Reaping the Fruits of Global Growth

Global Trends in the Fruit Sector and the Implications for Breeding

Cindy van Rijswick – 15 April 2019

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Rabobank Services all Links in the Food & Agriculture Value Chain

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Farm inputs | Primary sector | Trade & export | Processing | Foodservice | Consumer

Financing, Knowledge, Networks and Innovation

- Present in 40+ countries
- Global F&A loan portfolio of about EUR 100 billion
- Supporting access to finance in developing countries
- Supporting start-ups with our own events and funds

RaboResearch Food & Agribusiness

*A **global** network…*

A true F&A bank

Rabobank is the world's **leading** financial services provider for F&A. **RaboResearch** Food & Agribusiness is our **dedicated F&A research department**, central to the bank's vision and strategy.

It's who you know

Our broad network gives us access to **all players in the market**—and unique knowledge of **innovation, local markets, and risk/reward balances** along the chain.

Strategic research and advice

Our analysts combine **in-depth market and sector research** with strategic **advice** to facilitate unique C-suite discussions on **strategic business development.**

Global view, local insight

Our analysts have **comprehensive** agribusiness knowledge—from **farm to fork**, from **beef to beverages**, and from Melbourne to the Midwest.

Strength in numbers

With 90 analysts all over the globe, we are **one of the largest** commercial F&A research hubs **worldwide**, supporting **rural and wholesale** clients

A unique position

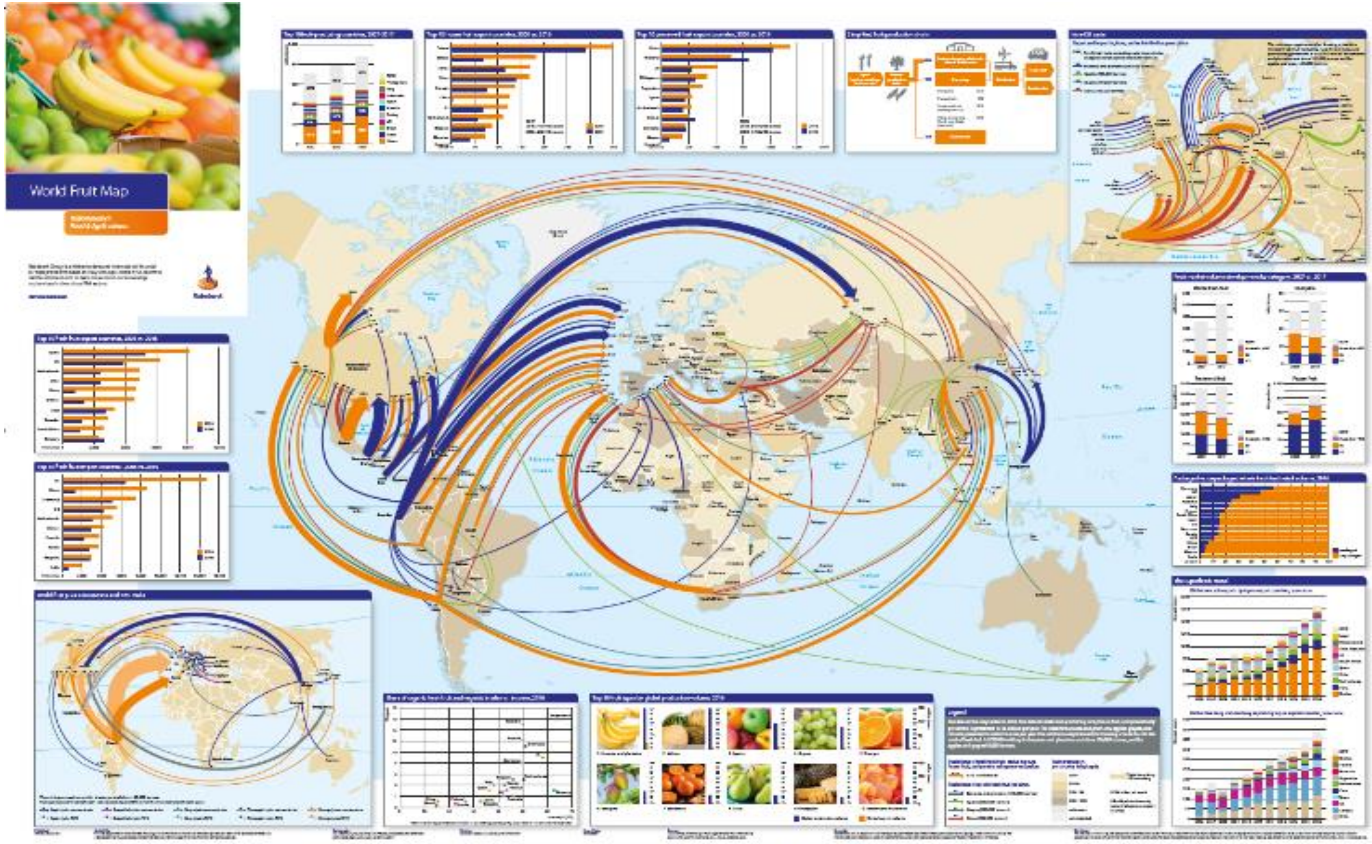
Our extensive links to **business**, academic **research,** and **government** allow us to fully leverage this 'golden triangle' for our clients.

*of **local** experts*

Variety Development Plays a Prominent Role in the Fruit Sector

Migo® Conférence

The Fruit Business is (Increasingly) a Global Business



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Global fruit production
+ *2%* per year

Global fresh fruit trade
+ *7%* per year

Food retail

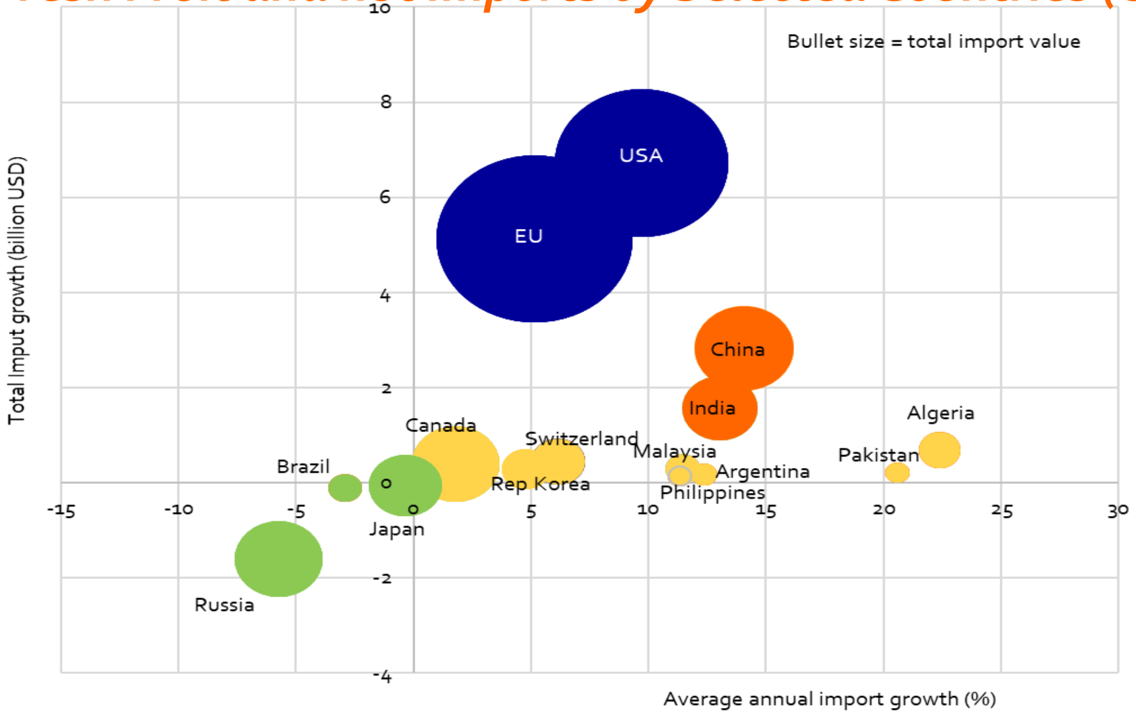
Market access

Logistics

Consumer preferences

Few big (Import) Growth Engines and Many Small Ones in Global Fruit Trade

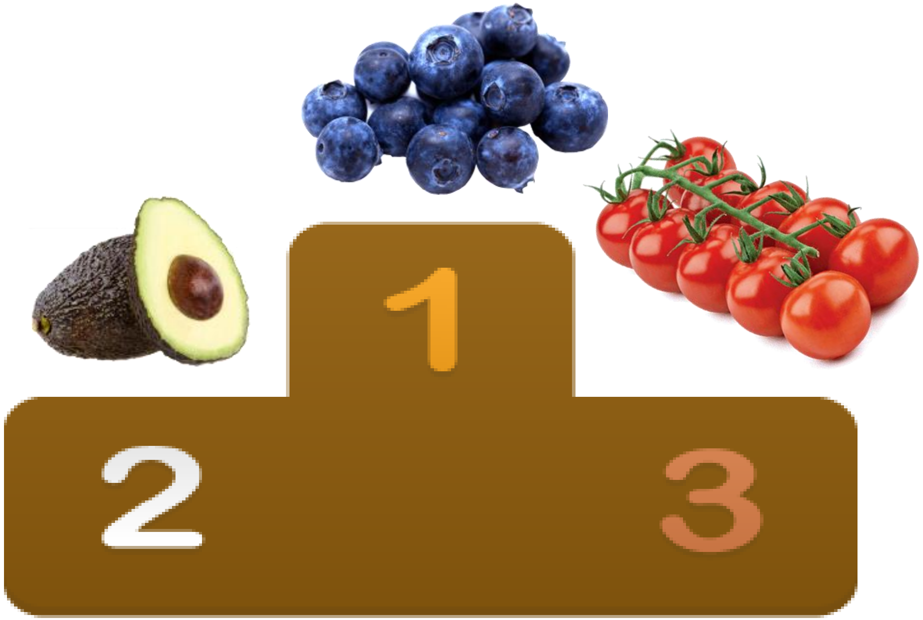
Fresh Fruit and nut Imports by Selected Countries (Growth Since 2010)



Source: Rabobank based on UN-Comtrade, 2018. Note: Circle size represents a country's total imports in 2017.

To Meet Shopper Preferences, International Trade is a Must

Top-3 Fresh Produce Growth Categories in Dutch Supermarkets

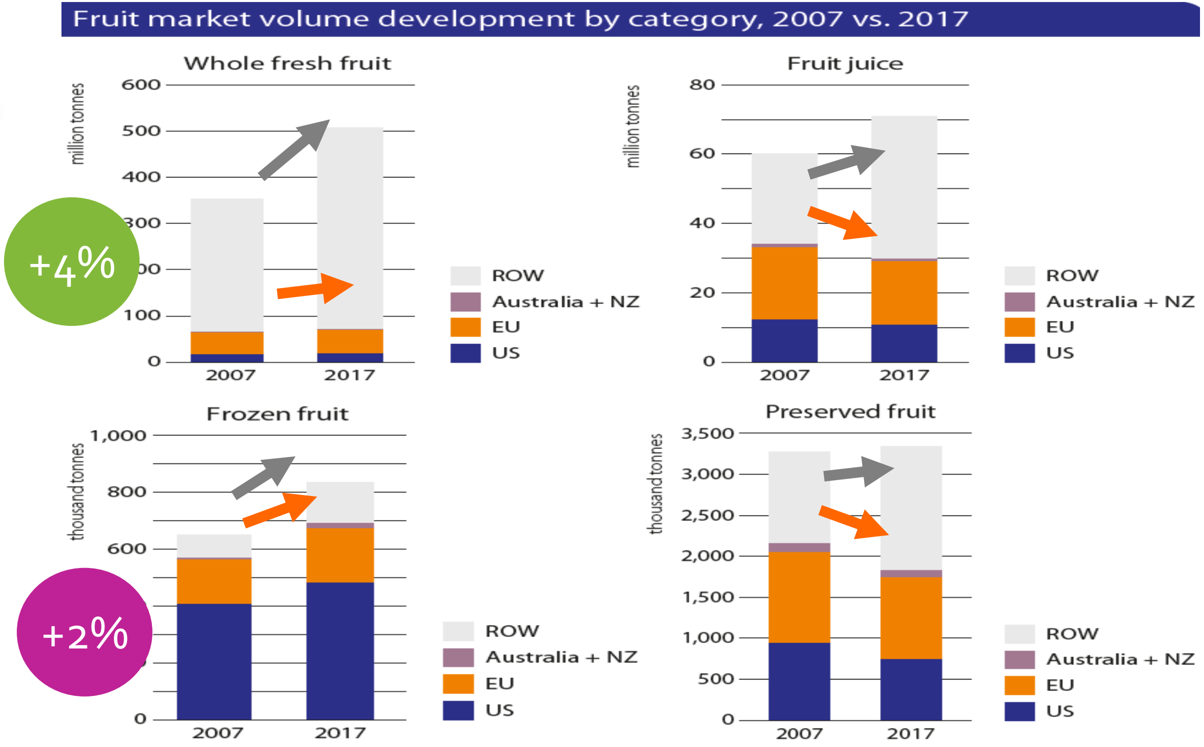


Value growth is outpacing volume growth

Healthy, 'snackable', photogenic, local, new, niche, sustainable

Source: IRI, 2018. Note: figures are in absolute terms for the years 2014 – wk 16 2018

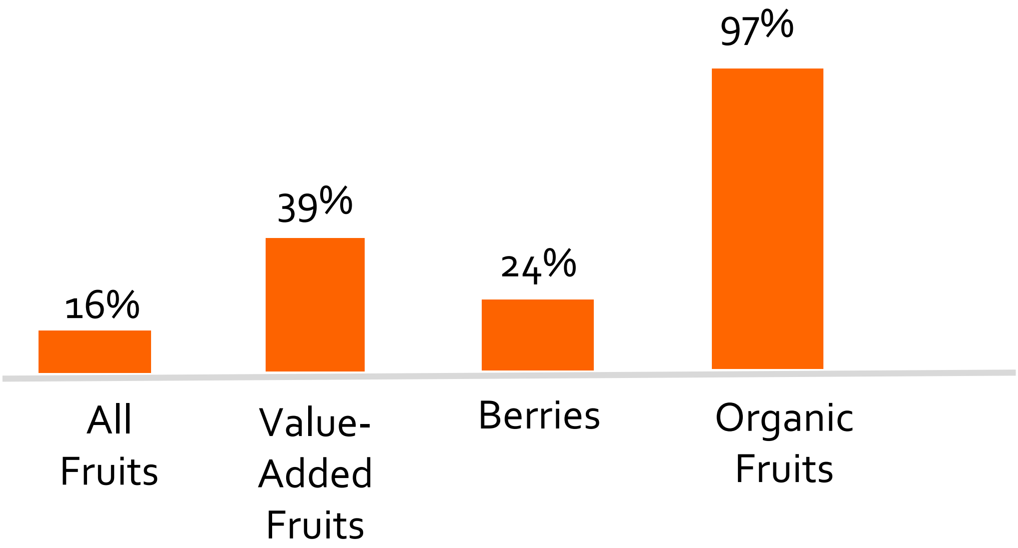
Growth in Fresh and Frozen Fruit Exceeds Canned Fruit and Juice Growth



Source: Euromonitor, 2018

High Value, Prepared, and Organic Fruits are Outperforming in US Retail

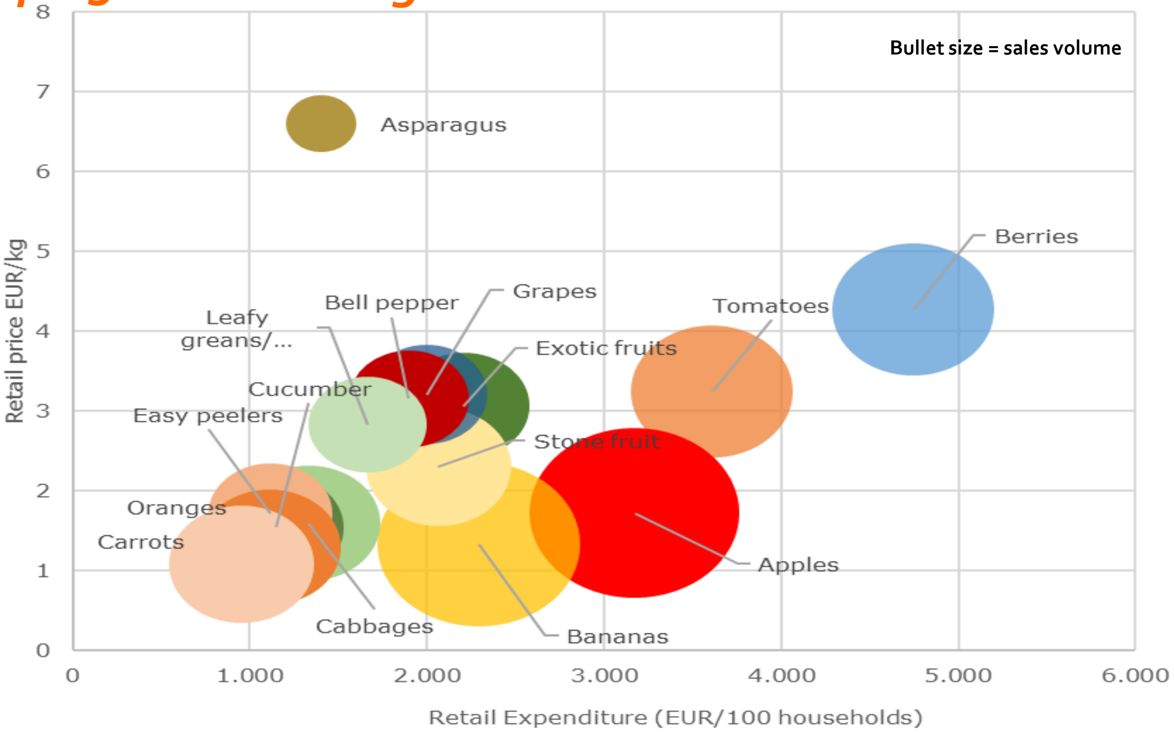
% Changes in Fresh Fruit Retail Spend, USA 2012-2017



Source: United Fresh Produce Association, Nielsen Perishables Group, Rabobank 2018

High Volume and/or High Value Categories Important for Retail

Top-15 Fruit and Vegetables in German Retail Ranked by Value



Sources: AMI, Rabobank, 2018.

Essentially 100% Perfection is required, but the Supply Chain is Challenged

Availability of resources: labour, water, fertile land

Climate, weather

Geopolitics

(Sustainability) requirements

Stable income

Competition

Food safety

Sustainability is High on the Agenda


CNN Health » The 2019 pesticide 'Dirty Dozen' fruits and vegetables

Photos: The 2019 pesticide 'Dirty Dozen' fruits and vegetables

Strawberries – Strawberries topped the list in 2019 for the fourth ye
remain contaminated with pesticide residues, even after being wash


Working on providing guidelines for local herders to avoid overgrazing.

As the human population has expanded, more and more land has been cleared for agriculture and other pursuits that degrade the soil and make erosion more likely to occur.

DEFORESTATION

Without plant cover, erosion can occur and sweep the land into rivers. The agricultural plants that often replace the trees cannot hold onto the soil and many of these plants, such as coffee, cotton, palm oil, soybean and wheat, can actually worsen soil erosion. And as land loses its fertile soil, agricultural producers move on, clear more forest and continue the cycle of soil loss.

OVERGRAZING

The conversion of natural ecosystems to pasture land doesn't damage the land initially as much as crop production, but this change in usage can lead to high rates of erosion and loss of topsoil and nutrients. Overgrazing can reduce ground cover, enabling erosion and compaction of the land by wind and rain.. This reduces the ability for plants to grow and water to penetrate, which harms soil microbes and results in serious erosion of the land.

AGRICULTURE

When agriculture fields replace natural vegetation, topsoil is exposed and can dry out. The diversity and quantity of microorganisms that help to keep the soil fertile can decrease, and nutrients may wash out. Soil can be blown away by the winds or washed away by rains.

USE OF AGROCHEMICALS


BY TOM JOYC

Thursday 11th January 2018, 11:34 London

War on plastic heats up in UK

With pressure mounting on the UK government to act on plastic pollution, prime minister Theresa May has announced a plan to eliminate all avoidable plastic waste within 25 years

More than 220,000 people in the UK have signed a Change.org petition lobbying the government to force the country's retailers to cut out the use of plastic packaging on fruit and vegetables.

"The UK government rightly stopped the supermarkets from offering plastic carrier bags for free and they also have the power to stop retailers from offering fruit and vegetables pre-packed in plastic packaging, which is not necessary and causes pollution," the petition states.

The debate over whether the benefits of packaging, especially in extending a product's shelf-life, outweigh the damage caused to the environment by waste and pollution has been raging for some time.

However, pressure has been steadily growing on the government to act since the hugely popular Blue Planet II documentary series highlighted the

Chilean villagers claim British appetite for avocados is draining region dry

UK demand for fruit increased by 27% last year alone, prompting accusations that growers are illegally diverting rivers and leaving locals without water

Availability of Labour is a Major Issue

For Many Fruit Crops Production Systems are Advancing

- *Higher consistency, quality*
- *Avoiding peak season*
- *Risk control*
- *More sustainable production*
- *Solve labour issues*

Fruit Farming Businesses are (Slowly) Changing

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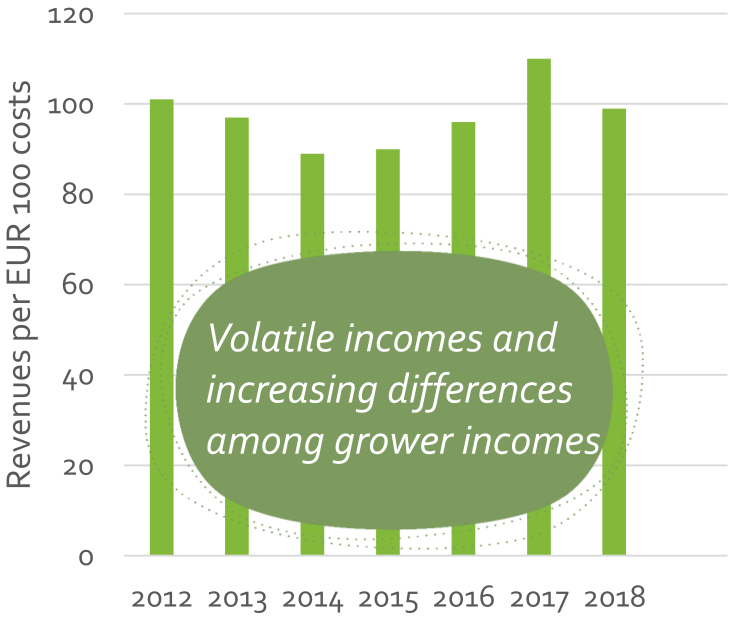
Profitability Dutch Fruit Growers



- Many small growers, few large ones
- Volatile profitability

- (International) corporates
- Integrated companies
- (Flexible) partnerships
- More investor involvement

Source: Wageningen Economic Research, Agrimatie, 2019.

Supply Chains Become More Integrated, Shorter and Transparent

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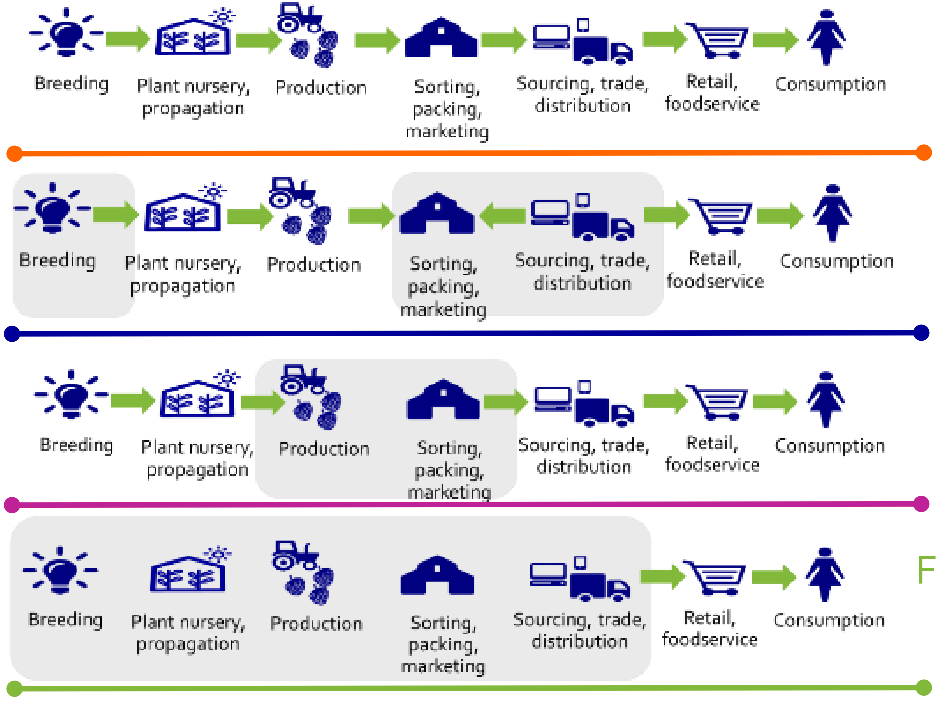
Current Supply Chain Models



Trading model

Semi-integrated supplier model

Semi-integrated grower model

Fully integrated supply chain model

Future Supply Circle?

Fruit Breeding is Often an Integral Part of the Fruit Supply Chain

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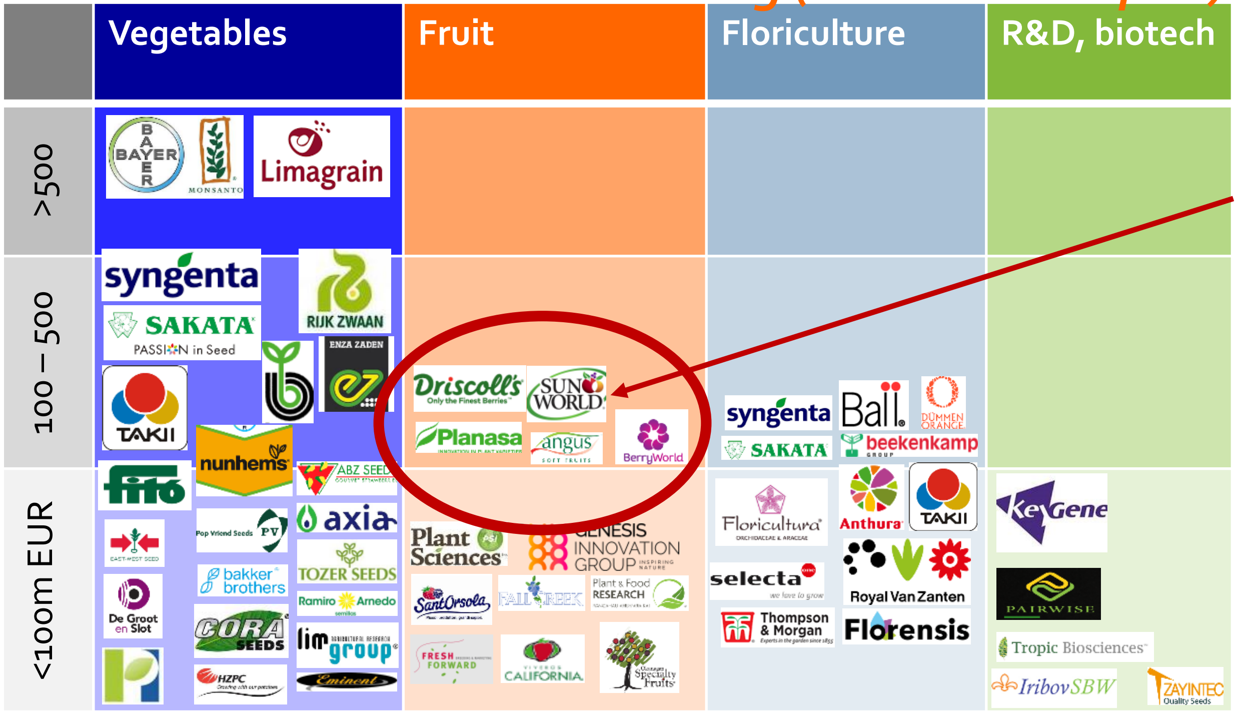
Businesses in horticulture breeding (random examples)



Characteristics:

- Fragmented playing field
- High dominance of universities
- Many integrated players
- Often very specialised
- Some consumer branding

Reaping the Fruits of Global Growth: not as Easy as Pie

Market value growth: convenience, snacks, organic (or other sustainable label), superfoods, premium, tasty, personalised etc.

Major challenges:

labour, water, crop protection, soil, integrating technology and innovation

Opportunities for breeders:

- Many opportunities consumer and and retail
- Urgent grower needs (water, labour, crop protection)
- Vertical cooperation
- Building more scale and power

Challenges for breeders:

- Long period to commercialise
- Nursery stage essential
- Growers only replant occasionally
- Acceptance and regulation new breeding techniques

Thank you for Your Attention

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Banking for Food

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