ Final Messages and Opportunities

4

**What will happen with
future citrus and orange
juice chain?
Good business to be in or
not?**



Orange Juice Chain

Como funciona a indústria brasileira de suco de laranja

Durante o processo de fabricação de suco de laranja, todas as partes do fruto são aproveitadas e a água e a energia são usadas de forma sustentável.

- 1 COLHEITA**
A maior parte da produção brasileira de laranja concentra-se no interior do Estado de São Paulo. São José do Rio Preto, a colheita é realizada mecanizada, tornando-se os colhedores para não danificar as frutas.
- 2 RECEBIMENTO**
As laranjas são recebidas em unidades de armazenamento para que as laranjas não sejam danificadas antes de serem enviadas para a colheita e a embalagem. Os colhedores são enviados em tempo hábil para um diário e de armazenamento.
- 3 INSPEÇÃO**
Antes de ser enviada para o armazenamento, as laranjas são inspecionadas por qualidade e tamanho. As laranjas são inspecionadas por qualidade e tamanho. As laranjas são inspecionadas por qualidade e tamanho.
- 4 BINS**
As laranjas são armazenadas em bins por controle de temperatura e umidade. As laranjas são armazenadas em bins por controle de temperatura e umidade. As laranjas são armazenadas em bins por controle de temperatura e umidade.

- 5 LAVAGEM E SELEÇÃO**
Antes da extração, as laranjas passam por um processo de lavagem com água e sabão para a eliminação de impurezas. Em seguida, as laranjas são inspecionadas e selecionadas manualmente os melhores frutos para fazer o suco. Os descartados serão usados na produção de energia animal.
- 6 EXTRAÇÃO**
As laranjas são ajustadas para receber diferentes formatos de sucos. Assim, cada laranja é passada por uma máquina que extrai o suco e o caldo de suco em um recipiente separado. O suco e o caldo são separados e o suco é enviado para a produção de suco de laranja.
- 7 TUDO SE APROVEITA**
De uma laranja podem ser extraídos até três subprodutos: suco, casca e semente. O suco é enviado para a produção de suco de laranja. A casca é enviada para a produção de suco de laranja. As sementes são enviadas para a produção de suco de laranja.
- 8 FINALIZAÇÃO**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.
- 9 NFC**
O suco que vai para a produção de suco de laranja é enviado para a produção de suco de laranja. O suco que vai para a produção de suco de laranja é enviado para a produção de suco de laranja. O suco que vai para a produção de suco de laranja é enviado para a produção de suco de laranja.



Das técnicas de plantio até o armazenamento em tanques próprios nos portos estrangeiros, em todas as etapas é empregada a tecnologia brasileira.



O Brasil exporta mais de 1 milhão de toneladas de suco de laranja por ano. Um navio comporta até 43 mil toneladas de concentrado, o equivalente a mais de 32 milhões de garrafas de 1 litro.

De cada 5 copos de suco de laranja que se bebem no mundo 3 são de suco brasileiro.

A cada 10 minutos um caminhão-tanque de suco de laranja desce a Serra do Mar em direção ao Porto de Santos, litoral de São Paulo.

SUSTENTABILIDADE

- Utilizando apenas 0,3% das suas terras aráveis, o Brasil é responsável por mais de 80% do total de exportações de suco de laranja no mundo.
- Cada 2003 houve um aumento de 20% na produtividade dos pomares de laranja, sem aumento da área de plantio.
- Mais de metade de toda a água utilizada nas lavouras é proveniente da própria fruta, obtida durante o processo de concentração do suco.
- Parte da fruta leve das indústrias é movida a etanol. Em outros veículos é usada gasolina brasileira, com 25% de etanol, ou o etanol nacional, que tem 9% de biodiesel.

- 7 DESAEREAÇÃO**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.
- 8 FCOJ**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.
- 9 TANK BLENDERS**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.
- 10 CONDIÇÕES IDEAIS**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.
- 11 TANQUES REFRIGERADOS**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.
- 12 TRANSPORTE MARÍTIMO**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.
- 13 CONSUMO**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.
- 14 LIDERANÇA**
O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja. O suco é enviado para a produção de suco de laranja.

Se você é produtor de suco de laranja, você sabe que a sustentabilidade é um desafio. Mas, com a tecnologia brasileira, você pode fazer a diferença.

O suco de laranja brasileiro é líder no mercado internacional, e está presente em mais de 100 países, principalmente na América do Norte e na Europa.

Fonte: Citrus BR – www.citrusbr.com.br

Citrus & Juice Consumer

- ✓ How many calories?
- ✓ What is the sugar content?
- ✓ Where did the oranges come from?
- ✓ Is the production sustainable?
- ✓ Is packaging recyclable?
- ✓ Do I have other choices?
- ✓ Mature x emerging markets
- ✓ Juice x nectars



Is fruit juice bad for your health?
It sounds like a crazy question, but fruit juice could be worse for you than fizzy drinks.



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YEAR	Orange juice consumption in 66 Brix equivalent (Markestrat) (1,000 t)	Variation in orange juice demand compared to 2003 in 66 Brix equivalent (1,000 t)	Industrial yield (CitrusBR) Boxes / ton of FCOJ 66 Brix	Estimate of boxes that are no longer demanded (1,000,000 boxes)
2003	2,399.05			
2004	2,406.62	7.57	244.19	1.85
2005	2,391.49	7.56	226.42	1.71
2006	2,341.88	57.17	232.69	13.3
2007	2,294.21	104.84	228.49	23.96
2008	2,241.98	157.07	252.88	39.72
2009	2,268.60	130.45	262.52	34.25
2010	2,249.01	150.04	240.58	36.1
2011	2,222.43	176.62	265.36	46.87
2012	2,114.55	284.5	263.54	74.98
2013	2,107.84	291.21	282	82.12
2014	2,054.01	345.04	240.5	82.98
2015	1,980.07	418.98	302.5	126.74
2016	1,954.32	444.73	286.37	127.36
Total		2,560.65		688.23

Source: Tetra Pak Compass/Euromonitor/Fdoc/Planet Retail/CitrusBR/Fundecitrus/Created by Markestrat



		THOUSANDS OF TONS OF FCOJ 66° BRIX EQUIVALENT					
		2003	2006	2009	2012	2015	2016
SELECTED MARKETS		2,399	2,342	2,269	2,115	1,980	1,954
							-10%
1	UNITED STATES	1,001	924	851	704	638	624
2	GERMANY	250	209	185	167	152	150
3	FRANCE	152	158	168	158	142	136
4	CHINA	46	64	94	124	131	128
5	UNITED KINGDOM	143	139	136	127	109	107
6	CANADA	116	111	107	109	107	105
7	BRAZIL	42	36	36	48	63	69
8	RUSSIA	51	74	73	68	65	58
9	JAPAN	92	95	76	64	51	50
10	AUSTRALIA	53	57	57	58	47	46

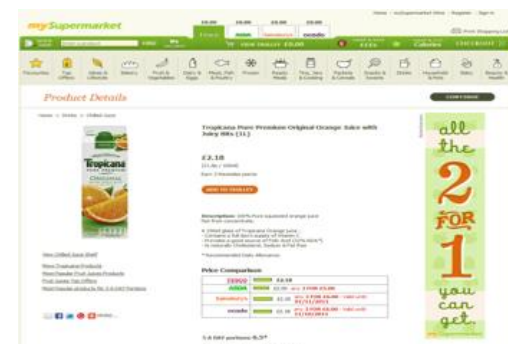
Citrus & Juice Retailing



CONCENTRATION OF FOOD SALES IN THE 5 MAIN RETAILERS IN THE SELECTED MARKETS

SELECTED COUNTRIES	MARKET SHARE					
	2005	2010	2013	2014	2015	2016
Israel	99.5%	100.0%	100.0%	100.0%	100.0%	100.0%
Switzerland	85.1%	92.5%	96.2%	91.6%	95.4%	93.5%
Austria	71.9%	84.4%	82.7%	83.8%	89.5%	88.1%
Canada	54.8%	73.7%	63.8%	76.7%	86.1%	86.6%
South Korea	72.3%	84.4%	96.4%	90.0%	83.2%	85.6%
Germany	72.9%	80.0%	75.6%	75.6%	81.4%	78.7%
Russia	55.1%	74.4%	77.8%	76.9%	80.4%	81.1%
Japan	63.4%	66.5%	72.2%	72.2%	77.2%	74.7%
France	64.8%	74.7%	72.8%	72.9%	74.8%	73.9%
Poland	41.6%	53.2%	60.9%	61.2%	72.6%	67.1%
Brazil	40.5%	43.0%	53.1%	63.3%	69.4%	72.5%
Spain	56.7%	69.2%	64.7%	66.1%	67.0%	68.1%
Italy	67.5%	67.1%	64.4%	62.4%	64.1%	65.4%
United Kingdom	59.8%	67.9%	62.9%	60.6%	64.1%	64.6%
United States	45.3%	46.3%	48.5%	40.1%	56.4%	61.7%

Source: Planet Retail
Small retailers and neighborhood grocery stores



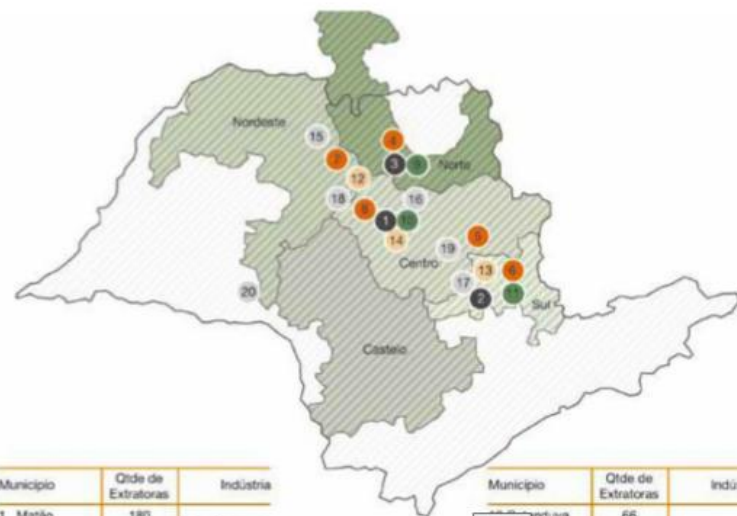
Citrus & Juice Bottling

- ✓ Concentration and competition
- ✓ Coke and Pepsi
- ✓ Margins squeezed (retail concentrations and private labels)
- ✓ Lower communication of benefits
- ✓ Multi-beverage
- ✓ Juice x nectars
- ✓ New product development
- ✓ Liquids... Turnover



Citrus Industry (FCOJ and NFC)

- ✓ In Brazil 3 large companies take 90% of the market;
- ✓ Old units;
- ✓ Very efficient (logistics);
- ✓ Taking efforts to reduce market decline;
- ✓ Growing production and supply costs;
- ✓ Specialized and single product;
- ✓ Own fruit production (around 40-50%) very efficient;
- ✓ Idle industrial capacity in Brazil and Florida;
- ✓ Low inventories for 2019...



Município	Qtde de Extratoras	Indústria
1 Matão	180	Citrosuco
2 Limeira	60	
3 Bebedouro	72	
4 Colina	96	
5 Araraquara	84	Cutrale
6 Conchal	44	
7 Uchoa	42	
8 Itapetininga	24	
9 Bebedouro	84	Dreyfus
10 Matão	70	
11 Eng. Coelho	60	

Município	Qtde de Extratoras	Indústria
12 Mirassol	66	Citrovita
13 Mirassol	56	
14 Mirassol	24	Bascitros
15 Mirassol	12	
16 Dobrada	7	KB
17 Rio Claro	6	
18 Itapetininga	6	Agromex
19 São Carlos	6	
20 Santa Cruz do Rio Pardo	5	Hidebrand



Citrus Farming



Oranges
86%



Other oranges
3%

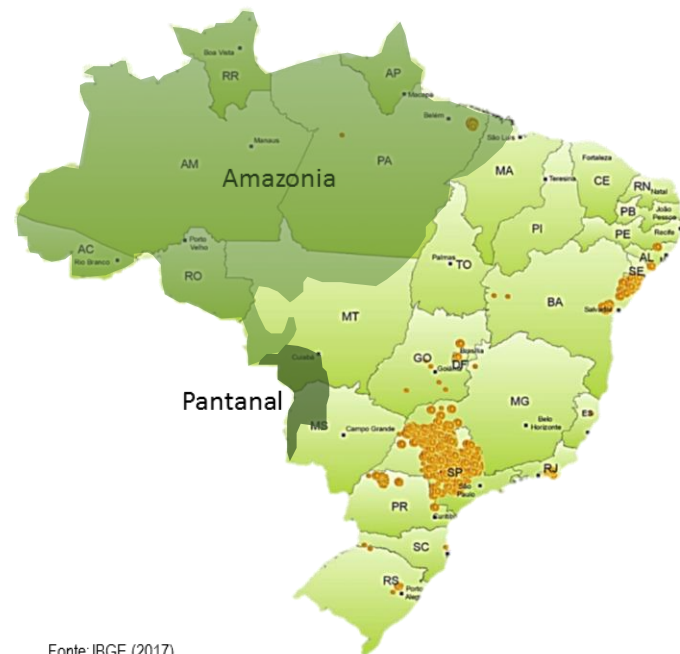


Acid lime and lemons
8%

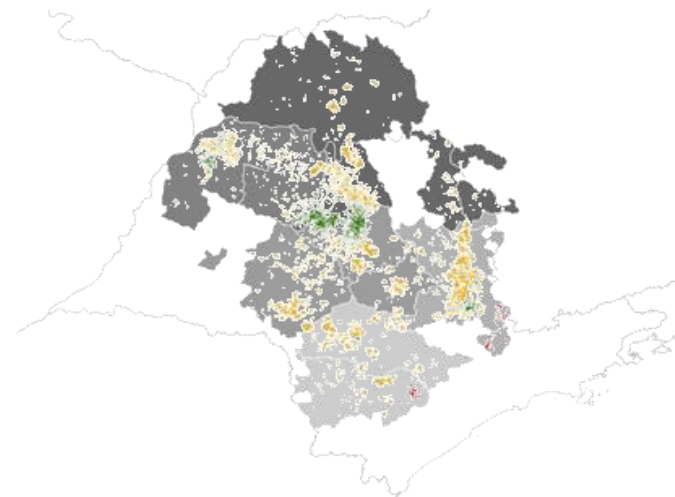
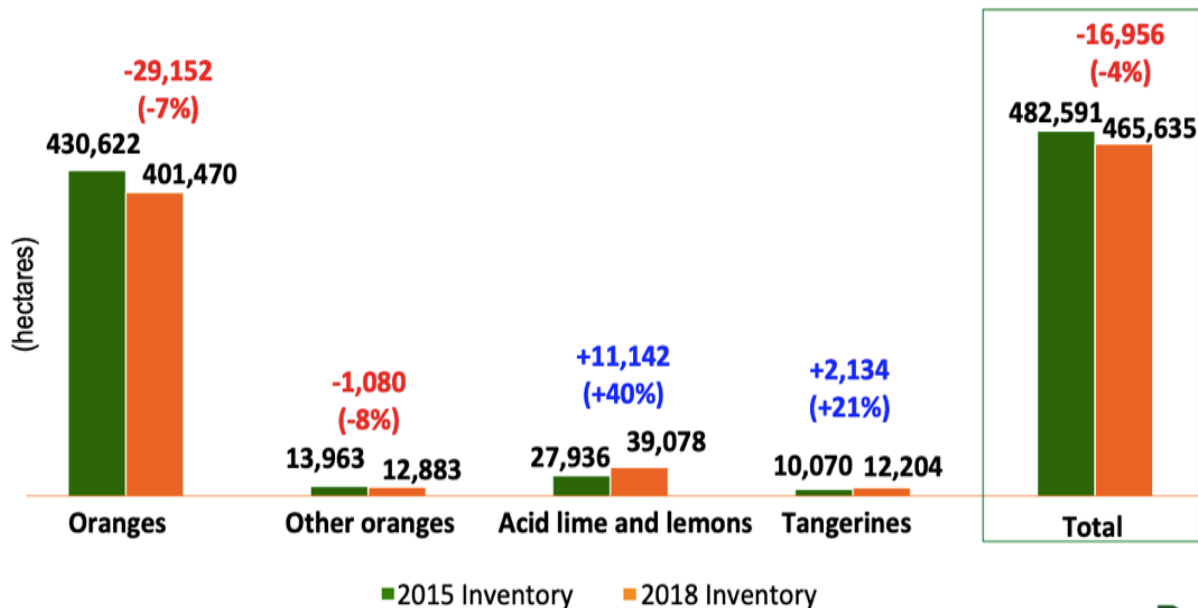


Tangerines
3%

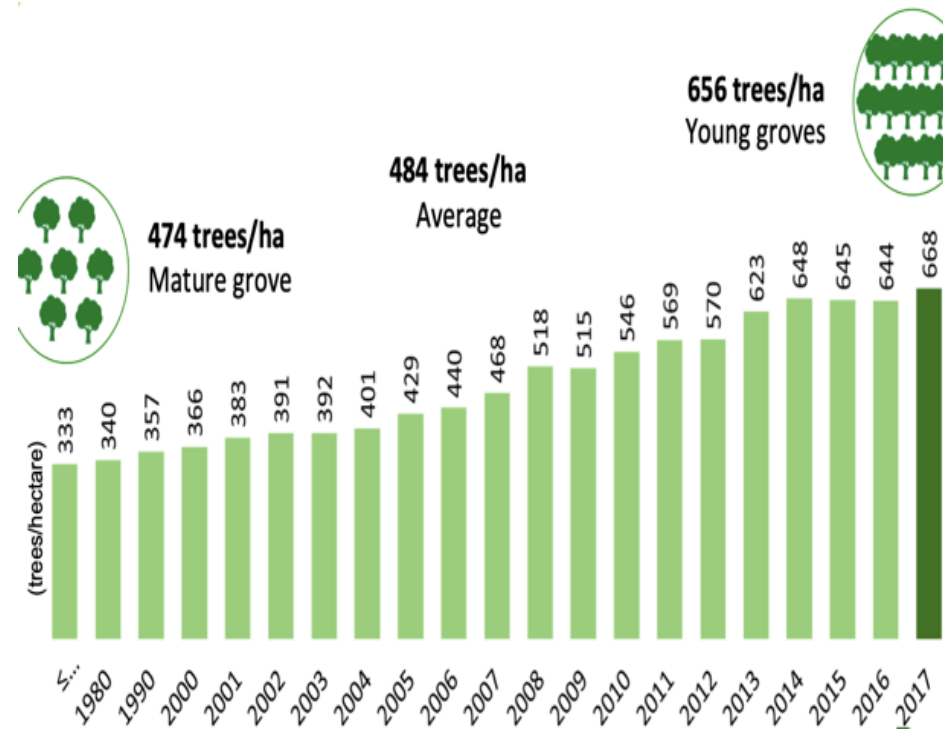
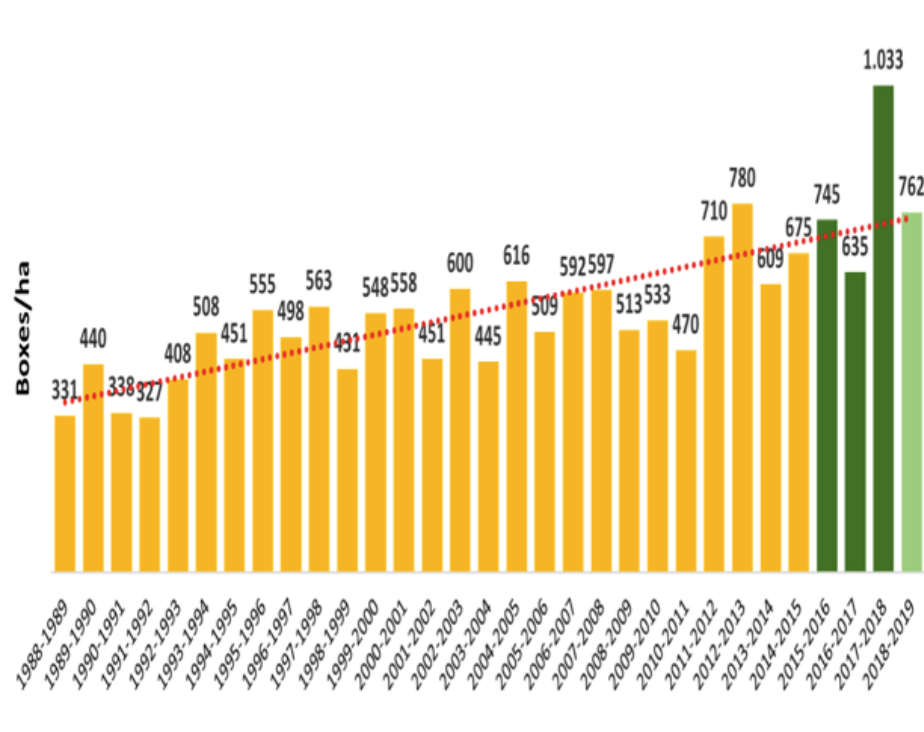
Early season	Mid season	Late season			
Hamlin	Pera Rio	Valencia	Washington Navel and Balaninha	Tahiti acid lime (Persian lime)	Ponkan
Westin		Valencia Folha	Charmute de Brotas	Sicilian lemon	Murcott
Rubi		Murcha	Acidless sweet oranges and sweet lime	Other varieties including non-identified ones	Other
Valencia Americana		Natal			
Seleta					
Pineapple					



Fonte: IBGE (2017)

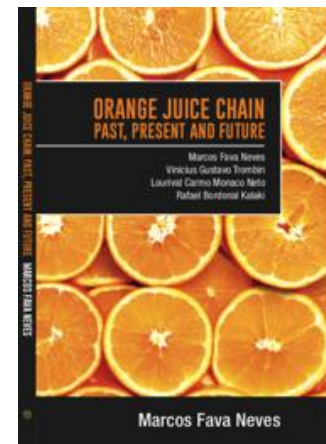


Yield in Boxes/ha and Number of Trees/ha



- ✓ Favorable soil and climate
- ✓ Adequate infrastructure (highway and port)
- ✓ Know-how of growers
- ✓ Strong research network
- ✓ Orange Production: 288,29 millions of boxes

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➤ Introductions

1

➤ The Future of Citrus Business

2

➤ Creating Value and Building Margins

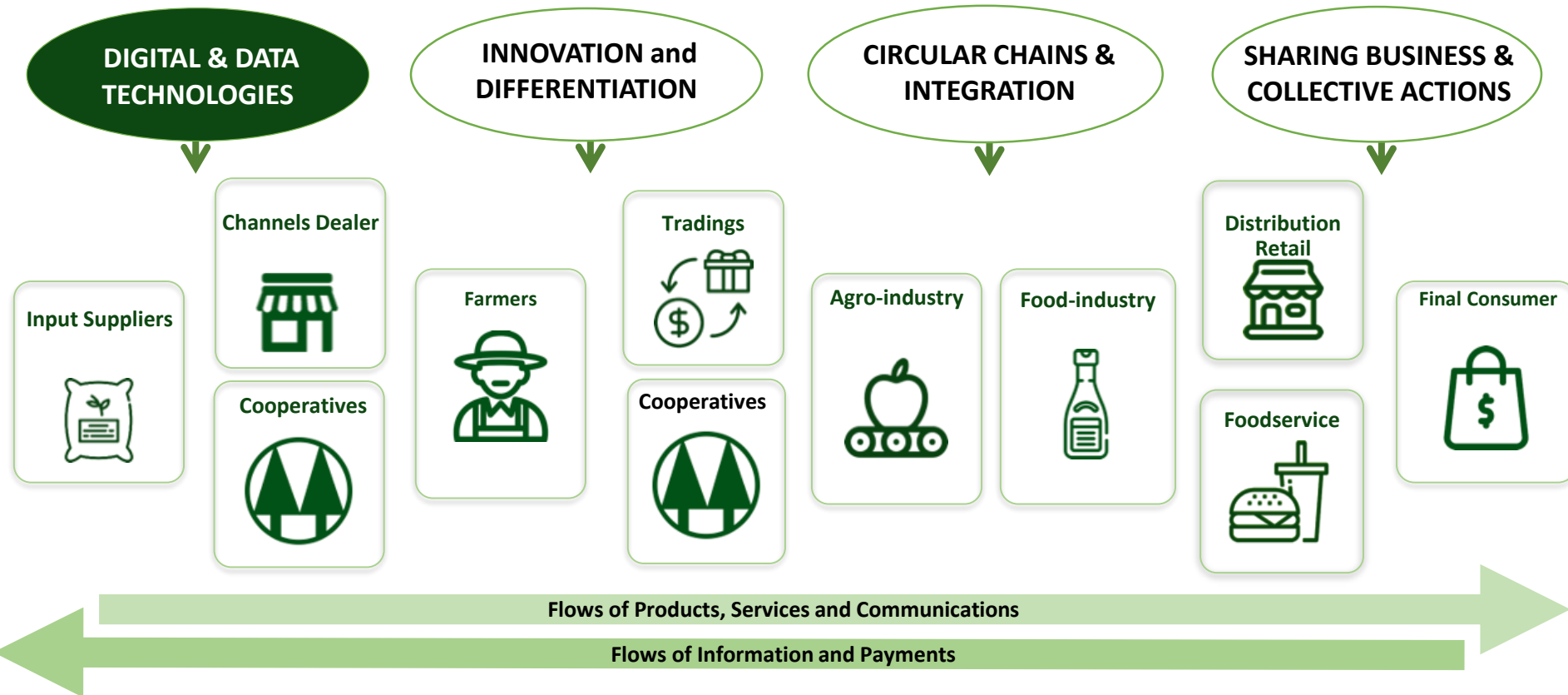
3

➤ Final Messages and Opportunities

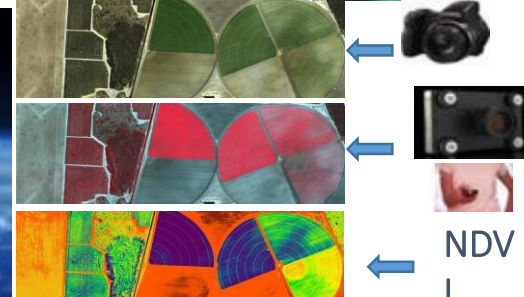
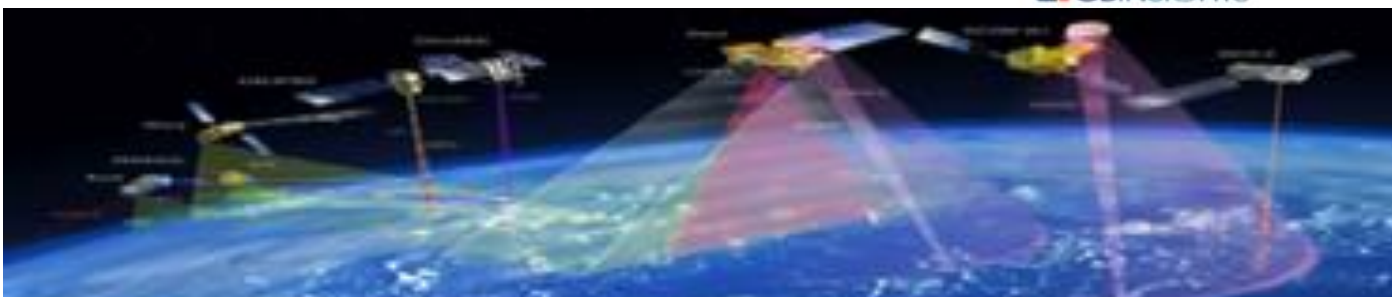
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4 Clouds for Creating Value and Building Margins in Food Business Chains

MACROENVIRONMENTAL VARIABLES: POLITICAL/REGULATORY, ECONOMIC, NATURAL, SOCIO-CULTURAL AND TECHNOLOGICAL



AG TECH: 100+ TECHNOLOGY COMPANIES CHANGING THE FARM



Drone Images Can Accurately Find, Count Citrus Trees

March 12, 2019 / [Industry News Release](#), [Research](#), [Technology](#)

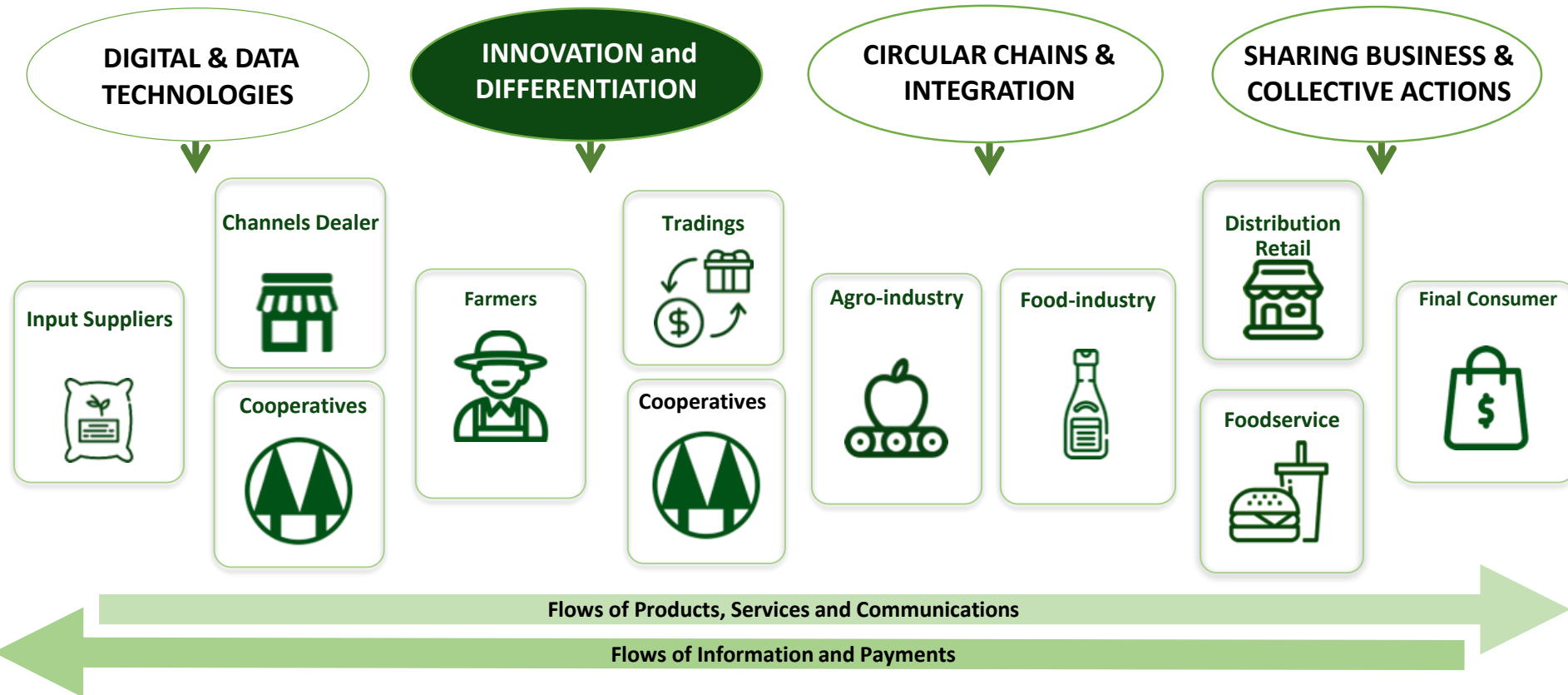
By using drone technology, Florida citrus growers can find out how many trees live in their groves and, eventually, they may detect the health status of the trees, a new University of Florida study shows.



- Accurately detect and count citrus trees and spaces;
- Order trees from nurseries to replant;
- Evaluate citrus varieties and rootstocks by detecting tree traits;
- Detect citrus tree traits and quicker diagnoses of heat stress and pest diseases;
- Deal with new agriculture insurance policies that require detailed information;
- Collecting citrus data manually is extremely time consuming, labor-intensive and costly;
- First step toward developing an **individual tree analysis and management!**

4 Clouds for Creating Value and Building Margins in Food Business Chains

MACROENVIRONMENTAL VARIABLES: POLITICAL/REGULATORY, ECONOMIC, NATURAL, SOCIO-CULTURAL AND TECHNOLOGICAL



GM Apples That Don't Turn Brown Approved For Growing In US

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A way to grow plants with less water

By Brett Israel, Media relations | MARCH 6, 2018



Using tobacco plants as a test,

researchers modified a gene to make more of a protein,

causing the plants pores to open less during photosynthesis.

GPS on GMOs

Citrus greening disease is threatening an estimated **80%** of Florida's citrus trees.



Scientists are working on a **GM orange** that could save these groves. Get the squeeze at **GMOAnswers.com**.

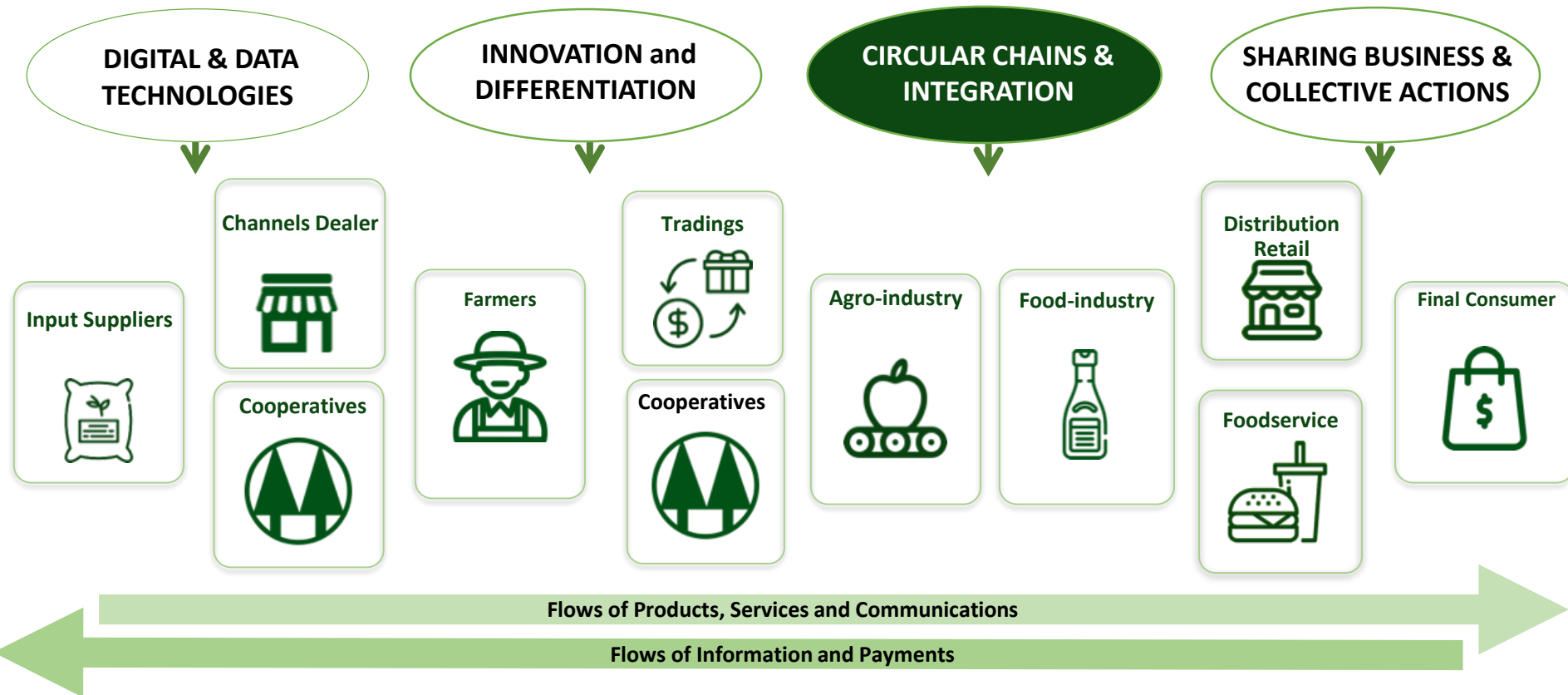


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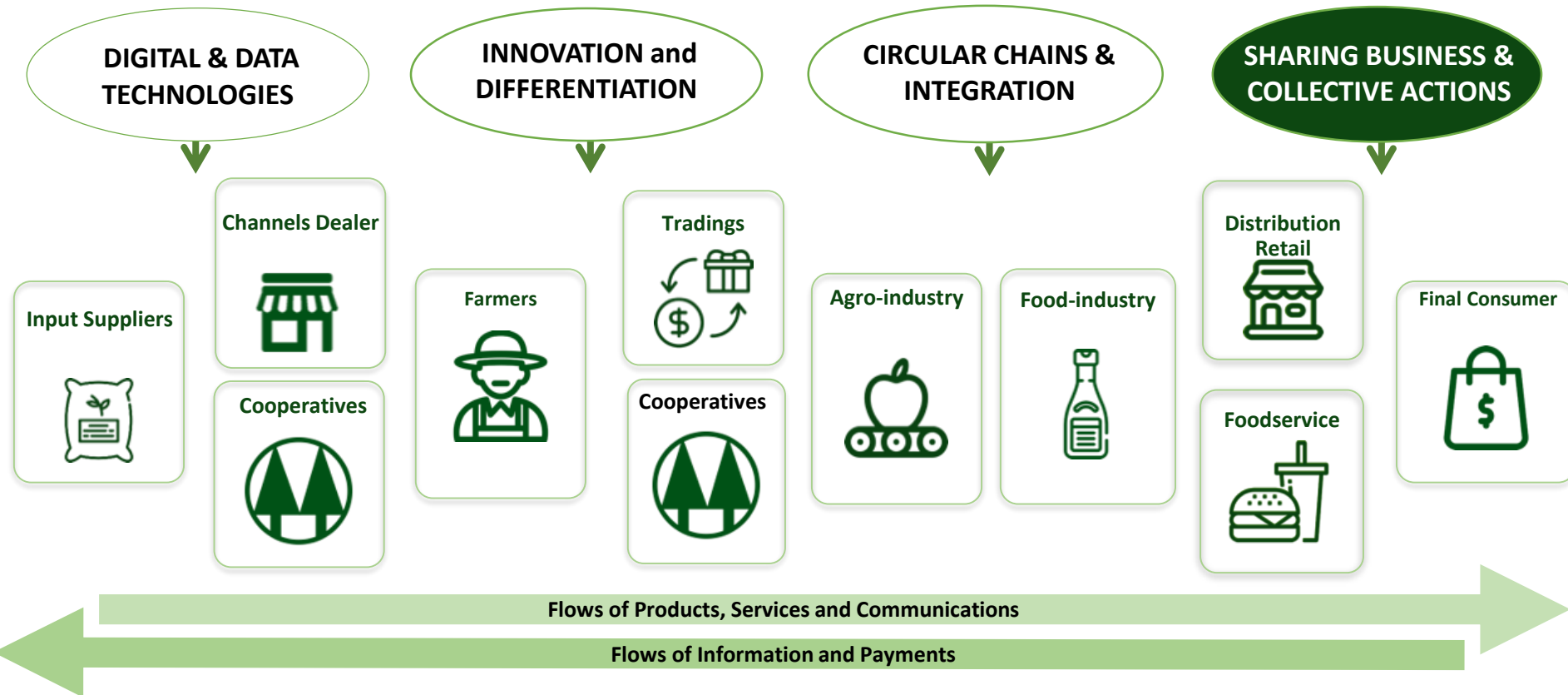


Circular Chains



4 Clouds for Creating Value and Building Margins in Food Business Chains

MACROENVIRONMENTAL VARIABLES: POLITICAL/REGULATORY, ECONOMIC, NATURAL, SOCIO-CULTURAL AND TECHNOLOGICAL





SHARING ECONOMY BUSINESS MODEL

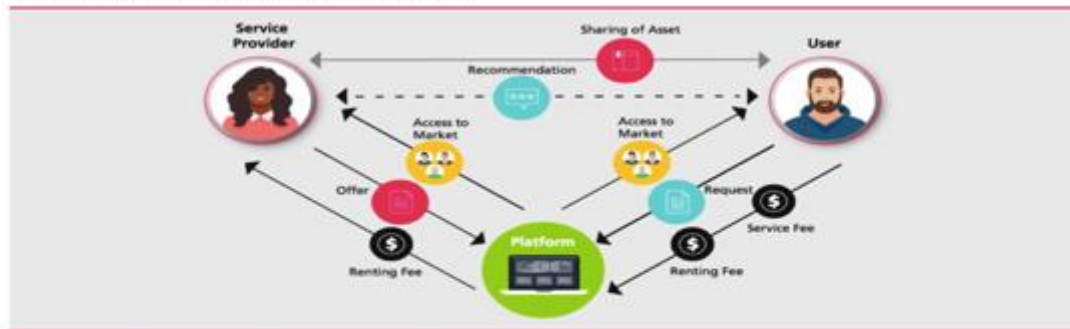
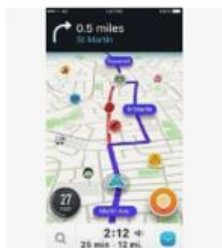


Figure 1: The Sharing Economy business model; Source: Business Model Toolbox

- ¹ Goodwin, T. (2015).
- ² Crook, J. / Escher, A. (2015).
- ³ TaskRabbit Inc. (2017a).



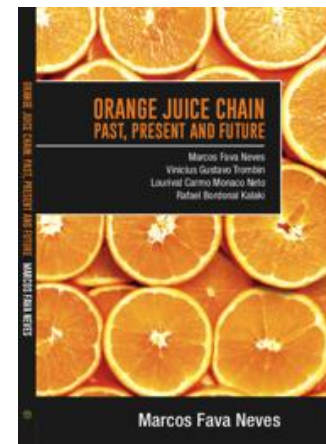
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For Booking Agents
For Tractor Owners
For Tractor Dealers

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Agenda



➤ Introductions

1

➤ The Future of Citrus Business

2

➤ Creating Value and Building Margins

3

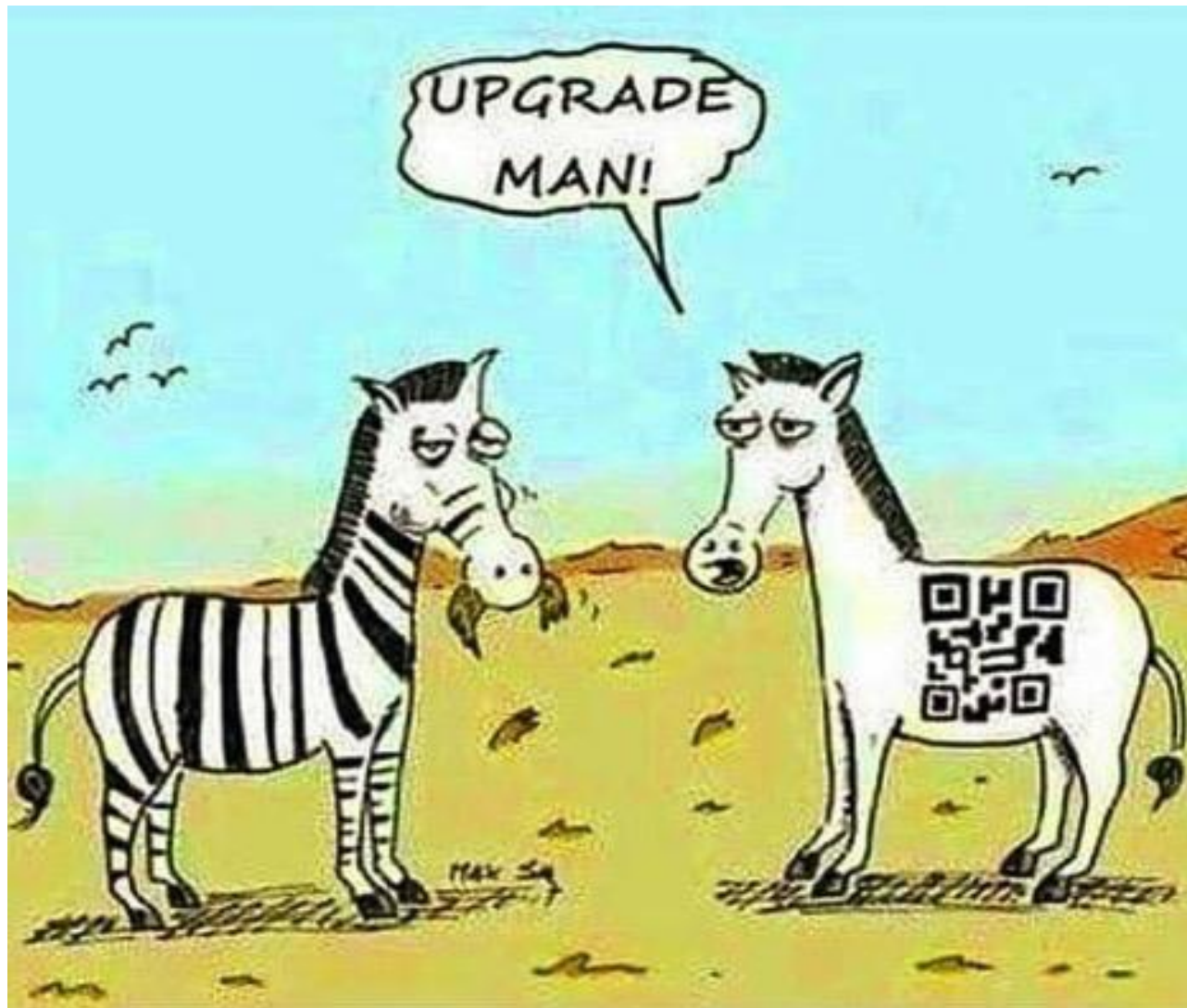
➤ Final Messages and Opportunities

4

Final Comments

- Understand and act against consumption decline;
- Develop emerging markets (access);
- Increase sustainability measures (economic, environmental and social);
- Build margins with our 4 clouds;
- Measure and communicate with final consumers;
- Give more power to CGA!;
- South Africa: create a concept!
- Benefits, service driven, inclusion...





Thank you CGA! favaneves@gmail.com

Prof. Marcos Fava Neves

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- ❑ Marcos Fava Neves is an *international expert* on global agribusiness issues and a part-time professor of planning and strategy at the School of Business (FEARP) of the University of São Paulo (USP) and FGV Business School, both in Brazil. He graduated as an agronomic engineer from ESALQ/USP - Piracicaba in 1991. He earned his master's degree in 1995 and his doctorate in management in 1999 from the FEA/USP School of Economics and Business – São Paulo. Marcos completed postgraduate studies in European agribusiness at ESSEC-IGIA in France in 1995 and in chains/networks at Wageningen University, in the Netherlands (1998-1999). In 2013 he spent the year as a visiting international professor at Purdue University (Indiana, USA) where he maintains the linkage as a permanent International Adjunct Professor. Since 2006 he is an international professor at the University of Buenos Aires, Argentina.
- ❑ He has specialized in strategic-planning processes for companies and food chains and works as a board member of both public and private organizations, being member of more than 10 international boards since 2004. Also in 2004, he created the Markestrat think tank with other partners, today employing around 60 people and doing international projects, studies and research in strategic planning and management for more than 250 agri-food business organizations. Some of these projects were very important in suggesting public policies for food chains that were implemented in Brazil with economic and social impacts.
- ❑ Also as an experience in the private sector, from 1992 to 1993 he worked in citrus juice exporter and from 1994 to 1995 in a veterinarian company. In 2008, he became CEO of Brazil's second-largest biofuel holding company, a position he occupied until 2009, when he returned to the University of São Paulo (USP) and Markestrat.
- ❑ At the academic side, since 1995 (when he was hired by USP), Marcos has advised more than 30 doctorate dissertations and master's theses and helped to form around 1200 Bachelors in Business Administration in Brazil with around 120 courses taught to undergraduates at USP.
- ❑ His writings are strongly focused on supplying simple and effective methods for business. He has published more than 100 articles in international journals and has been author and editor of 63 books by 10 different publishers in Brazil, Uruguay, Argentina, South Africa, Singapore, Netherlands, China, the United Kingdom and the United States. He is also a regular contributor for China Daily Newspaper and has written two case studies for Harvard Business School (2009/2010), one for Purdue (2013) and five for Pensa/USP in the nineties. Recognized as the Brazilian academic with the largest number of international publications about orange juice and sugar cane chain and one of the top 3 most cited Brazilian authors in the area of food and agribusiness. He has reached more than 4000 citations in Google Scholar index.
- ❑ Marcos is one of the most active Brazilian speakers, having done more than 1050 lectures and presentations in 25 countries. He received around 150 recognitions from Brazilian and international organizations, and is considered a "Fellow" of the IFAMA (International Food and Agribusiness Management Association), title received in Minneapolis - 2015.
- ❑ Coming from a family of farmers, he is a worldwide defender of agriculture and farmer's role in the development of the society. In the social side, together with his parents, Marcos is one of the creators and maintainers of Mucapp, a NGO that in 20 years has built more than 450 houses for families in Brazil that face very unfavorable conditions.