

TRADE ROUTES - PRODUCT - TRANSPORT - PEOPLE - GEOPOLITICAL

FOOD TRADE & DISTRIBUTION

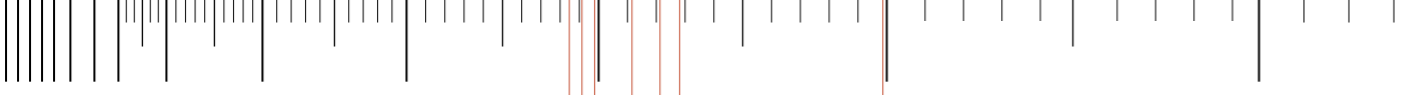
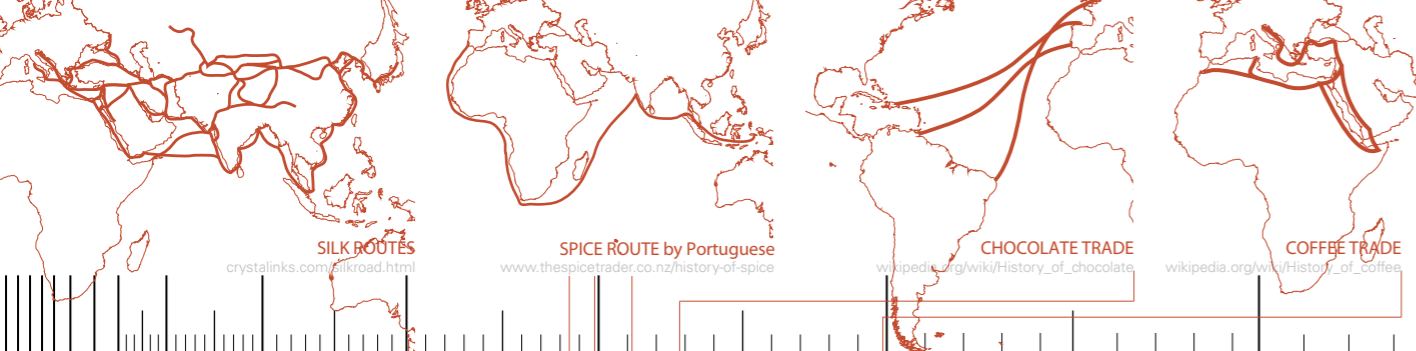


Network of interlinking trade routes across the Afro-Eurasian landmass since the Han Dynasty (206 BC–220 AD) connecting Asia with Europe and northeast Africa. The land routes were supplemented by sea. China traded silk, spices, teas and porcelain, while India traded ivory, textiles, precious stones and pepper; the Roman Empire exported gold, silver, glassware, wine, carpets and jewels until around 1400 when the Silk Routes stopped as a shipping route for Silk.

For almost 5000 years Arab middlemen controlled the spice trade until European explorers - in the search for a cheaper way to obtain spices - discovered a sea route to India and the New World. Portuguese, Dutch, French, Spanish and English established monopolies over various parts of the spice trade. Empires were founded, brutal conquests, piracy and greed were its consequences.

Chocolate played a special role in both Maya and Aztec royal and religious events. It arrived in Spain in 1528 through the conquistador Hernan Cortés. Spaniards mixed the beans with sugar, vanilla, nutmeg, cloves, allspice and cinnamon. Today Western Africa produces almost 2/3 of the world's cocoa, with Côte d'Ivoire growing almost half of it.

History of coffee goes as far back as the 13th century. Ethiopian ancestors were the first to discover and recognize the energizing effect of the coffee bean plant. From there it was spread to Egypt and Yemen, establishing in Europe during the 17th century.









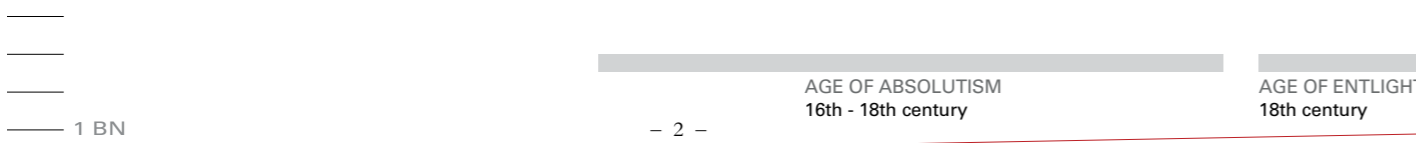
0 1300 1400 1500 1600 1700

SEA and LAND TRANSPORTATION

The first forms of road transport were horses, oxen or even humans carrying goods over tracks. Some of these dirt tracks were developed into fairly extensive networks, allowing communications, trade and governance over wide areas. The first vehicle was the 'travois'.

Sea transport has been the largest carrier of freight throughout recorded history. In ancient maritime history, the first boats are presumed to have been dugout canoes, developed independently by various stone age populations and used for coastal fishing and travel. The Arab Empire maintained and expanded a wide trade network across parts of Asia, Africa and Europe world's leading extensive economic power throughout the 7th-13th centuries. During the Age of Discovery (15th-17th century) European ships traveled around the world to search for new trading routes and partners.

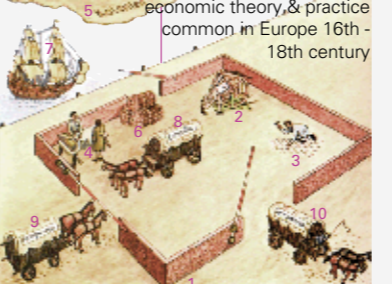
 BARTOLOMEU DIAS 1450 - 1500 Discovered the Cape of Good Hope in 1488	 CHRISTOPH COLUMBUS 1451 - 1506 Discovered America in 1492	 VASCO DA GAMA 1460 - 1524 Explored the sea route to India in 1498	 AFONSO DE ALBUQUERQUE 1453 - 1515 Explored the Spice islands in 1512	 FERDINAND MAGELLAN 1480 - 1521 First circumnavigation of the earth 1519-22	 HERNAN CORTÉS 1485 - 1547 Conqueror of Central America (Aztecs) 1519-22	 LEONHARD RAUWOLF 1535 - 1596 First mentioned the existence of coffee in his travel diary in 1575	 JEAN-BAPTISTE COLBERT 1619 - 1683 French finance minister of Ludwig XIV. and founder of mercantilism
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GLOBAL POPULATION CHART

"An Inquiry into the Nature and Causes of the Wealth of Nations" by Adam Smith, fundamentally changed economic thinking, 1776

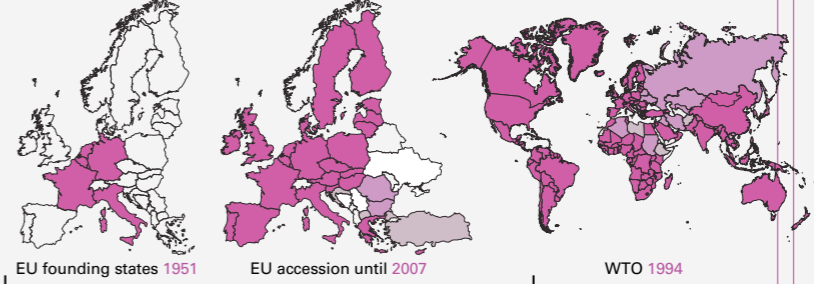
MERCANTILISM
economic theory, & practice common in Europe 16th - 18th century



- 1 tariff wall
- 2 establish new industries
- 3 construction of new transport routes
- 4 standardized mass, weight
- 5 conquering new colonies (raw materials)
- 6 import just raw materials
- 7 carriage of goods with own merchant navy
- 8 no export of raw materials
- 9 import no finished product
- 10 export of finished product

FREE TRADE
Adam Smith pointed to increased trading as being the reason for the flourishing Egypt, Greece, Rome, Bengal (East India) and China. Many classical liberals (19th-early 20th century U.K./U.S.) believed that free trade promoted peace. The U.S. and the U.K. employed protectionism to varying degrees at all times. The most consistent practitioners of free trade have been Switzerland, the Netherlands and Belgium. http://en.wikipedia.org/wiki/Free_trade

EUROPEAN UNION
As of 1950 the European Coal and Steel Community begins to unite European countries economically and politically in order to secure lasting peace. Establishing the partnership between 27 European countries ever since it is building a single Europe-wide market for free movement of people, goods, services and capital. europa.eu/about-eu/eu-history/index_en.htm

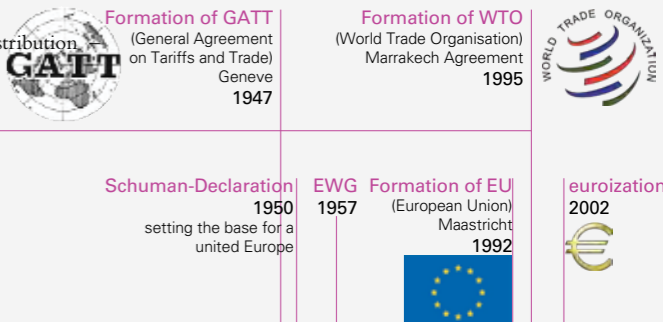


Formation of GATT
(General Agreement on Tariffs and Trade) Geneva 1947

Schuman-Declaration 1950
setting the base for a united Europe

EWG Formation of EU (European Union) Maastricht 1992

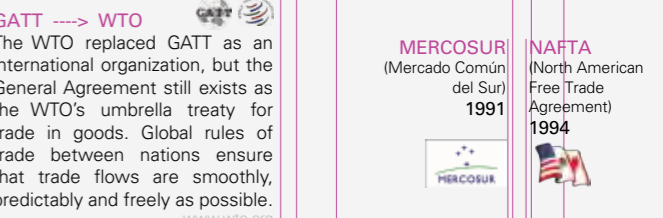
euorization 2002







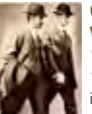




GATT -> WTO
The WTO replaced GATT as an international organization, but the General Agreement still exists as the WTO's umbrella treaty for trade in goods. Global rules of trade between nations ensure that trade flows are smoothly, predictably and freely as possible. www.wto.org

MERCOSUR (Mercado Común del Sur) 1991

NAFTA (North American Free Trade Agreement) 1994



 ADAM SMITH 1723 - 1790 Scottish philosopher and pioneer of political economy	 JAMES WATT 1736 - 1819 invented the steam engine in 1774	 OLIVER EVANS 1755 - 1819 pioneered the high-pressure steam engine in 1800; 1st steam-powered boat 1804	 MATTHEW MURRAY 1765 - 1826 invented the 1st commercially viable steam locomotive in 1812	 CARL VON LINDE 1842 - 1934 invented the mechanical refrigerating machine in 1876	 THOMAS ALVA EDISON 1847 - 1931 invented the electric lighting and electricity in 1879	 ORVILLE & WILBUR WRIGHT 1871 - 1948 1867 - 1912 invented the first powered airplane in 1903	 JEAN MONNET 1888 - 1979 French economist, "Architect of the EU"	 PAUL H. SPAAK 1899 - 1972 Prime minister of Belgium
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1800
1820 RAILTRANSPORT SYSTEM England
1830 RAILWAY USA
1840 RAILWAY France
1867 1st cooled RAILCAR USA
1832 RAILWAY Austria
1847 RAILWAY Switzerland
1835 RAILWAY Germany

1900
1910 AIR CARGO U.S. military started using airplanes to transport goods
1920 COMMERCIALIZED AIR CARGO airlines start to operate as airfreight carriers
12.3 million tonnes of air freight (national/intl.) was carried through airports within the EU-27 in 2009.

2000
1947 1st Cooling System in TRUCKING INDUSTRY
1998 Air Freight Software FedEx, UPS
FedEx' annual revenue: \$40 billion
8,5 Mio. shipments/day servicing: 220 countries
687 aircrafts, 375 airports
<http://about.van.fedex.com/>

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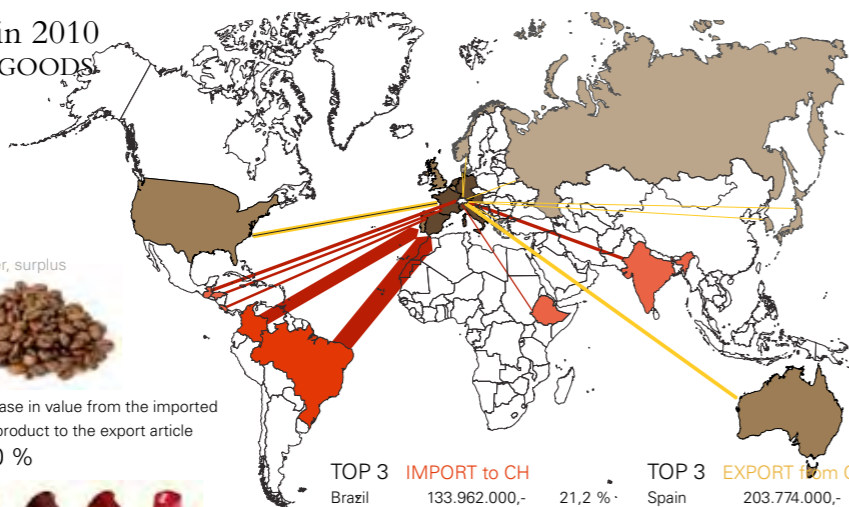
IMPORT EXPORT in 2010

COMPARING 6 TRADING GOODS



NESPRESSO
 annual growth rate 30%
 2005-2006 sales +42%
 2006: CHF 1.160.000.000
 3.000.000.000 coffee capsules
 2010: CHF 1.300.000.000
 4.800.000.000 coffee capsules globally
 12.800 cups/minute

increase in value from the imported raw product to the export article 220 %



TOP 3 IMPORT to CH			TOP 3 EXPORT from CH		
Brazil	133.962.000,-	21,2 %	Spain	203.774.000,-	21,2 %
Columbia	89.673.000,-	14,2 %	France	168.849.000,-	14,2 %
Spain	51.306.000,-	8,1 %	Germany	144.345.000,-	8,1 %

IMPORT \$ 558.561.000
 EXPORT \$ 1.231.779.000

COFFEE

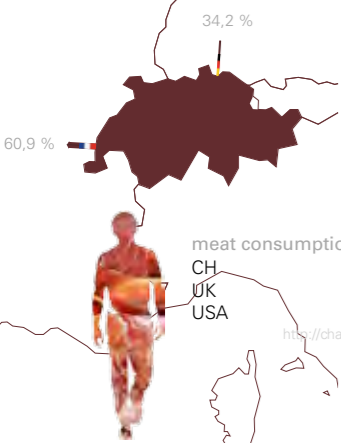


dairy products' consumption/year/person in CH in 2010
 fresh milk 70,7 KG
 milk drinks 8,2 KG
 yoghurt 18,2 KG
 butter 5,4 KG
 cream 8,2 KG
 cheese 21,6 KG
 TOTAL converted into fresh milk: 346 KG
 www.swissmilk.ch

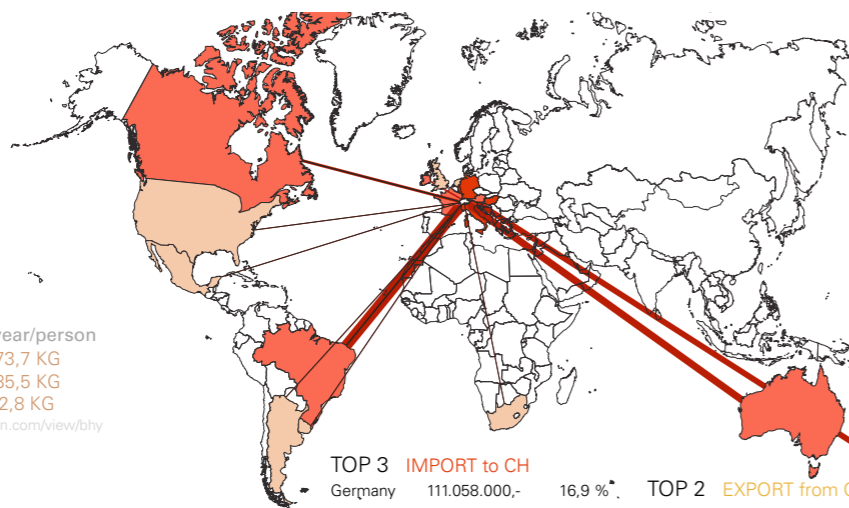
TOP 3 IMPORT to CH			TOP 3 EXPORT from CH		
France	176.786.000,-	31,6 %	Germany	210.631.000,-	30,8 %
Italy	162.370.000,-	29,0 %	Italy	111.401.000,-	16,3 %
Germany	94.728.000,-	16,9 %	France	78.784.000,-	11,5 %

IMPORT \$ 684.175.000
 EXPORT \$ 1.231.779.000

DAIRY PRODUCTS



meat consumption/year/person
 CH 73,7 KG
 UK 85,5 KG
 USA 122,8 KG
<http://chartsbin.com/view/bhy>



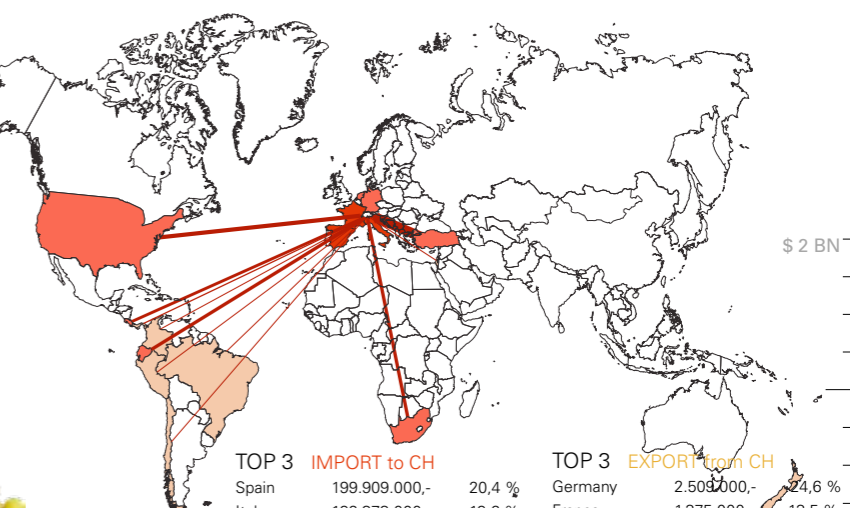
TOP 3 IMPORT to CH			TOP 2 EXPORT from CH		
Germany	111.058.000,-	16,9 %	France	36.776.000,-	60,9 %
Brazil	69.914.000,-	10,6 %	Germany	20.661.000,-	34,2 %
France	67.609.000,-	10,3 %			

IMPORT \$ 60.420.000
 EXPORT \$ 60.420.000

MEAT

Percentages from TOTAL imported in CH in 2010

citrus fruit	51,8	grapes	51,7 %
fruits nes	34,5	stone fruits	28,7 %
stone fruits	31,2	fruits nes	24,1 %
melons	26,8	melons	22,2 %
		nuts	20,3 %
		citrus fruits	19,9 %



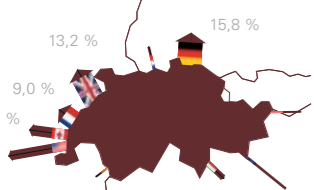
TOP 3 IMPORT to CH			TOP 3 EXPORT from CH		
Spain	199.909.000,-	20,4 %	Germany	2.509.000,-	24,6 %
Italy	192.373.000,-	19,6 %	France	1.375.000,-	13,5 %
France	87.275.000,-	8,9 %	Italy	1.286.000,-	12,6 %

IMPORT \$ 10.198.000
 EXPORT \$ 10.198.000

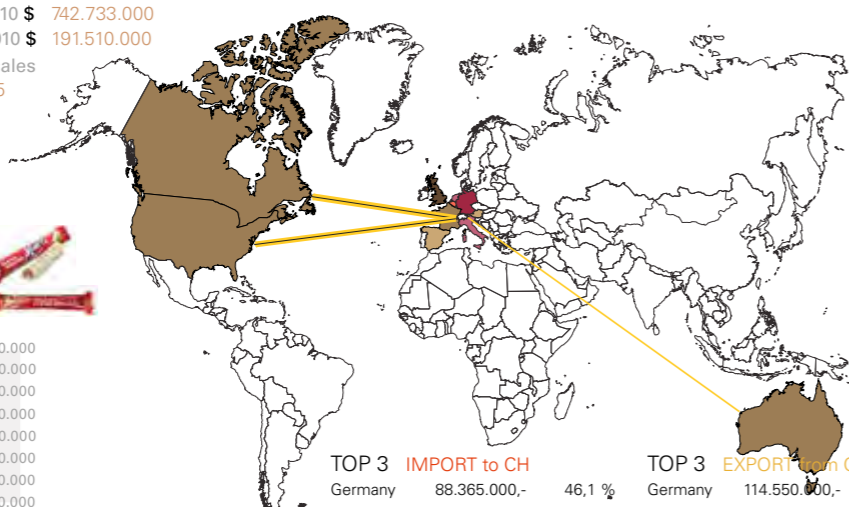
FRUITS & NUTS

TOTAL export value of chocolate in 2010 \$ 742.733.000
 TOTAL import value of chocolate in 2010 \$ 191.510.000
 comparison domestic sales export sales

[t] 69.829 : 106.595
 [CHF mio.] 898 : 845



Import value > \$ 75.000.000
 Import value \$ 75.000.000 - 20.000.000
 Import value < \$ 20.000.000
 Export value > \$ 75.000.000
 Export value \$ 75.000.000 - 20.000.000
 Export value < \$ 20.000.000
 Import:Export balance (<70:30) > \$ 100.000.000
 Import:Export balance (<70:30) < \$ 100.000.000



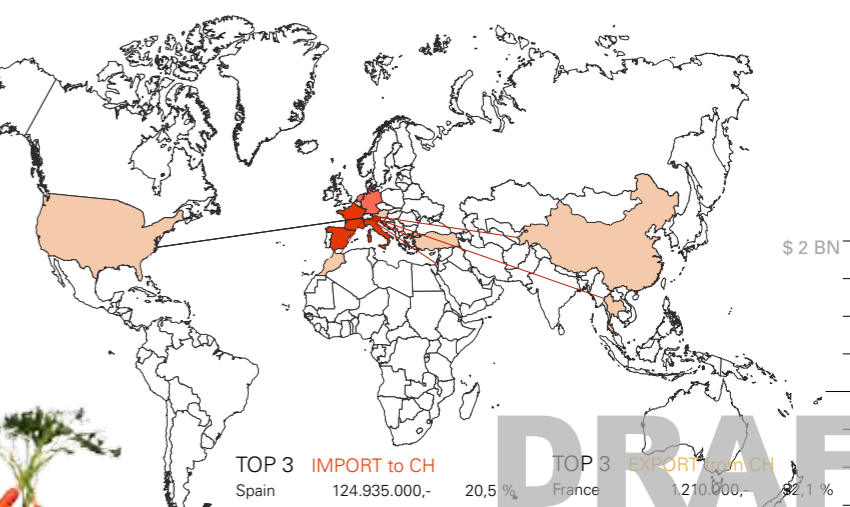
TOP 3 IMPORT to CH			TOP 3 EXPORT from CH		
Germany	88.365.000,-	46,1 %	Germany	114.550.000,-	57,8 %
Netherlands	28.425.000,-	14,8 %	U.K.	94.304.000,-	13,2 %
Italy	23.665.000,-	12,4 %	France	76.334.000,-	9,0 %

IMPORT \$ 191.510.000
 EXPORT \$ 742.733.000

CHOCOLATE

Percentages from TOTAL imported in CH in 2010

cucumbers	52,8	cabbages	49,9 %
lettuce	34,0	carrots	43,8 %
cabbages	31,2	lettuce	29,1 %
vegetable nes	22,4	tomatoes	20,8 %
tomatoes	21,0 %	onions	18,2 %

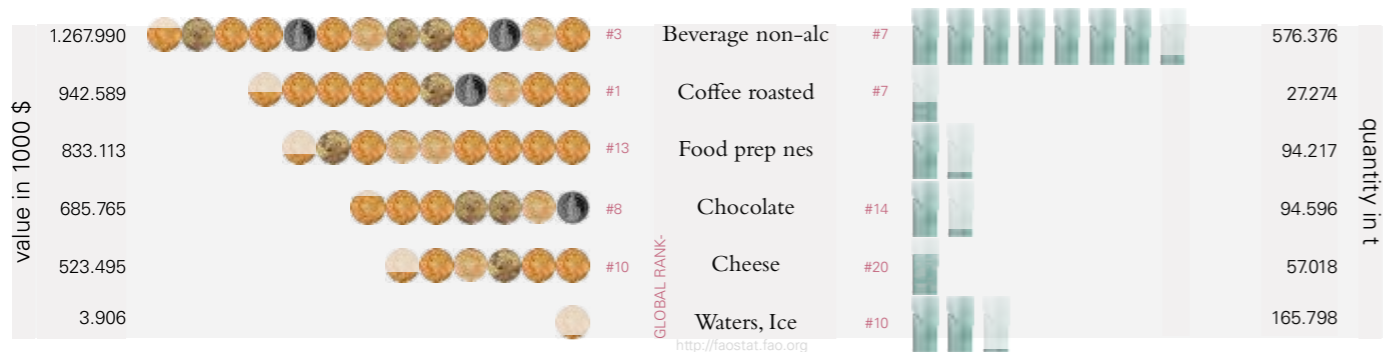


TOP 3 IMPORT to CH			TOP 3 EXPORT from CH		
Spain	124.935.000,-	20,5 %	France	1.210.000,-	32,1 %
Italy	114.790.000,-	18,9 %	Germany	1.083.000,-	28,7 %
France	82.078.000,-	13,5 %	Austria	440.000,-	11,7 %

IMPORT \$ 3.771.000
 EXPORT \$ 3.771.000

VEGETABLES

SWISS EXPORT DATA & ECONOMIC FACTS



FOOD MILES



160

RED BULL annual sales 4,2 billion cans in 160 countries (2010)

Since 2005 RED BULL is running a facility in Widnau (SG) where almost half of the cans that come on the market are getting bottled. This has influenced Switzerland's export sales tremendously, showing an increase of 42%.



www.redbull.com
www.blick.ch

SWITZERLAND GROSS DOMESTIC PRODUCT 2010

purchasing power parity: \$ 324,5 billion #38 world
 per capita (ppp): \$ 42.600 #17 world
 sector: agriculture 1,3 %
 industry 27,7 %
 services 71,7 %

SWITZERLAND TRADE in 2010

20 EXPORT \$ 232.600.000.000
 # 20 IMPORT \$ 226.300.000.000

COMPARISON: FOOD EXPENSES

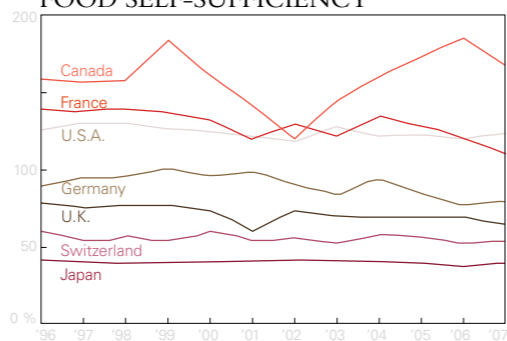
money spend on food in percentage from the total income

1980: 23% 2007: 10%

WHY TARIFFS?

Customs duties on merchandise imports are called tariffs. Tariffs give a price advantage to locally-produced goods over similar goods which are imported, and they raise revenues for governments. One result of the GATT Uruguay Round was countries' commitments to cut tariffs and to "bind" their customs duty rates to levels which are difficult to raise.

FOOD SELF-SUFFICIENCY



The food self-sufficiency rate is an indicator that shows how much daily food per capita is produced within a country. It is based on calories and calculated as

$$X = \frac{\text{daily domestically supplied calories per capita}}{\text{daily totally supplied calories per capita}}$$

Self-sufficiency in grains is also often used to compare between countries, as almost complete data from industrial and developing countries are available.

SWITZERLAND: The food self sufficiency rate in Switzerland is comparatively lower than in other countries. The rate once dipped below 40% but ranges now between 50-60 %

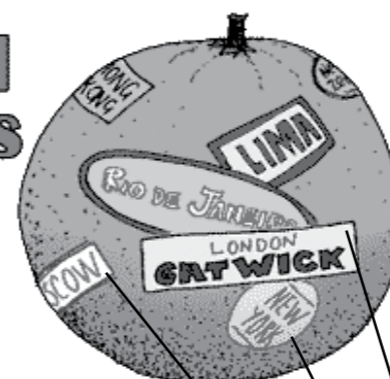
%	meat	90 %
	milk products	100 %
	vegetables	45 %

In June 2007 the Swiss government liberalized exports and imports of cheese. Switzerland has little arable land so in order to boost agricultural production, maintain its landscape and reduce dependency on imports, it provides direct compensation to farmers, paid not only on the basis of land area, the number of livestock raised and their condition, but also in accordance with farmers' efforts to maintain the environment, including a reduction or halt in the use of farm chemicals.

JAPAN: The figure of Japan is the lowest among major industrialized countries. In fiscal 2006, it broke the 40 % level, declining to 39 %.

www.stat.go.jp/english/data/handbook/c05cont.htm
www.agrometeorology.org
www.japantimes.co.jp
www.letemps.ch

Food Miles
How well travelled is your dinner?



'FOOD MILES' is a term referring to the distance food travels between the locations at which it is produced to the one where it is consumed. Foods imported have greater food miles than locally produced foods.

of all CO₂-emissions caused by the food industry in the U.S. 4% long-distance transportation 83% manufacturing strategy

4% of all the greenhouse gases emitted by the food industry come from transporting the food from producers to retailers

82% of all distances of groceries that are consumed in the U.K. have occurred within the country, not during overseas transport

48% consumer's shopping trips
31% domestic trucking
1% air cargo



AIR kg x $\frac{km \times 1.10 \text{ g CO}_2/km}{1000 \text{ g/kg}}$
CAR kg x $\frac{km \times 0.32 \text{ g CO}_2/km}{1000 \text{ g/kg}}$
TRUCK kg x $\frac{km \times 0.27 \text{ g CO}_2/km}{1000 \text{ g/kg}}$
BOAT kg x $\frac{km \times 0.13 \text{ g CO}_2/km}{1000 \text{ g/kg}}$
RAIL kg x $\frac{km \times 0.02 \text{ g CO}_2/km}{1000 \text{ g/kg}}$



100 locavores are eating only food that is grown and harvested locally and not moved long distances to the market. The movement established in the U.S. and is often referred to a 100-mile-eco-radius.

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www.ecoaction.com.au/category.php?id=80
DAS MAGAZIN 20/2011, Guido Mingels (2011-05-21): "Wie weit darf Essen reisen?" S: 12-14
www.fallsbrookcentre.ca/cgi-bin/calculate.pl