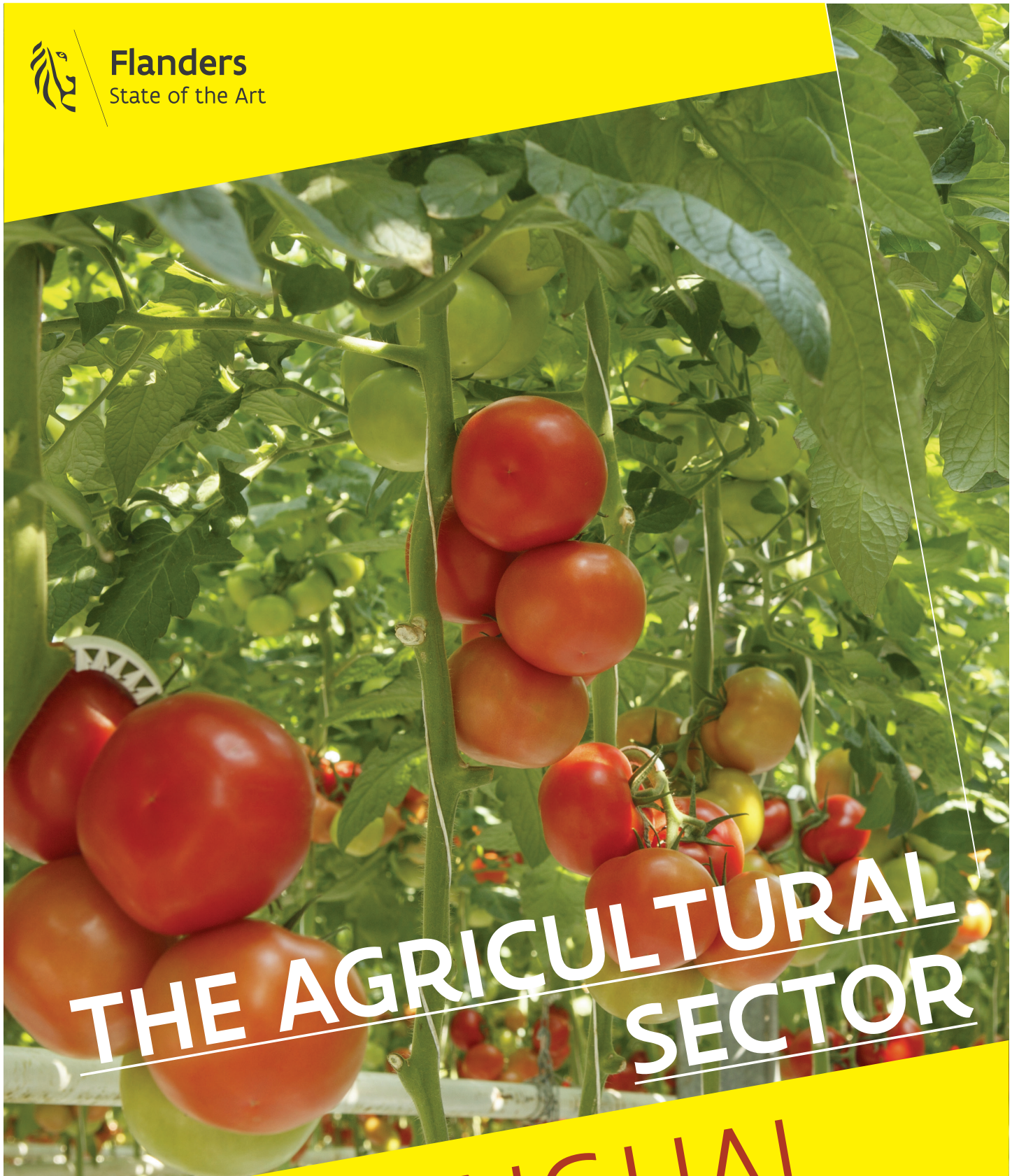




Flanders
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THE AGRICULTURAL SECTOR

IN SHANGHAI

FLANDERS INVESTMENT & TRADE MARKET SURVEY



Flanders
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The agricultural sector in Shanghai

September 2016

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Contents

Introduction to Shanghai..... 2

 Geography 2

 Climate..... 2

 Natural resources 3

 Environment..... 4

Macroenvironment in Shanghai 5

 Demography 5

 Economy 5

 Politics 6

 Socio-cultural elements..... 6

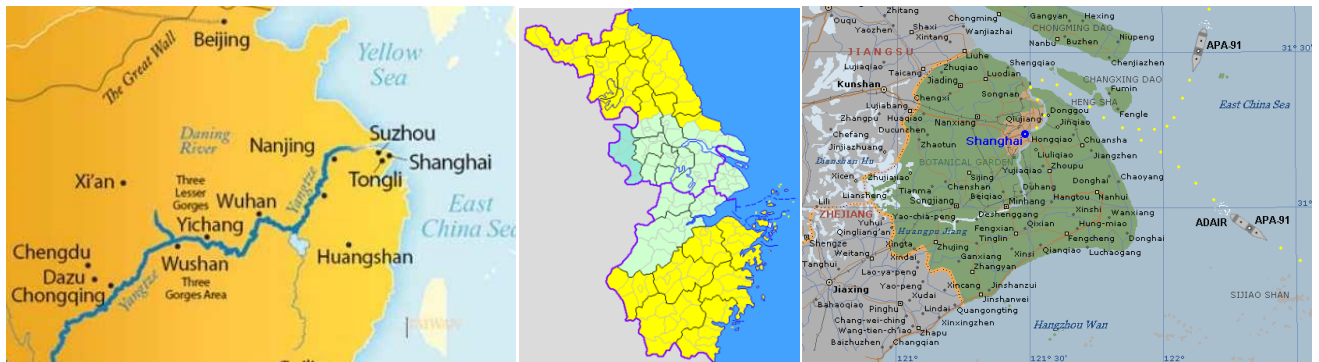
Agriculture in Shanghai 7

 Projects..... 10

Events 13

References..... 14

Introduction to Shanghai



Geography

- The City covers an area of 6,340.5 km²
 - 6,218.65 km² consist of land and 121.85 km² of water.
- Shanghai is located on the east coast of the Yangtze River Delta. Through the East China Sea the city is close by the Pacific Ocean.
- It borders Jiangsu on both northern and western side and Zhejiang, Hangzhou Bay on the South. On the east side it borders with East China Sea. The Huangpu River centers the city.
- The city is mainly flat because of the alluvial plain of the Yangtze's river delta. On the southwest corner, there are a few hills.
- There are many rivers and lakes in Shanghai due to its location, which makes the city rich in water resources. The warm climate ensures that the rivers and lakes stay ice-free.
- The Port of Shanghai is one of the world's largest ports.
 - It is the world's busiest container port
 - A very important gateway for foreign trade
 - Important for the strong industrial base and developed agricultural sector
 - Managed by Shanghai International Port
 - 44.23 % of the shares of the Shanghai International Port Company Limited is owed by the Shanghai Municipal Government.

Climate

- Shanghai has a humid subtropical climate. There is a very big distinction between the four seasons. Northwestern winds coming from Siberia cause temperature drops to below freezing point.
 - During the spring, from March until May, the weather is unpredictable and tends to rain a large amount.
 - In the summer, June until September, temperatures can rise to more than 35° for 8.7 days in a row. It is often hot and humid. Thunderstorms, downpours or typhoons can be expected during the summer and the beginning of autumn.
 - Autumn, October to November, is the best and most agreeable season as the weather is sunny and dry.
 - Winters, from December to February, are usually damp and chilly.

Climate data for Shanghai (normals 1991–2010, extremes 1951–present)												[hide]	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	22.1 (71.8)	27.0 (80.6)	29.6 (85.3)	34.3 (93.7)	35.5 (95.9)	37.5 (99.5)	39.0 (102.2)	39.9 (103.8)	38.2 (100.8)	34.0 (93.2)	28.7 (83.7)	23.4 (74.1)	39.9 (103.8)
Average high °C (°F)	8.1 (46.6)	10.1 (50.2)	13.8 (56.8)	19.5 (67.1)	24.8 (76.6)	27.8 (82)	32.2 (90)	31.5 (88.7)	27.9 (82.2)	22.9 (73.2)	17.3 (63.1)	11.1 (52)	20.58 (69.04)
Daily mean °C (°F)	4.8 (40.6)	6.6 (43.9)	10.0 (50)	15.3 (59.5)	20.7 (69.3)	24.4 (75.9)	28.6 (83.5)	28.3 (82.9)	24.9 (76.8)	19.7 (67.5)	13.7 (56.7)	7.6 (45.7)	17.05 (62.69)
Average low °C (°F)	2.1 (35.8)	3.7 (38.7)	6.9 (44.4)	11.9 (53.4)	17.3 (63.1)	21.7 (71.1)	25.8 (78.4)	25.8 (78.4)	22.4 (72.3)	16.8 (62.2)	10.6 (51.1)	4.7 (40.5)	14.14 (57.45)
Record low °C (°F)	-10.1 (13.8)	-7.9 (17.8)	-5.4 (22.3)	-0.5 (31.1)	6.9 (44.4)	12.3 (54.1)	16.3 (61.3)	18.8 (65.8)	10.8 (51.4)	1.7 (35.1)	-4.2 (24.4)	-8.5 (16.7)	-10.1 (13.8)
Average precipitation mm (inches)	74.4 (2.929)	59.1 (2.327)	93.8 (3.693)	74.2 (2.921)	84.5 (3.327)	181.8 (7.157)	145.7 (5.736)	213.7 (8.413)	87.1 (3.429)	55.6 (2.189)	52.3 (2.059)	43.9 (1.728)	1,166.1 (45,908)
Average precipitation days	9.9	9.2	12.4	11.2	10.4	12.7	11.4	12.3	9.1	6.9	7.6	7.7	120.8
Average relative humidity (%)	74	73	73	72	72	79	77	78	75	72	72	71	74
Mean monthly sunshine hours	114.3	119.9	128.5	148.5	169.8	130.9	190.8	185.7	167.5	161.4	131.1	127.4	1,775.8

Source: China Meteorological Administration ^[62]

Natural resources

Surrounded by the Huangpu River the East China Sea, the yellow sea and the Yangtze River, Shanghai has a very rich water resource. There are more than 700 types of aquatic products coming from the East China Sea and Yellow Sea. In the Yangtze there are 108 different fish species and economic fishes. Shanghai also has natural lakes holding clams, conch and other different fish.

As can be seen from the previous figure, China itself holds the first place position in its mining industry,

	Gold	Silver	PGM	Copper	Zinc	Lead	Nickel	Cobalt	Moly	Iron Ore	Bauxite / Al	Coal*	Other**	Total points
China	10	9	5	9	10	10	3	9	10	10	9	10	112	216
Australia	9	7	1	5	9	9	6	7	0	9	10	8	64	144
Russia	8	6	9	4	0	5	9	6	0	6	3	5	73	134
USA	7	2	6	7	7	8	0	0	9	3	0	9	34	92
Canada	6	1	8	2	4	0	7	8	5	1	0	0	49	91
South Africa	5	0	10	0	0	0	0	2	0	4	0	4	58	83
India	0	0	0	0	6	4	0	0	0	7	6	6	39	68
Brazil	0	0	0	0	0	0	4	2	0	8	8	0	34	56
Peru	4	8	0	8	8	7	0	0	7	0	0	0	9	51
Mexico	2	10	0	1	6	6	0	0	6	0	0	0	6	37

proving to be the most resource prosperous country in the world. The only essential minerals that China does not hold a top 5 spot in, are gem diamonds and chromium.

One of the most important robust and flourishing industries located within China, is the coal mining industry. They produce over 3750 Mt's of coal annually and based on international policies, only 15% of coal mined within a country is destined to be sold on the international market.



Environment

The people of Shanghai are becoming more and more aware of its environmental issues. Investments in environmental protection projects have therefore been made. The city invested in a 1 billion US dollar 10 year plan to clean Suzhou Creek. Transportation companies who invest in LPG buses and taxis will get governmental incentives through mainly subsidies. Though Shanghai has a low air pollution compared to its capital Beijing, it's still high for worldwide standards.

China and the United States will work together on six Eco partnership programs which tackle environmental protection, clean energy and climate change.

One of the projects is to convert waste oil into aviation biofuel, reducing 50-80 percent of the emissions, making it more environmental friendly than regular jet fuel. Both the Boeing Company and the Commercial Aircraft Corporation of China are working on this project and will establish a pilot plant.

Another project will convert and recycle iron and steel slag waste so it's usable for other industrial processes. Columbia University and the Baotou Iron and Steel group will work together on this project.

A Partnership between Sea Turtles 911 and Hainan Normal University focuses on the protection of sea turtles. They track the migration of the turtles and help them restore their habitats.

Another joint project, between the University of Kentucky and Jiangsu Wisdom Engineering and Technology Company, separates 3,000 tons of carbon dioxide annually. Other projects evolve around solar power and an online air pollution monitoring system.

Macroenvironment in Shanghai

Demography

The population of Shanghai consist of around 24 million people. 79% of the citizens come from rural areas and 21% come from urban areas. 9 million of them are long-term migrants coming from Anhui, Jiangsu, Henan and Sichuan province. The population of foreign citizens is growing. In 2009 the population of foreign citizens doubled since 2005. Most of them have Japanese, American and Korean nationalities. There is a high life expectancy and low fertility rate in China. This causes an imbalance between different age groups. 22.54% of the citizens are over 60 whereas 8.3% are younger than 14 years old.

Economy

Shanghai is a very important economic base for China. The port of Shanghai results in the city leadership in economic trade and development. China, as well as its city Shanghai aim to appropriate high figures on their GDP (Gross Domestic Product). The city has a GDP of 2,160.21 RMB. 0.6% of which comes from the Primary industry (Agriculture), 37.2% from the secondary industry (industry and construction) and 62.2% come from the tertiary industry (service).

- Agriculture

Will be briefed under paragraph 3. Agricultural sector in Shanghai.

- Industry and Construction

Shanghai is known for the following industries: *computer information, petrochemical, equipment manufacturing, automobile and steel industries.*

Major Cities Near Shanghai		Shanghai's Main Industries	
<ul style="list-style-type: none">• Pudong New Area• Suzhou• Wuxi	<ul style="list-style-type: none">• Changzhou• Nantong• Nanjing	<ul style="list-style-type: none">• Electronics• Chemicals• Textiles• Steel	<ul style="list-style-type: none">• Metal Fabrication• Medical• Petrochemical• Logistics

- Service

- Domestic and international trade
- Stock exchange, securities companies, insurance companies.
- Subway/Transit system
- Hotels, catering, tourism, education, culture, real estate, health, psychical training, TV and broadcast, consultation and information services, technology services, public utilities and social welfare

There are however some cracks to be found in the economy of Shanghai. There's mainly heavy industry. This results in high consumption of land and energy leading to increased pollution. The service industry is only a small segment of Shanghai's industry. The city is working on promoting service industries. The Six new pillar-industries are *information industry, financial services, commerce and trade, automobile manufacture, equipment assemblies and real estate.* The city wants to keep the balance between the economy and the environment. Local enterprises are becoming more innovative and creative.

Politics

Shanghai has a dual party-government system. The highest ranking executive official in Shanghai is the Mayor of the Shanghai Municipal People's government or Mayor of Shanghai Municipality. The Communist party of China Shanghai Municipal Committee Secretary has more power than the Mayor of Shanghai Municipality.

The mayor of Shanghai is Yang Xiong.

Socio-cultural elements

With a history that dates back to more than a thousand years, the city has a large bank of nice sceneries to visit. A famous one is the Bund, a long boulevard along the Huangpu River. Along the bund people can enjoy old western architecture such as gothic-, baroque-, roman-, classical- and renaissance style houses. Another scenic spot is the famous Shanghai World Finance Center. It has three viewing floors which gives people an outlook of the old and new Shanghai.

Shanghai has its own dialect, called Hu language. It's part of the Wu language spoken mainly in Shanghai, Jiangsu province and Zhejiang province. It has a broad range of vowels and consonants. The dialect is very different from Mandarin and Cantonese. They voice their initials for example as opposed to Mandarin and Cantonese.

There are various religious groups in Shanghai. A survey from 2012 recorded that the largest group belongs to the Buddhist community with around 10.4%. 1.9% of the population in Shanghai is Protestant, 0.7% is Catholic and 0.1% have a different religion. The remaining 87% is atheist or believes in Confucianism, Taoism.

Agriculture in Shanghai

Agriculture is an important part of the economy of Shanghai. The government tries to promote Planting, fisheries, forestry and stockbreeding. Due to the location, agriculture in Shanghai is favorable. The city produces *grain, meat, eggs, milk, vegetable and fruit*. Products are sold locally and internationally.

China: Major Crops

- Fresh Produce and other high-value products: tomatoes, apples, garlic, mushrooms and truffles, cucumbers and gherkins, watermelons, chilis and green peppers (28.7 percent).
- Red Meat (25.8).
- Grains oilseeds, and other row crops: rice, wheat, potatoes, corn, peanuts (23.8).
- Poultry (14.0).
- Dairy: fresh milk (3.2).

(Percentage share of the top 20 commodities produced in 2012, by value; Source: U.N. Food and Agriculture Organization.)

http://trade.gov/topmarkets/pdf/Ag_Equipment_China.pdf

There are many modern agricultural zones in Shanghai, which attract a lot of foreign investors, advanced technologies and agricultural professionals. Sunqiao Modern Agriculture Development Zone in Pudong New Area, Fengxian Modern Agriculture Zone in the south Fengxian District and in the suburbs there's the districts of Baoshan, Jiangding, Minhang, Songjiang, Jinshan as well as Chongming County. Good and convenient transportation in the city ensures a strengthened co-operation between the industry and agriculture of the city zone and the suburbs. A lot of export-oriented agriculture has been established in Shanghai.

Organic farming

Food safety for a large scale growing city such as Shanghai, has become a large focus in recent years. A specific reason for this is the increase in the amount of expats entering the country along with increased living standards. Organic foods have thus taken a form of role model to a standard of foods in Shanghai. Agricultural sweet spots have been known to present themselves around Shanghai including the islands by the bay. Low amounts of pollution and industry exist especially on the island of Chongming and districts of Shanghai such as the Nanhui District.

In order to participate in Organic farming and receive a National Organic Certification, a series of elements must be met. Key elements include –

- . Never have used materials that do not coincide with the standards required in the past 24 months for annual crops and/or 36 months for perennial crops.
- . No seeds or seedlings that have been subject to Genetic Modified Organisms and no seed treatment that has been treated with an unauthorized substance before sowing.
- . At least 24-36 month of farmland conversion in a conventional production system or a minimum of 12 months for land deemed to be deserted or a wasteland.
- . Only after 12 months of initial on-site inspection from the OFDC will organic/Organic-in-conversion products be certified.

Any other information regarding the National Organic Certificate can be found through the OFDC organic certification instruction.

As the National Organic Certification is presumed timely and very detailed, it is safe to say that startup costs for organic farming is rather high. As the organic farming industry remains a competitive market with many substitutes and no available use of asymmetric information, it definitely can be seen as a risky industry with little mentions of making abnormal profit.

Remaining prosperous in Shanghai as a producer of organic goods all depends on how the consumer trusts your production facilities. Consumer trust is low, and many tend to be rather suspicious on the authenticity of organic products as the air, water, and soil are fixated to be polluted due to cleanliness of downtown Shanghai. Firms should seek to gain the trust of the public through as many means possible. Strong public relations and Public visits have proven to be effective manners for large organic farms such as 'Tony's Farm'.

Dairy industry

Within the last decade in which China and Shanghai has peaked into a massive state of growth within the Dairy industry with consumption and production averaging a 13% annual growth rate since the early 2000's. Unfortunately the small domestic companies in the dairy industry has not been able to match the increased demands from consumers. Whilst the large dairy processors have boomed, due to their ability to switch their supply chain with relative ease to acquire access to the new dairy products that were being introduced, small firms have been struggling to meet the new requirements.

China has not proven themselves to be uniquely capable of being self-sufficient in the last few years with a rapid decline of production occurring. Nonetheless, the consumption of dairy products is expected to rise by 38% by 2022 which allows the import industry to strive with imports predicted to rise by at least 20%.

The reason why small producers have not been able to thrive within the last couple of years largely has to do with the melamine scandal in 2008. Buyer power increased with large producers and many competing firms to allow for low consumer prices. Since small processors of milk were highly dependent on production costs remaining low, a vast amount of middlemen spawned to form a network of ways to easily transport or collect milk. Sadly, the large processors dominated downward pressures through the supply chain causing forms of adulteration to emerge. These forms of adulteration occurred in forms of added water or chemicals to the milk in order to increase the amount of milk sold, leading to the melamine scandal.

With an imbalance of consumer confidence being foretold, consumers cried for the attention of imported dairy goods. The Chinese government reacted by altering the requirements for milk producers. This however resulted in a massive shift from traditional widespread milk production, to concentrated and standardized farms. Even with the Large firms taking control of the Chinese market (Yili, Mengniu, Bright accounting for around 60% of the dairy industry market), Food safety issues still continue to thrive allowing for imported goods such as milk powder to thrive. Seeing that China's Dairy industry was being dominated by large domestic and foreign producers, a change occurred in 2009 occurred that would hope to alter the industry within China. Studies released that foreign breeds of cattle were yielding almost double the amount of milk in comparison to the local companies. This led to a massive decision to allow the import of foreign breeds of cows. Almost every year since 2009, over 100,000 cows have entered China with the desire to aid small domestic producers with a boost in production as well as consumer confidence.

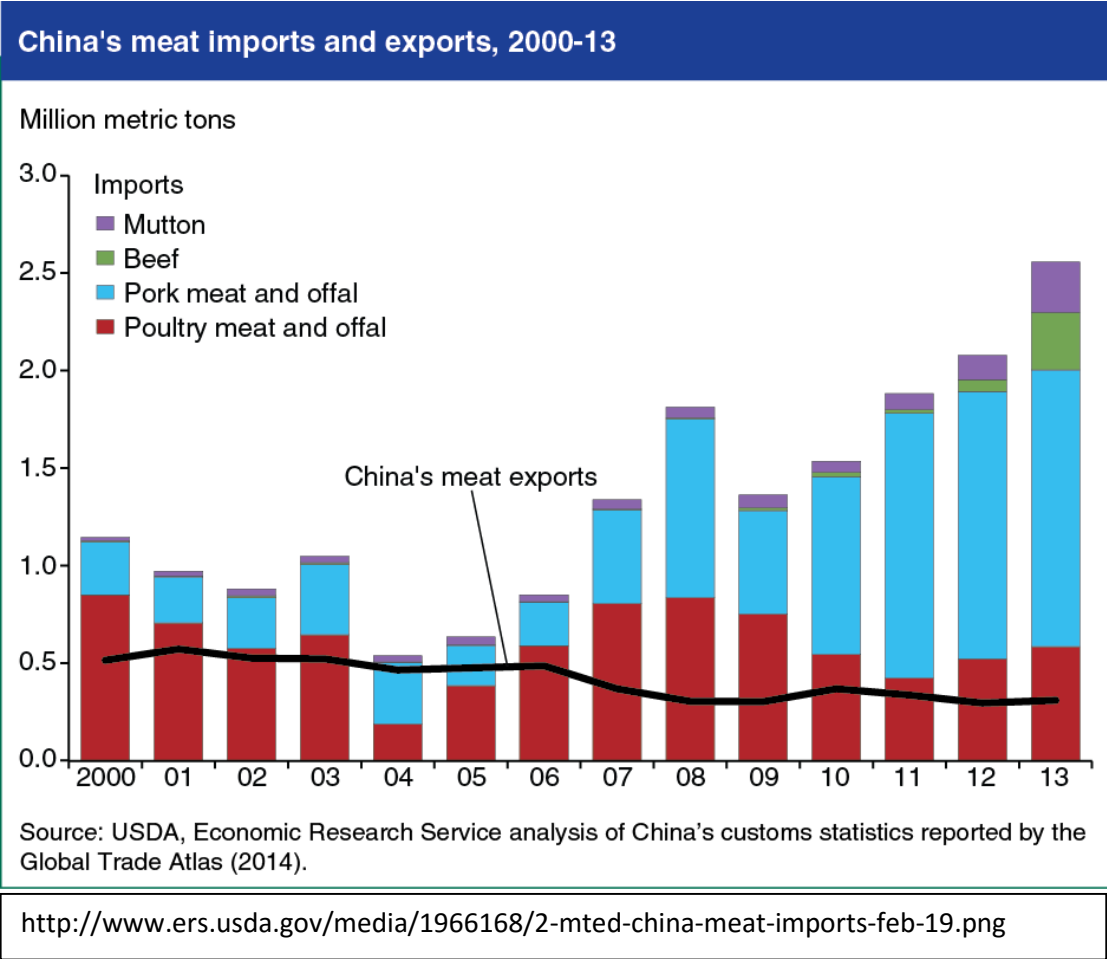
This noticeable increase in foreign cattle culminated a need for other forms of goods. Especially the produce necessary to feed the cows, Alfalfa. Operations were then launched to receive a noticeable increase from imported Alfalfa as well as domestic production. Costs are so low to export Alfalfa to China that in the U.S it is cheaper for Northern Californian producers to ship these crops to China than it is to transport them down the state to southern California.

With a major increase in imported cows into China, the line for antibiotics and/or vaccines to ensure the health and safety of the cattle and the produce, a massive trend has developed for the livestock. Such a serious platform change resulted in The Health Ministry unveiling a National Antibacterial Resistance Investigation Network. Over half the entire antibiotics produced in being used for livestock to this day, and a constant need from abroad is still expected.

Agricultural Equipment/Machinery

China is in the middle of a historic shift from labor focused practices to more machinery based form of agricultural sector. This change is influenced by various factors but can most commonly be associated with the recent policies that drive rural inhabitants to striving cities and mechanized production to allow benefits of economies of scale to swallow the industry. The policies are mostly effective due to the constant food safety changes, demographic restrictions, and simple dietary preferences.

Although in recent years, the industrial policy shows the agricultural equipment as a growing priority leading to local manufactures acquire multiple benefits and incentives from the government to favor themselves over imported goods, secure patent protection divides to give an even stance.



Agricultural equipment in China has become more valued to be produced domestically but certain specialized parts have not directly been adjusted to the production scheme in China yet. Strong growth for parts such as milking machinery, tractor components, seeding items, and planting machine parts. Competition locally remains strong and the international manufacturers only build up the competitive shape of the market. Since 2011, not even the top 5 manufacturers of agricultural equipment make up 25% of the market, demonstrating how serious the competition has become.

The most competitive bump to overcome China's industrial policies, is the broad system of subsidies given to farmers to invest in domestically-manufactured products. As of 2004 over 175 types of machinery has become acceptable for the use of subsidies with more than \$3.5 billion being eligible for agricultural goods being purchased.

Projects

Urban Farming

The city is expanding and preserving its green agricultural zone around the city. It contributes in three ways. They recycle nutrients from waste in order to produce vegetables. In 2008 the city started using a biogas power plant to generate electricity, which expected to provide 100,000 household of electricity. In 2006 Shanghai put a lot of effort in slowing down the expansion of Laogang (a giant rubbish dump), which received special mention from UN-Habitat. 80% of the organic material is being composted and 80-90% of the waste is being recycled to avoid contamination. Now since 2008, Laogang has become the largest Biogas Plant in China which produces enough electricity to fulfill the needs of over 100,000 households.

The agricultural area is never far from its point of sale. Usually vegetables aren't further than 10 Km from its selling point. In the 90's 300.000 ha of land was used for food production. A common conception held in China was to expand the urban farmland as greatly as the urban growth. Regrettably, Shanghai's urban growth came at a shocking pace and the large expansion of urban territory, policies, and limited farmland, has led to the intention of self-sufficiency within the city for fresh vegetables and other simple foods to be abolished. The Chinese government was displeased with the loss of self-sufficiency and decided to increase the city's agricultural investment drastically with subsidies being increased fivefold in the last decade.

Even though Shanghai is bearing only a little over 55% of fresh vegetables from urban farming, multiple initiatives have begun to raise that figure to a more appropriate rate. For instance –

- Introduction of livestock breeding mixed with crop farming
- Mechanization/Modernization of farm equipment
- Alternate forms of cultivation of agriculture on rooftops and buildings has occurred (vegetable gardens have been released in nine separate districts)
- Biodynamic farming united with ecological policies aiming for 35% coverage by 2020

In recent years, a new form of utilizing urban spaces for agricultural spaces have taken place, especially in the Minhang district of Shanghai. An agricultural delight by the name of aquaponics and aeroponics. They help crops grow while also maintaining a style of fish breeding. Of course some extra costs are also ensued with the wellbeing of this new farming design such as increased antibiotic expenses or escalating water costs, but the main objective ensued to be a proportional allocation of space to crop farming capability.

Shanghai Municipal Agricultural Commission

As one of the departments of the municipal government, the Shanghai Municipal Agricultural Commission has 15 functions.

Two examples of those functions are:

- the implementation of different laws, rules, regulations, guidelines and policies regarding agriculture

- cooperation with relevant departments of the municipality in order to study, compile and organize the mid-term and long-term plans for the municipality's rural economy and social development in accordance with the municipality's overall plan for national economic and social development.

The other functions can be found on the website through following link:

<http://en.shac.gov.cn/organization/responsibilities/index.htm>

The development of modern urban agriculture in Shanghai

On May 21 2015 the director of Shanghai Agricultural commission, Sun Lei, was interviewed. He spoke about different developments which the city has made in modern urban agriculture.

The City is constructing a National Modern Agriculture Demonstration Zone (2015-2017). It contains greenhouse technology, fine crop strains and professional agro services to increase output and income. Shanghai will stimulate the integrative development between the internet and traditional agriculture.

The city will work on improving the infrastructure and construction of agriculture, the agro-ecological environment, make different new and improved professional farmers, and strengthen reforms on rights of property, land, and others in rural areas.

The National Modern Agriculture Demonstration Zone is meant to produce safer food products in a safer environment. A three-year action plan has been set in place to ensure that the use of farm products will be banned and safety problems will be eliminated.

'Safety supervision in agricultural production is a top priority', stresses President Xi Jinping. Following parties have to take extra responsibility in ensuring food safety supervision during production and circulation processes: *agricultural officials and food and drug authorities*. By standardizing productions food safety can be ensured. Partnering with a couple of farms in the Baoshan District the Shanghai Agricultural commission aims to ban usage of pesticides and implement the use of "green" pest-control technology for vegetables as a healthier alternative. Several key ingredients used in pesticides have already been banned and by December 2016, chlorpyrifos and triazophos are expected to be completely unobtainable through pesticides.

The city wants to remain 90% self-sufficient in green-leaf vegetable supply. 90 percent of green-leaf vegetables being bought by Shanghai-consumers, are locally produced. That's the reason why the target has been set at 90 percent. Green-leaf vegetables are very popular amongst Shanghainese who consume around 4,400 tons a day. Fifty percent of the vegetable demand in Shanghai, is grown locally. Another reason for a 90 percent target is to ensure price stability.

The city wants to shut down all non-standard livestock farms. Small-sized farms will be shut down in two years in order to reduce and exterminate manure pollution. Only big farms will remain ensuring productivity, efficiency and capability of factory-style manure treatment to protect the environment. A standard pig farm is required to have at least 10,000 pigs.

Four big changes will be made that will effect Shanghainese Farmers.

- Higher productivity and income
 - From 80,000 yuan a year to 125,000 yuan a year (2020)
 - Enlargement in the scale of family farms in the next five years
 - Promoting family farms while paying attention to fairness
 - Give farmers a land of 250 million hectares to double their income

- Urban rural integration
 - Changing the rural outskirts to a more countryside look ,
Ensuring both urban and rural areas to be able to use the same public services and transport systems.

Every year the Chinese government sets new price ceilings for grain. These measures were made to increase income growth for farmers. This year the Government put a stop to this practice because imported grains were cheaper than local grains.

Shanghai has gone from intra-urban agriculture to peri-urban agriculture. The city owns tens of thousands of hectares of land where vegetables can be cultivated. Now the city uses greenhouses to increase the yield of crops.

Events

AgrochemEx

The three day event takes place in the Shanghai World Expo Exhibition in Shanghai, China on the 16th till 18th of October 2016. Visitors can meet the top Chinese agrochemical enterprises, exhibitors can meet with suppliers through a Procurement Matchmaking Program & Manufacturer List.

Ifresh Shanghai Fru & Veg expo

A two day event showcasing agricultural & forestry products as well as products from food and beverage industries. It takes place in the Shanghai New International Expo Center on the 14th, 15th and 16th of November 2016.

China international Agrochemical & Corp Protection Exhibition

From the 1st until the 3rd of March 2017 the event will take place in the Shanghai New International Expo Center in Shanghai. Fertilizing products will be shown such as microbial fertilizer, micronutrient fertilizer, seaweed fertilizer etc.

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