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## Organic Food “Made in China”

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### Abstract

China joined the international organic movement comparatively late. Challenged by the scarcity of arable land and a large population to feed, the Chinese Ministry of Agriculture (MoA) for many years has been reluctant to support organic farming that might result in a drop of agricultural output. On the contrary, China’s “Green Revolution” catapulted the country to a leading producer and user of agrochemicals in the world. This development came at a high cost for the country’s environmental quality and food safety.

In recent years, accumulating public complaints about environmental pollution, food poisoning, sickness and death of farmers poisoned by agrochemicals as well as increasing difficulties with agricultural exports rejected as a result of excessive chemical residues are observed. It is not only because of the problems mentioned above that recently the MoA became more supportive towards the organic food development, authorities also realized the growing opportunities for healthy food in the international as well as the domestic market. In fact, China’s organic food development cannot be

analyzed without taking into account the fast development of organic food industries in industrialized countries during the past decade. At present organically grown food “made in China” is still a small - though fast growing - sector. The article takes a look at the development and current status of organic agriculture and organic food industry in China and discusses the prospects and limitations of the sector.

### Introduction

In China, until the mid 20<sup>th</sup> century traditional organic agriculture was prevalent.<sup>2</sup> In remote areas where farmers are too poor to afford agrochemicals, it survived even to the present day. However, during the past 60 years most agricultural areas have undergone fundamental changes. Since the 1970s, the so called “Green Revolution”, which describes agricultural mechanization, improved irrigation, introduction of hybrid crop varieties and an increasing input of agrochemicals, has brought an amazing increase in agricultural productivity, much needed to feed the country’s large population. Critics were silenced. Zhang Linyu, today a successful ecological farmer, recalls being jailed for 102 days because he committed himself to pesticide free food. (Blanchard 2007) Instead a massive development of agrochemicals was promoted. Today, China is the major user of chemical fertilizers in the world. On less than 1/10 of the world’s arable land Chinese farmers apply about one third of the worldwide production of nitrogen fertilizers.<sup>3</sup> Within only five years the total domestic production of chemical fertilizers

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<sup>2</sup>As described for example in King(1911): “Farmers of forty centuries. Permanent agriculture in China, Korea and Japan” reprint in 2004 with new title: “Farmers of Forty Centuries: Organic Farming in China, Korea and Japan”

<sup>3</sup> Production of nitrogen fertilizer increased from 2.8 million tons in 1970 to 27.7 million tons in 2007. (Zhu, Chen 2008)

increased from 37.9 million tons (2002) to more than 52 million tons (2007). In the same period consumption increased from 43.3 million tons to 51 million tons (Greenpeace China 2009).

**Tab. 1: Chemical Fertilizer Production and Consumption in China**

Year	Chemical Fertilizer Production (million tons)	Chemical fertilizer consumption (million tons)
2002	37.91	43.39
2003	38.81	44.11
2004	48.04	46.36
2005	51.77	47.66
2006	53.45	49.27
2007	52.48	51.07

Source: Zhongguo Tongji Nianjian 2008, Greenpeace 2009

The country is not only the largest consumer of chemical fertilizers, but also applies the most pesticides. With an estimated consumption averaging 300,000 tons of active ingredient per year China is the world leader in pesticide use (Hamburger 2001). This development has come at a high cost for the country's environmental quality and food safety. Intensively industrialized agriculture has caused enormous losses in organic matter and natural soil fertility as well as biodiversity loss. It is moreover estimated that more than 600 species of mites and insects have already become resistant against pesticides. The use of some of the most harmful pesticides such as DDT has officially been banned many years ago, but China remains one of the few countries in the world where DDT is still produced and residues have been detected in the soil, in seafood and in tea. Agriculture is a major cause for China's severe water pollution problems. Agrochemicals are moreover causing severe health issues. Hundred thousands of people are poisoned by pesticides and thousands of cases of food poisoning are reported every year. In 2008, the tainted milk scandal caused a nationwide crisis when reportedly more than 300,000 children fell ill after consumption of milk powder contaminated with melamine. These cases as well as restrictions imposed to food exported from China to the EU, USA and Japan for high levels of pesticide and antibiotic residues attracted worldwide media attention.<sup>4</sup> In recent years the

<sup>4</sup> The EU restricted peanuts (alfatoxin levels), tea (pesticide residues), chicken and shellfish (antibiotic residues) as well as honey (high levels of antibiotic, acarid and achemycin residues). The US restricted imports of honey and shrimps from China for similar reasons (Paull 2008, 8).

MoA became more supportive towards organic food development, not only because of the problems mentioned above but also because authorities are aware of growing opportunities in offering healthy food on the international as well as the domestic market. Today organically grown food "made in China" is a small – though fast growing – sector of agricultural production. In fact, China's organic food development cannot be analyzed without taking into account the fast development of organic food industries in developed countries during the past decade.

This development has led to a shift from organic food as a high-priced specialized food catering for a niche market, to mass-produced food for supermarkets and a growing demand for organic food. China as a country with the size of an entire continent and different climate zones is able to offer a large variety of agricultural products. However China's severe environmental crisis, concerns about low quality or even fake organic products and food safety scandals make it difficult to build up consumers' trust for organic food made in China.

### Present Status of the Organic Food Market in China

In the past ten years, with increasing governmental support and growing international demand, China's organic agriculture has developed with amazing speed. While in 2000, only 4000 ha of China's arable land had been certified organic, by the end of 2007, the country counted 1.5 million ha organic farmland (equal to 0.3% of the total farmland (Willer 2009).

**Tab. 2: Organic land area, land use and producers in China**

Total land under organic management (ha)	1,553,000
Share of total agricultural land	0.3%
Land fully converted (ha)	905,000
Land under conversion (ha)	647,000
Producers (2006)	1,600

Source: Willer 2009, p.144

According to the latest statistics China climbed to the 5th position worldwide in terms of hectares under organic management.

Organic agriculture is mainly concentrated in the five northeastern provinces (Inner Mongolia, Heilongjiang, Jilin and Liaoning) as well as in six southern and eastern provinces (Jiangxi, Fujian, Jiangsu, Hubei, Shandong and Yunnan).

**Tab. 3: The world leading organic countries**

Country	hectares of land under organic management (Mio. ha)
Australia	12.09
Argentina	2.78
Brazil	1.77
USA	1.64
China	1.55

Source: Willer 2009, p. 28

Despite the impressive increase of certified farmland in China, the total number of certified farms and processing companies remains relatively small. This is due to the fact that major drivers behind organic production are international and local trading companies. These companies sub-contract small farmers or village cooperatives, provide technical advice and financial support for the comparatively expensive certification and help with the marketing of the produce. The contracting company usually provides organic fertilizers as well as technical and managerial assistance and the farmers are expected to produce the goods, following the requirements of the contract.

The contracting companies are responsible for packaging, storing, shipping and selling the contracted organic products. Obviously China's vast resource of an inexpensive rural workforce is an advantage for organic agriculture. However, some of the contracted farmers and hired farm workers are uneducated, and lack the basic understanding of organic farming or do not believe in its value. Cases in which contracted farmers were caught applying agrochemicals have been reported. That is why contractors are required to constantly train and monitor their contracted farms. Another aspect is that organic farming and production technologies have not yet been very well developed. Even successful producers claim that they lose up to 50% of their harvest in times, due to technical failures. Proper storage and transportation is another challenge.

Chinese producers further complain about difficulties to shoulder the high certification and auditing costs. There is no specific national subsidy or support for organic agriculture and only few provincial governments are willing to provide subsidies for developing the sector. So far there is only a program

to cover certification costs for small and medium enterprises producing for the international market. At the local level Beijing Municipality in preparation for catering for the Olympic Games provided preferential taxes and subsidies for certification costs for producers of organic food.<sup>5</sup> The Shanghai government reimburses investments in insect lamps with solar panels and supports the purchase of certified organic fertilizer (EU-China Trade Project 2008).

The primary incentive for the development of the organic food market in China remains the export. Between 2003 and 2006, organic food exports more than doubled, growing from 142 to 350 million US\$. Still, China's exports earned less than one percent of the global organic market (Li Xianjun 2007). So far China mainly exports organic dried food, rice, and green tea. Mainly unprocessed raw materials are exported, while the organic food processing industry is still in its infancy. This is one of the reasons why actual profits from organic agriculture are still insignificant. With the recent leap in demand in the EU and the USA exports of fresh vegetables and fruits as well as processed food are expected to increase.

Until recently there has been no domestic market for organic food in China. In 2006, locally sold organic food generated about 2.76 billion RMB (= 345 million US \$), equal to only about 0.08% of China's domestic food market (Li Xianjun 2007). Moreover, most of the organic products sold domestically were sold without an organic premium. Despite the difficulties mentioned above Li Xianjun (2007) expects a fast development of the sector within the next 10 years. The main target group is an emerging group of middle class urban consumers influenced by global lifestyle trends and fashions and increasingly worried about health, food safety and environmental issues.<sup>6</sup> Li Xianjun estimates that between 1 and 3% of China's farmland will in the coming decade will become certified organic, the organic food sector will account for 1 to 1.5% of the domestic food market (thereby turning into the fourth largest national market in the world), and organic products

<sup>5</sup> However, some producers complained that certification costs were only reimbursed if products were certified by the state-owned certifier OFCC. Author's communication with Mr. Zhang Xiangdong, CEO Organic and Beyond, 18.1.08

<sup>6</sup> According to a survey conducted by the China Environment Culture Promotion Association about 60 % of interviewees ranked concerns about food safety as their No. 1 worry (Ma 2008).

made in China might contribute up to 5% to the international organic food market. (Li Xianjun 2007, Chen 2006).

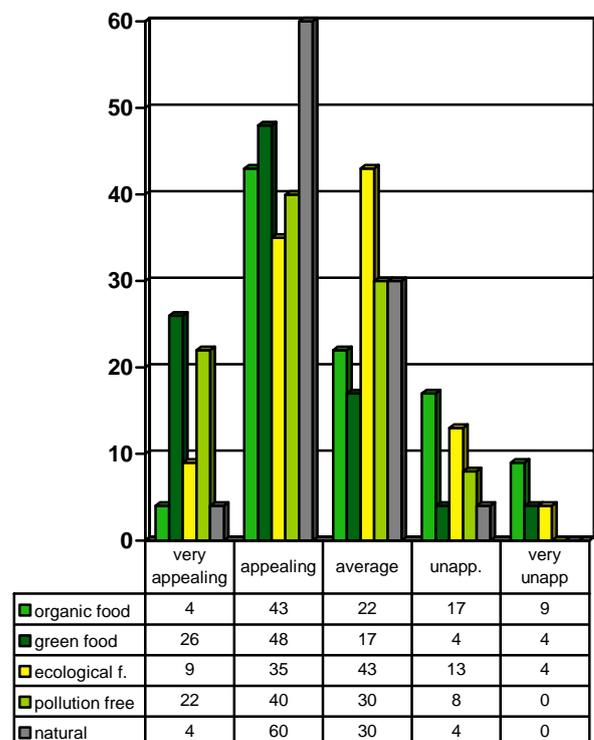
Up to now, markets for organic food have mainly been located in China's booming regions Beijing, Shanghai and Guangzhou, where living standards are higher than elsewhere in China. It is interesting to note that in 2001 organic food was introduced to the domestic retail market by the major international chain stores such as Carrefour and Wal-Mart. In these stores certified organic food is marketed as high quality and usually more expensive good. Some supermarkets are posting explanations of organic food and its benefits next to the products, along with the respective organic certificates.

Carrefour states that their organic food sales have increased by 50 percent since the public media repeatedly reported about cases of food poisoning and severe pollution of conventionally grown food in 2006 (Baer 2007). Recently, in Beijing and Shanghai farmers' markets for organic products and specialized organic food and health stores such as Lo-hao City and Organic Farm Food Hall have opened. To date, most of these specialized shops can only offer a limited variety of products, mostly vegetables and dry food such as rice, beans, mushrooms, and sometimes a limited selection of fresh fruits. Certified organic meat is rarely found. Because the domestic industry for processed organic food is not yet very well developed, they have to import a large variety of processed products, having them certified by local certifiers.<sup>7</sup> With high import taxes and additional certification costs imported organic food becomes very expensive, and entrepreneurs need financial reserves and patience to be able to earn some profits in the long run. One example for a failed attempt is the O-Store run by an American Chinese in Shanghai. The store opened with great fanfare in 2005, but closed again in 2007. About 98% of its customers were expatriates and the store imported a lot of its products from the USA, UK and Germany.

There have been complaints about fake or polluted organic products discovered in supermarkets. In 2007, it was reported that Wal-Mart had to recall organic vegetables sold in its super-centers across the country after a surprise inspection revealed that some of the vegetables had been treated with pesticides (Blanchard, Niu 2007).

These cases make it difficult for reputable organic businesses to become profitable. The organic food industry in China has to work hard to build up the consumers' trust, who have become suspicious in the wake of recent food scandals, including counterfeit labels. It will not be easy to convince consumers as long as sub-standard organic food, conventional food labeled as certified organic food and fake labels are found in the markets. A small survey conducted by Matthias Meyer in June 2007 in Haidian District, Beijing Municipality showed that the majority of consumers had only a vague idea or none at all of the concept of organic food.<sup>8</sup> When asked if labels such as "Organic Food", "Green Food", "Ecological Food", "Pollution Free Food" or "Natural Food" sounded appealing or unappealing to them, the majority of respondents rated "Natural food" (which is not a registered label) as most appealing (60%), followed by "Green food" (48%) and "Organic food" (43%). A surprising 17% rated "Organic food" as the most unappealing label of all.

Figure 1: Awareness of organic food labels Source Source: Meyer2007



<sup>7</sup> The company "Organic Farm" from Beijing, for example, imports Demeter certified products from Germany.

<sup>8</sup> Meyer, 2007, p.21

Almost two thirds of the respondents neither knew nor had a clear idea of what the expression “organic food” meant. The rest defined organic food as “being controlled by chemists, chemical free, unpolluted, safe, green or not harming the environment” (Meyer 2007).

### Green Food versus Organic Food - The institutional and regulatory framework

From the early 1990s the environmental watchdog SEPA (State Environment Protection Administration) became the main driver for institutionalizing organic farming. In 1994, SEPA set up the Organic Food Development Centre (OFDC), attached to the Nanjing Institute of Environmental Science. Between 1997 and 2003 the German development agency GTZ in cooperation with OFDC supported the project “Development of Organic Agriculture in Poverty Stricken Areas in China” and with German support, OFDC qualified in 2002 to become the first Chinese organic certifier accredited by the International Federation of Organic Agricultural Movements (IFOAM) and the International Organization for Standardization (ISO-65). OFDC proudly added the IFOAM accreditation to their logo. ([www.ofdc.org.cn](http://www.ofdc.org.cn))



In the following years more Chinese organic certification companies, such as the Organic Tea Research and Development Center (OTRDC) affiliated to the China Academy of Agricultural Sciences (CAAS) in Hangzhou have been established.<sup>9</sup> From the beginning the organic labels had to compete with the very successful “Green Food” label. The label, which in 1990 was introduced by the Green Food Development Center under MoA was a first government certification program to ensure food safety. Though often confused with organic food, “Green Food” Grade A only guarantees that the use of agrochemicals is controlled to a certain degree.

**Tab. 4: Differences between Organic Food and Green Food Grade A**

Organic Food	Green Food Grade A
No harmful chemicals or pesticides have been applied for at least two years for annual crops and three years for perennials.	Chemicals and pesticides can be used in a limited amount to improve soil quality and prevent pests.
Farms and processing plants are inspected annually in order to get their certificate extended.	Farms and processing plants are inspected every three years in order to get their certificate extended.
Certification of land and practices	Certification of products
No GMO	GMO tolerated

The label “Green Food” over the years has become very popular among Chinese consumers. Today the Green Food Development Center<sup>10</sup> oversees 42 provincial and municipal brand agencies, 38 quality inspection agencies and 71 monitoring branches with 440 inspectors. Over 10 million hectares were certified and about 1.9 billion RMB (about 270 million US \$) were earned from the export of certified Green Food products.

In 1995, the Green Food Development Center developed the “Green Food AA Standard” for premium products mainly designated for export and rarely found in the local markets. These products have to comply with stricter international standards for organic food. (Li Xianjun 2007). The development of Green Food AA Standard as well as the introduction of a system of produce testing, farm inspections, certification procedures, a network of inspectors, as well as setting up the Green Food logo practically paved the way for the introduction of an organic food certification system. In 2002, the center set up a new system consisting of three different quality labels. Surveys reveal that consumers as well as officials are confused about the different names and labels, and often cannot tell the difference between the three.

<sup>9</sup> <http://www.organicteachina.com>

<sup>10</sup> <http://www.greenfood.org.cn> last access 21.7.09

### 1) Non Pollution (Wu Gonghai)

This label basically certifies that inspected products comply with national standards for conventional food (thereby practically implying that non certified food could be harmful). By the end of 2007, 24% of China's arable land used for crop and plant production has been certified as non polluted (EU China Trade Project 2008, p.5).

### 2) Green Food (Lüse Shipin)

This label is comparable to integrated crop management in Western countries and stands for limited and controlled application of pesticides and chemical fertilizer. By 2006 12,868 products and 4615 companies were certified with the green food label (EU China Trade Project 2008, p. 5).



### 3) Organic food (Youji shipin)

In 2002, the Green Food Development Center set up its own organic food certification body, the China Organic Food Certification Center (COFCC). At the same time a new organic food label was established, which practically replaced the Green Food AA label. COFCC quickly emerged as the country's leading organic certifier with about 30% of all organic farms and enterprises certified by it. COFCC utilizes its extensive network of local Green Food Development Centers and their inspectors. Another reason for the fast development of the COFCC is that in certain regions (for example Beijing) local governments are subsidizing certification procedures if they are done by certifiers attached to government institutions (such as COFCC or OFDC).<sup>11</sup> Because of its leading position in the domestic market the COFCC has also become the major partner in China for the BioFach, the world's leading organic trade fair.

Until 2005, each company used their own standards for certification. In 2001, OFDC published some guidelines and regulations for organic certification

<sup>11</sup> Author's communication with Mr. Zhang Xiaodong, Organic and Beyond, 16.1.08

and production which were closely following the respective IFOAM guidelines, while COFCC certified according to Green Food AA and IFOAM standards as well as to relevant EU, American and Japanese standards. OTRDC had also developed its own guidelines for tea certification, whereas international certifiers working in China followed their own respective standards and guidelines.

Since 2003 important steps towards institutionalization and regulation were undertaken. In 2003 China National Certification Administration (CNCA) formally took over the administration of China's organic products certification from SEPA. The CNCA is a government institution attached to the general Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) that administers, supervises and coordinates certification and accreditation systems in China. In 2005 the "Regulations of the PR China on Certification and Accreditation" were released. The regulations stipulate that only those companies that are registered at the CNCA and accredited by the China National Accreditation Service for Standardisation (CNAS) can carry out certification. In the same year the "National Standard for Organic Products" was released.

**Tab. 5: Development of the Regulatory Framework for Organic Certification since 1990**

1990	Dutch SKAL certification body issued the first organic certification in China in cooperation with the Nanjing Institute for Environmental Sciences (NIES) attached to SEPA
1992	MoA established Green Food Development Center (GFDC). Green Food AA standard equivalent to organic
1994	OFDC established under SEPA, administered China's organic food certification
1995	"Approach to Management of Organic Certification" and Technical Norms on Organic Food promulgated by SEPA (revised in 2001)
2002	MoA established China Organic Food Certification Center (COFCC). COFCC is the first certification registered at China National Certification Administration (CNCA)
2003	CNCA took over the administration of China's organic products certification from SEPA

2005	<p>“Regulatory Measures on Organic Product Certification Management” issued by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ)</p> <p>“National Standard for Organic Products” (issued by AQSIQ)</p> <p>“Implementation Rules for Organic Product Certification” (issued by CNCA)</p> <p>Uniform logo for organic products</p> <p>China Certification and Accreditation Association (CCAA) established</p>
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Source: EU- China Trade Project 2008, p. 21

The standard stipulates an uniform brown logo for labelling organic food under conversion or a green logo for labelling “Chinese Organic Food Products” to be printed on the package in addition to the label of the certification body.

#### Chinas organic food logo



 C:0 M:40 Y:100 K:40  
 C:0 M:60 Y:100 K:0



 C:100 M:0 Y:100 K:0  
 C:0 M:60 Y:100 K:0

Only products containing more than 95% organic ingredients can be labeled organic. Processed food with more than 70% but less than 95% organic ingredients can be labeled “manufactured with or-

ganic ingredients”. Products containing less than 70% can only be labeled as containing specific organic ingredients. Technical barriers for export, such as stricter agricultural chemical residue limits and environment requirements for farm products are pushing the Chinese government to bring its organic standards up to international levels.

In many aspects the standards follow IFOAM criteria but also include requirements of the Japanese JAS standard and the American NOP standard. The standard has thus clearly been designed with an eye on the export market. However the majority of importing countries have not yet accepted the new Chinese standards. For example China is not included in the EU “Organic Food Supplier List of the Third Countries”. This means that Chinese organic products for export are still required to obtain certification by an international certifier according to EU, JAS or NOP requirements. This is done by six international companies operating in China, which are either accredited with CNCA or attached to local partners.<sup>12</sup> In addition, over 500 international companies are active in China, certifying according to the laws of their respective countries.<sup>13</sup> Because of different standards for the EU, USA and Japan, in some cases export oriented producers apply for certification from more than one certifier, or they choose a certifier such as BCS who is recognized in the EU as well as the USA and Japan.

In a kind of reaction to the strict import regulations Chinese organic producers have to deal with if they plan to export, the new regulation has set strict rules for international certification bodies active in China and organic food imported to China. The regulations require that organic certification bodies active in China now have to be legally independent entities with a certain amount of registered capital in China. This implies that international certifiers only registered abroad are operating illegally in China, and that imported organic food or food certified by an international certifier in addition needs to be certified by a domestic certifier in order to get placed on the shelves of Chinese supermarkets.

<sup>12</sup> International certifiers operating in China are BCS (joint venture with COFCC, Certification of Environmental Standards (CERES), ECOCERT, Institute of Markeecology (IMO), Organic Crop Improvement Association (OCIA) and Japan Organic Natural Food Association (JONA)

<sup>13</sup> Chen 2006, p. 21. The German company Bioland, for example.

## Logos of international companies certifying in China



## Challenges and Chances

In the recent ten years coinciding with global trends for growing organic markets China has managed to establish a considerably large sector of organic agriculture. In 2005, the major breakthrough was achieved when a national institution for accreditation of certification bodies was established and relevant regulations have been passed. It was also the time when MoA changed its policies and became more supportive towards organic agriculture. However, it will need some more years for the sector to overcome its teething troubles. In suburban areas severe pollution problems of water, soil and air make it difficult to obtain organic standards and questions remain whether the stipulated conversion period of up to three years is sufficient in peri-urban areas. In a rural economy with the world's highest input of chemical fertilizer and pesticides organic producers struggle hard. Not only organic farms in the vicinity of conventional farms can be "infected by spraying".

Traditional organic methods of pest management might not work when pesticides from surrounding conventional farms also killed beneficial insects and birds. That is one reason why producers complain about huge losses or heavily depend on the application of bio-pesticides, a practice which purists regard in contradiction to the organic concept of natural and sustainable production. Moreover organic companies with contracted farms have some difficulties to monitor every single sub-contracted farmer, who are not necessarily well trained - leave alone convinced - organic farmers. The certification system is confusing for both the producers and the consumers. It is already reported that fake labels and counterfeit products are found in the market. In

some production sites investigators found products labeled with both the Greenfood as well as an organic label (EU-China Trade Project 2008).\*

High production costs and a limited domestic market make it difficult to survive for organic producers as long as there are no or only limited governmental subsidies. In addition producers aiming at the international market complain about the costly need of multiple organic certifications for different regions. Overshadowed by recent scandals the sector suffers from the poor image of China's food safety and still has to win consumers' trust. This is especially the case for the development of a domestic market which exists only in a bigger cities. To many Chinese consumers the modern organic movement appears as a expensive concept or fashion introduced from foreign countries. However recent food safety scandals have increased the demand for reliable and healthy food, this opens new opportunities for organic markets provided they are transparent and reliable.

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### List of Abbreviations:

AQSIQ	General Administration of Quality Supervision, Inspection and Quarantine
CAAS	China Academy of Agricultural Sciences
CCAA	China Certification and Accreditation Association
CNCA	China National Certification Administration
CNAS	China National Accreditation Service for Standardisation
COFCC	China Organic Food Certification Center
GFDC	Green Food Development Center
GMO	Genetically modified organisms
GTZ	German Technical Cooperation
IFOAM	International Federation of Organic Agricultural Movements
JAS	Japan Agriculture Standard
MoA	Ministry of Agriculture
NOP	National Organic Program (US organic standard)
OFDC	Organic Food Development Center
OTRDC	Organic Tea Research Development Center
SEPA	State Environmental Protection Administration

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