



09 May 2023

Singapore: FoodTech & Functional Food

Singapore Food data

Singapore Food independence

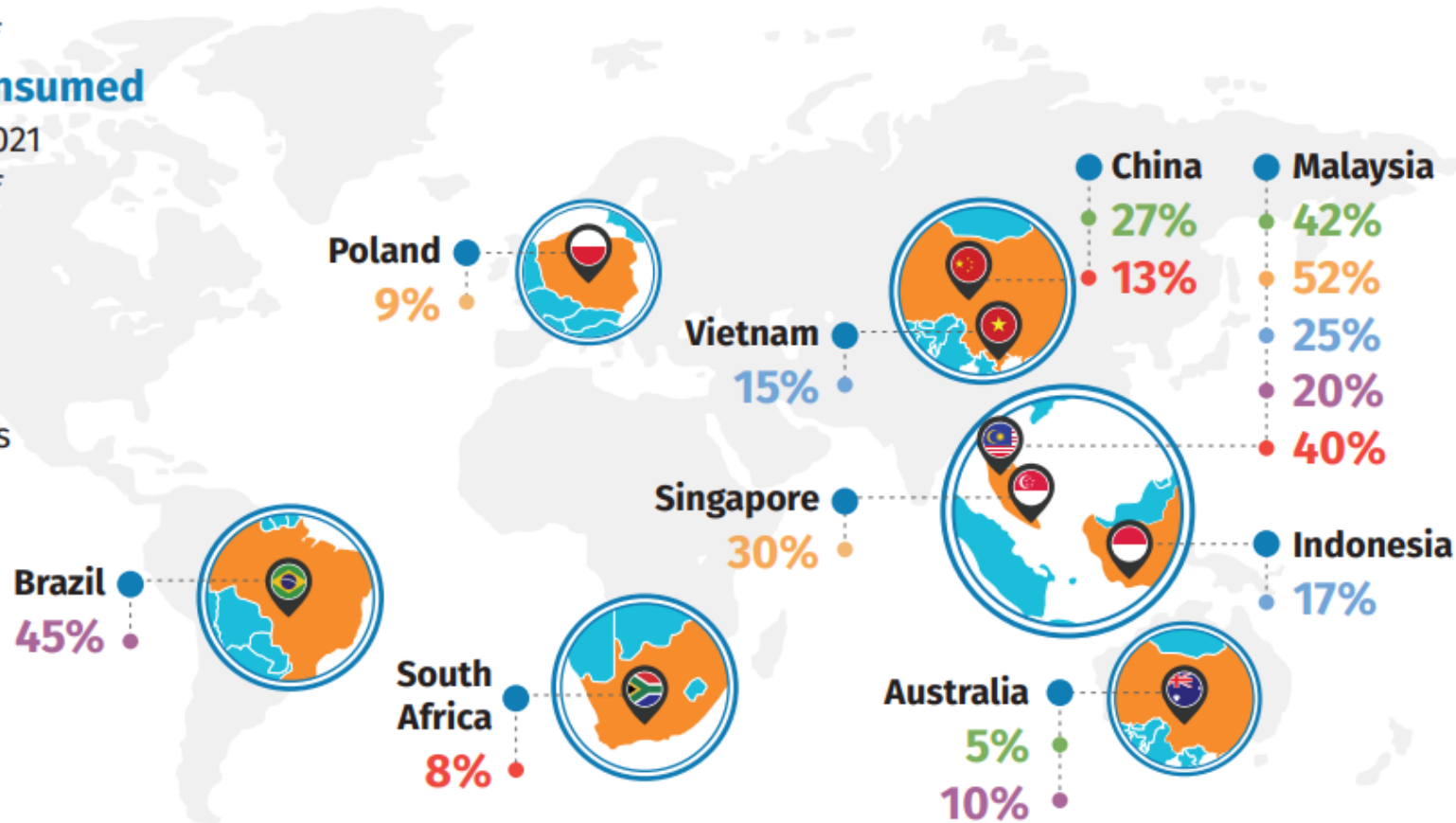
- More than 90% of Food Supply in Singapore is imported.
- Only 1% of land is dedicated to agricultural uses.
- Food supplies came from 172 countries in 2019, increased to 180 in 2021. 40 for high-risk products.
- National target of 30% by 2030: 30 x 30 strategy.

Singapore Food dependence

Major sources of **commonly consumed food** items in 2021 (in terms of % of total tonnage)

- Vegetables
- Hen shell eggs
- Seafood
- Meat
- Fruits

Note: Meat refers to Chicken, Pork, Beef and Mutton.



LOCAL PRODUCTION

 30%

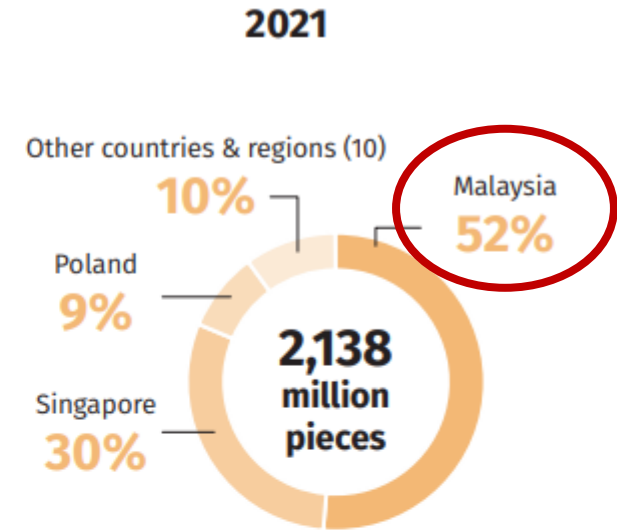
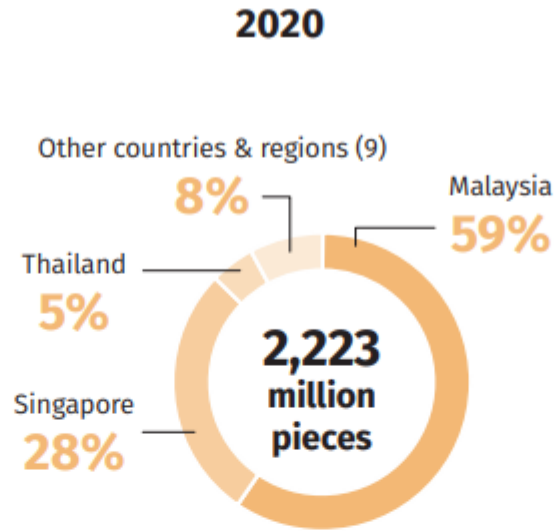
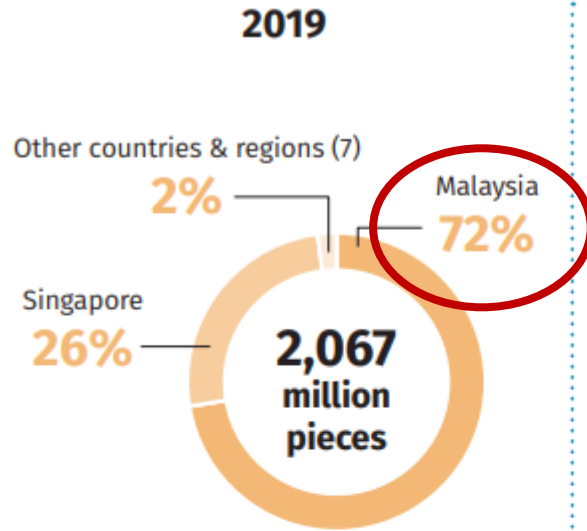
 8%

 4%

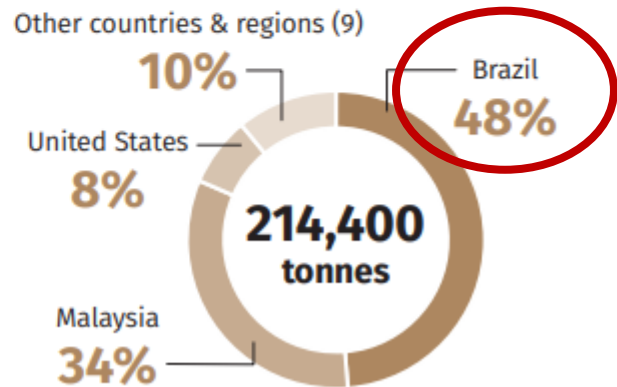
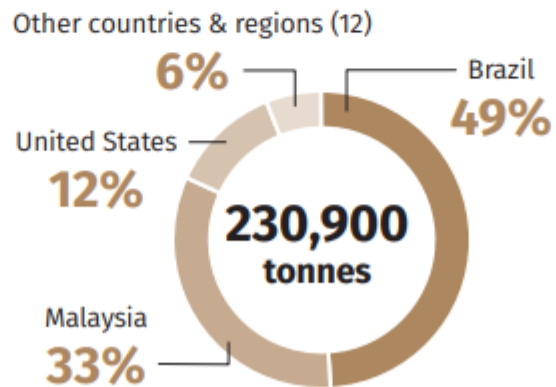
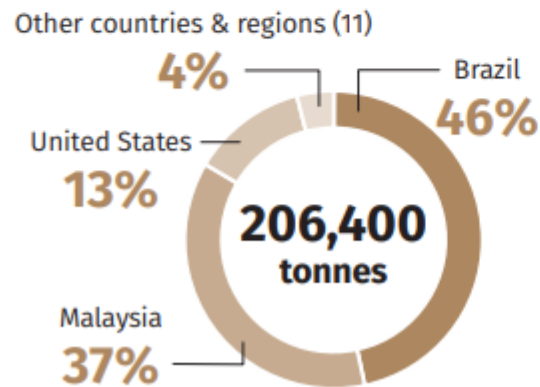
Source: Singapore Food Agency

Singapore Food dependence

Hen Shell Eggs

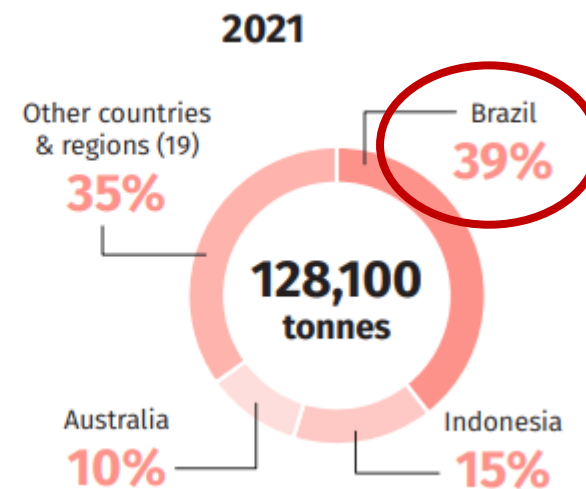
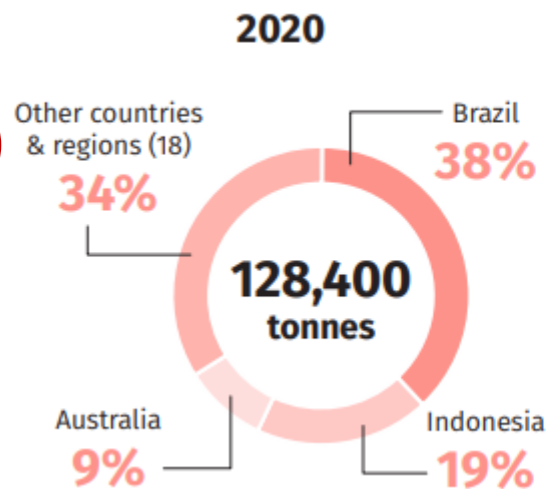
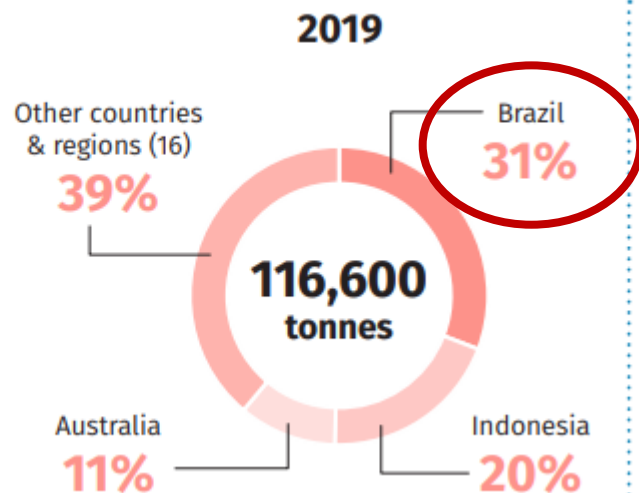


Chicken

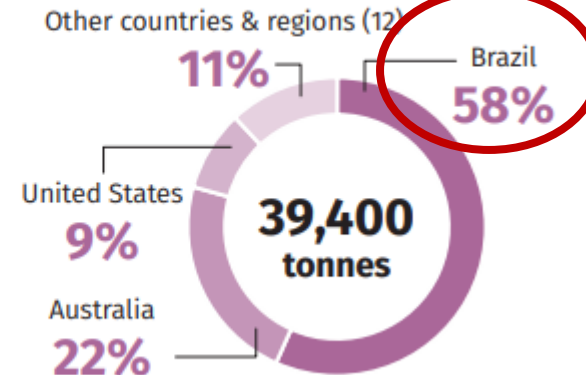
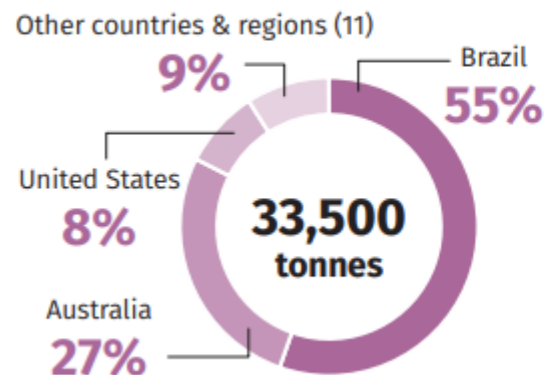
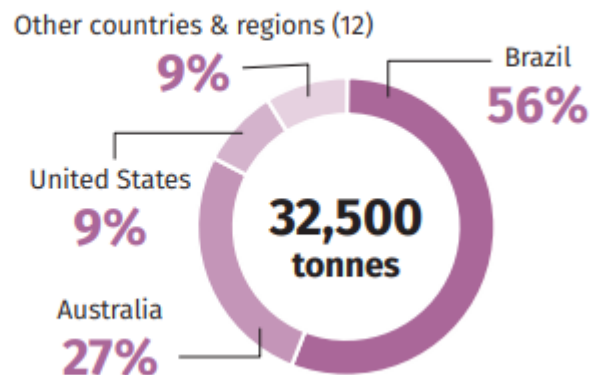


Singapore Food dependence

Pork

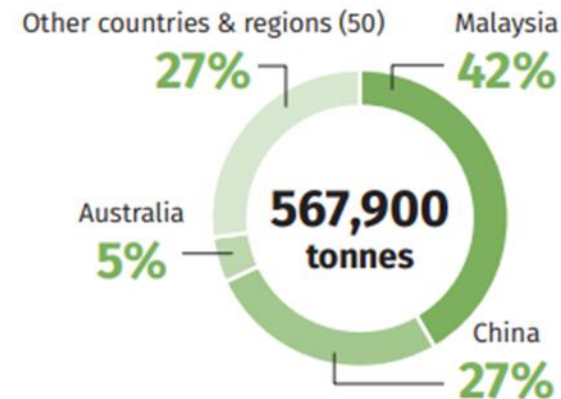
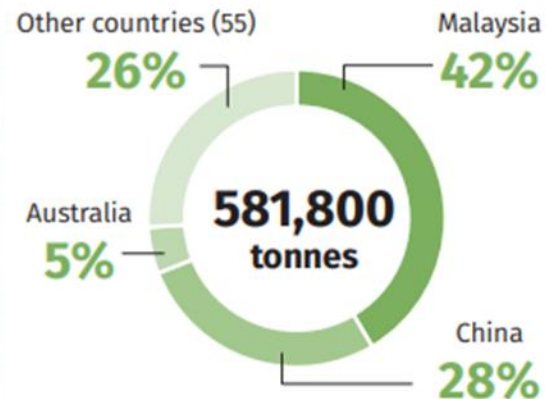
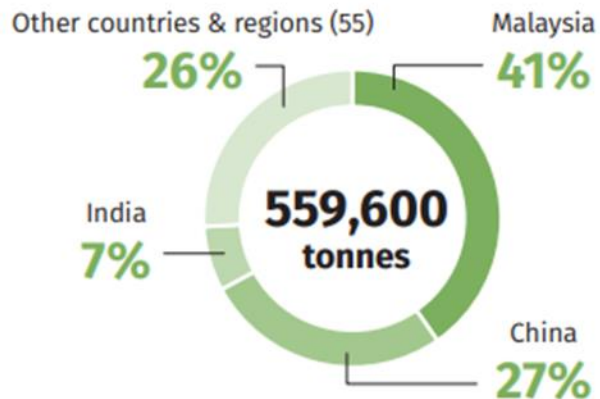


Beef

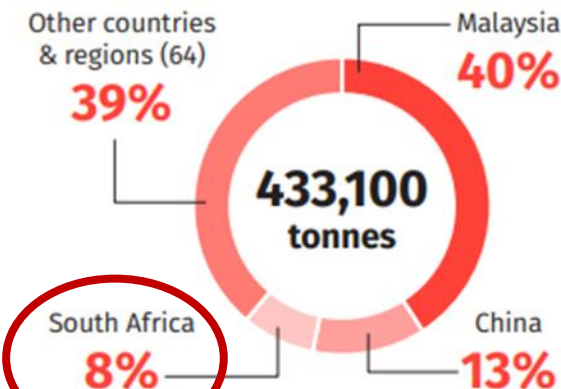
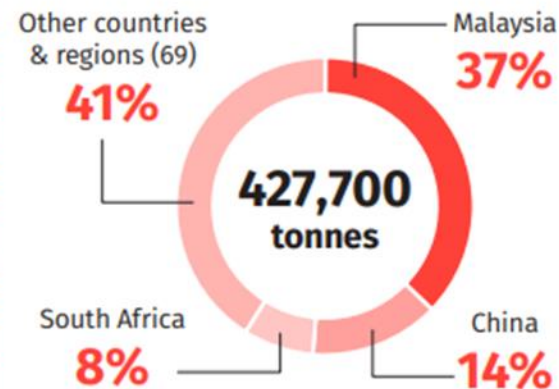
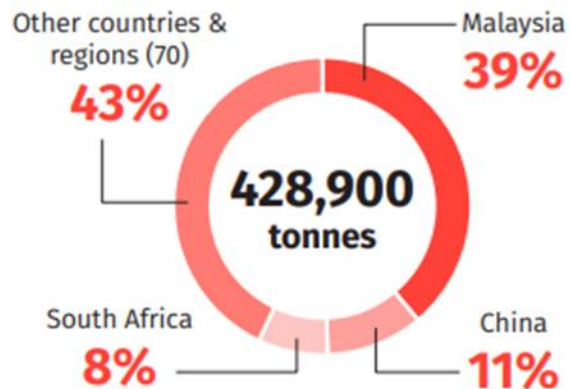


Singapore Food dependence

Vegetables



Fruits



Source: Singapore Food Agency

Singapore Demographics

Population trends will affect consumption patterns...⁹

Population: 5.6 milion

Citizens: 3.5 milion

Permanent residents: 0.5

Non-PR foreigners: 1.6

Overall foreign born: 37.5%

Ethnicity (citizens)

Chinese: 75.9%

Malay: 15%

Indian: 7.5%

Others: 1.6%

... LOW FERTILITY, LONGER LIVING

... FAST AGEING

... POPULATION GROWTH

... LARGE FOREIGN POPULATION

... GROWING SECULARISM, SOLID ISLAM

... AT MORE THAN 75,000 Eur/Year, ONE OF
TOP GDP PC IN THE WORLD

... YET UNEVEN DISTRIBUTION, HIGH GINI

Age matters... quick ageing!

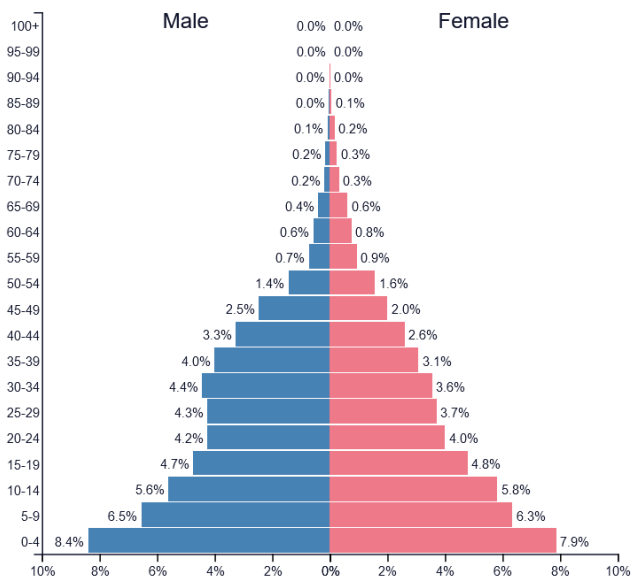
Fertility rate: 1.05

2010 – 1 in 10 above 65

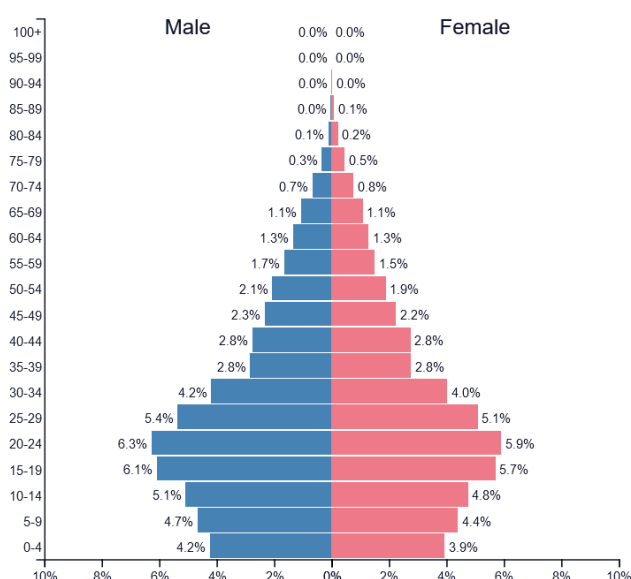
2020 – 1 in 6 above 65

2030 – 1 in 4 above 65

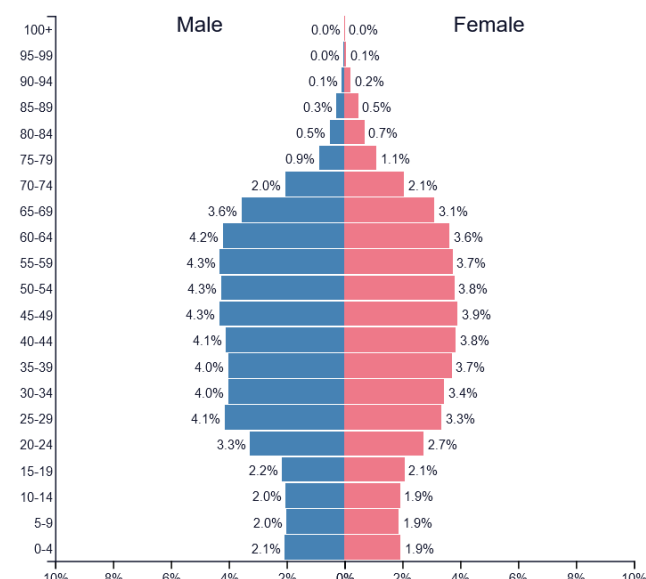
1950



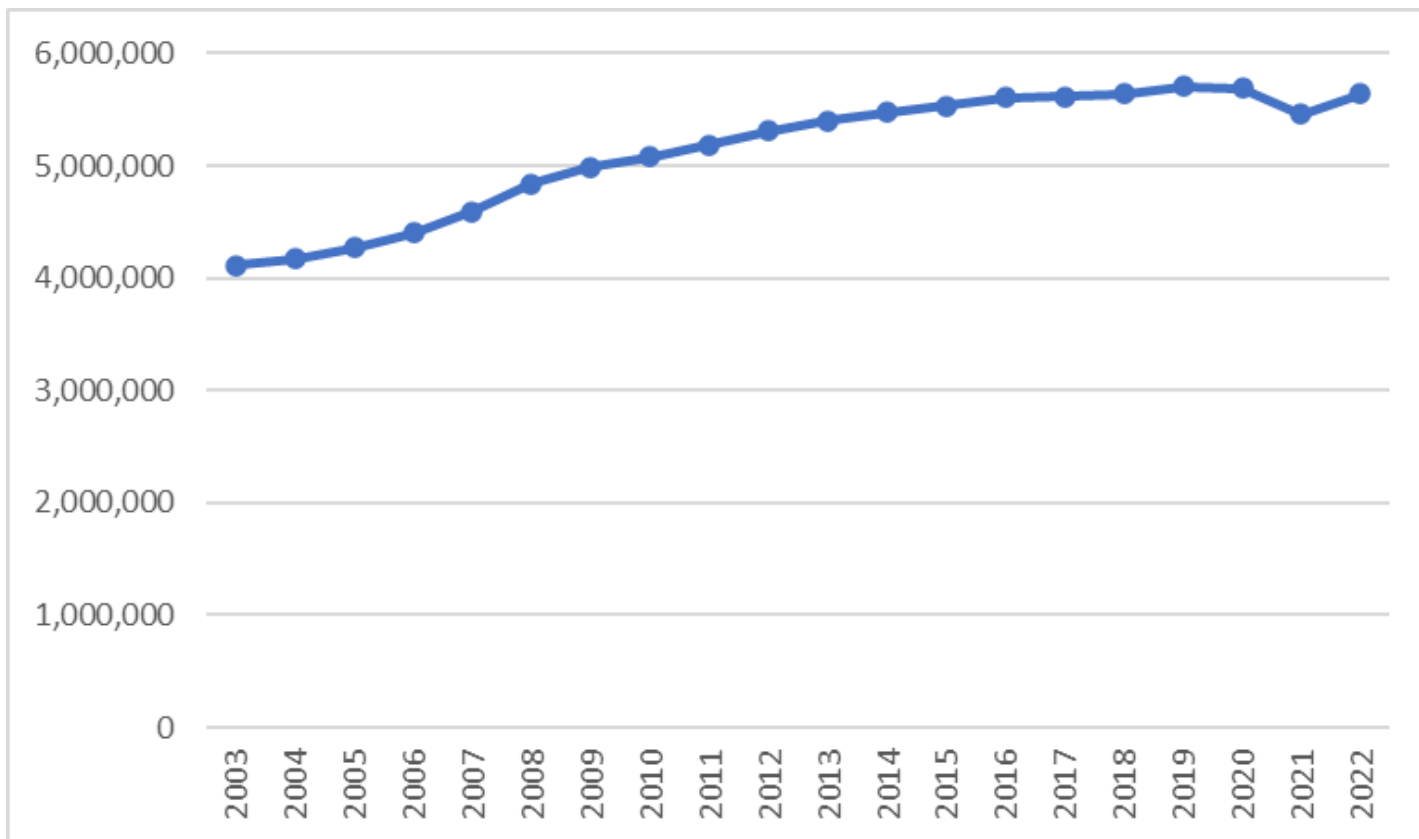
1980



2022



Population growth??



- 2003 – 2019: +1.4 M, +33%
- - Singapore citizens: +13%
- - Permanent residents: +57%
- - Non-PR foreigners: +124%

- 2021: -4.1%, 2020-21
- - Permanent residents: -7%
- - Non-PR foreigners: -12.6%

Religion matters... halal?

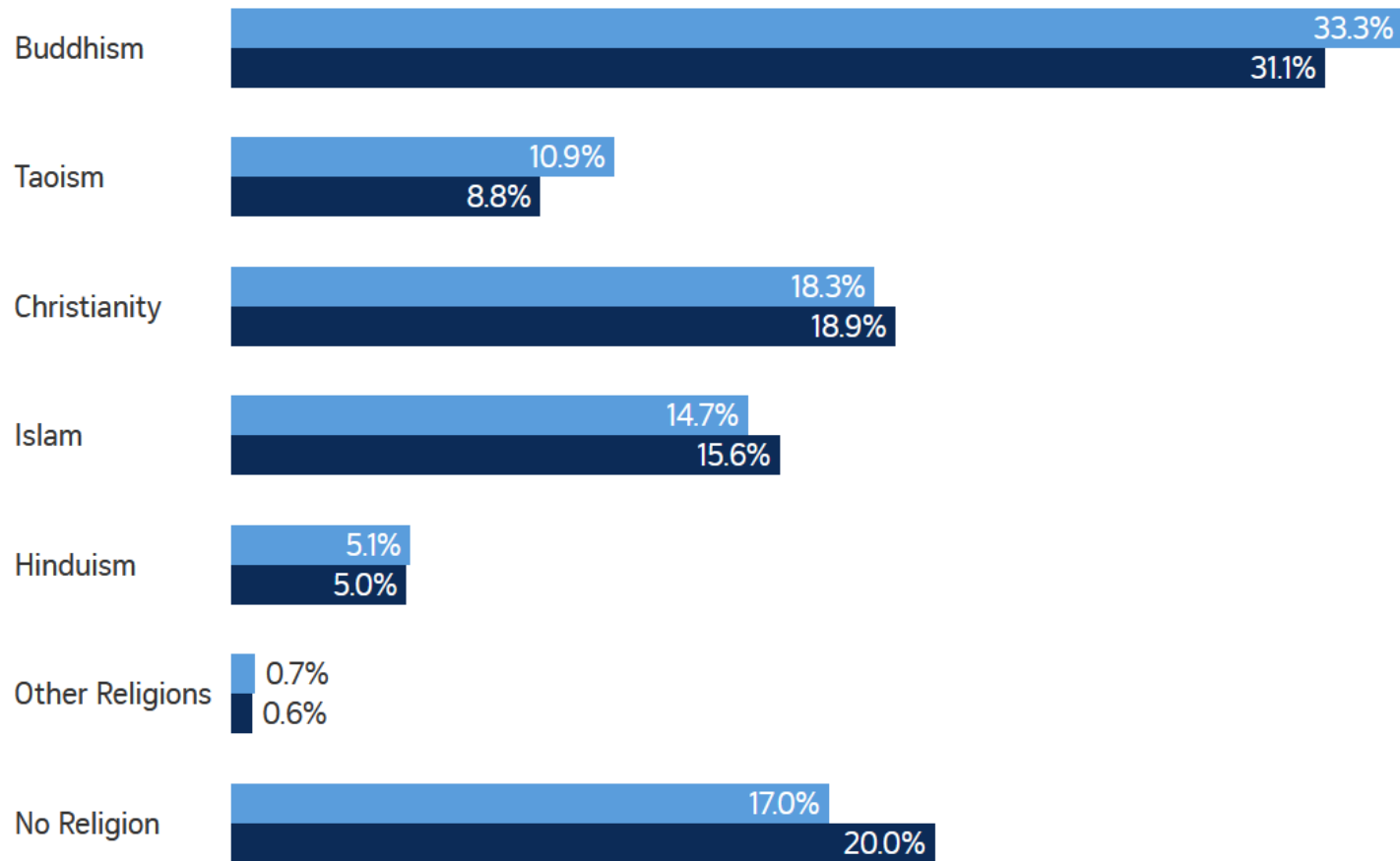
25.7% of Chinese residents have no religion, but only 2.2% of Indians and 0.4% of Malays say so

98.8% of Malays are Muslim, unchanged for last 10 years

Islam dominates in neighbouring countries Malaysia & Indonesia

Resident population aged 15 years and older by religion

■ 2010 ■ 2020



High GDP per capita, high Gini coefficient

Nominal Average Monthly HI, per Member

Median Monthly Household Income:

SGD 10,099 (Eur 6,860)

(Average Household size: 3.27)

Gini coefficient: 0.437

Decile	2022
10th	S\$14,354
9th	S\$7,493
8th	S\$5,578
7th	S\$4,447
6th	S\$3,634
5th	S\$2,976
4th	S\$2,400
3rd	S\$1,864
2nd	S\$1,347
1st	S\$689

Source: Singapore Statistics Department **Fem avui l'empresa del demà**

Singapore Food challenges and trends

30 X 30 CHALLENGE: AGRIFOOD TECH – FOOD INNOVATIONS

FoodPLANT

NURASA

Singapore
Food
Agency

J
U
S
T

- Joint SIT, ESG, JTC Investment
- - Pilot-scale equipment
- - R&D consultancy
- - Training course
- Target: assist 200 Food manufacturers, develop 400 new products by 2026

- 100% Temasek Holdings co
- Accelerator for AP targeted cos
- Food Tech Innovation Centre:
 - - High moisture extrusion
 - - Precision fermentation
- FoodTech Start-up Challenge:
 - - Alternative Protein
 - - Functional Foods

- Dec 2020: World's 1st regulatory approval to sell cultivated chicken
- Jan 2023: World's 1st approval to produce serum-free cultivated meat

Ageing challenge

Omega 3 enhanced...

... calcium enhanced



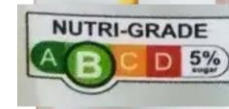
Diabetes challenge

- “WAR ON DIABETES” CAMPAIGN LAUNCHED BY PRIMER MINISTER LEE IN 2016
- DIABETES PREVALENCE: 4.8% IN 1984, 8.6% IN 2010, 9.5% IN 2019-20
- 14% OF IMPAIRED GLUCOSE TOLERANCE, OF WHICH AT LEAST 35% WILL PROGRESS TO FULL DIABETES IF NO CHANGES INTRODUCED
- HIGHEST PREVALENCE OF DIABETES-INDUCED KIDNEY FAILURE IN THE WORLD
- MALAY, INDIAN GROUPS, 50 TO 75% HIGHER PREVALENCE THAN CHINESE
-

... diabetes response

SINGAPOREANS CONSUME ON AVERAGE 12 TEASPOONS OF SUGAR DAILY !

December 2022 – **NUTRIGRADE** regulation introduced for all beverages
GRADE D products are banned from carrying out advertising



... diabetes response



WOW noodles, by Singaporean Foodtech Kosmodehealth
Made of Barley-Spent-Grains (BSG)
94% lower GI response compared to regular noodles



Alchemy fibre and prebiotics fibre blends
B2B strategy, working with 2 rice brands and with fast-food chain SUBWAY
Choc chip cookie “siew dai” 50% of sugar

Other trends

Probiotics...



... Kombucha !



Protein-intensive



Singapore Food regulations

Food regulations

CUSTOM DUTIES – 0% (except alcohol!!) – GST 8%

COMPULSORY CERTIFICATION:



- MEAT, including any product with a content of meat equal or above 5%



- FISH



- FRESH FRUITS AND VEGETABLE (raw & unprocessed)



- TABLE EGGS, PROCESSED EGGS (salted, in powder...)

Food regulations

Processed Food requiring certain documentary proof of safe production

1	Packaged mineral and drinking water and ice
2	Coconut milk and grated coconut, and nasi lemak
3	Infant cereals and infant formulas (Please refer to the Calculation guide for Infant formula to conduct self checking on the compliance of the nutritional composition of infant formulas)
4	Land snails
5	Minimally processed fruits and vegetables
6	Pasteurised liquid milk
7	Traditional cakes (kueh kueh)
8	Cut sugarcane
9	Mooncakes

Novel food

WHAT ARE CONSIDERED NOVEL FOODS?

- - - FOOD AND INGREDIENTS THAT DO NOT HAVE A HISTORY OF SAFE USE
- - - COMPOUNDS CHEMICALLY IDENTICAL TO NATURAL SUBSTANCES, BUT PRODUCED THROUGH THE APPLICATION OF TECHNOLOGY (ie. cultured meat)
- 2019: SFA introduces the novel food regulatory framework, involves:
 - - - Seek pre-market allowance for novel food
 - - - Conduct and submit safety assessments of their products
 - - - SFA assessment within 9 to 12 months, no fees charged



Contacta'ns!

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