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ORGANIC AGRICULTURE IN CHINA CURRENT SITUATION AND CHALLENGES



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Further information about the EU-China Trade Project and a soft copy of the report are available at:

<http://www.euchinawto.org>

Abbreviations

AQSIQ	General Administration of Quality Supervision, Inspection and Quarantine (www.aqsiq.gov.cn)
ASL	Above Sea Level
BCS	BCS Oko-Garantie GmbH (www.bcs-oeko.com)
CAU	China Agriculture University (www.cau.edu.cn)
CCAA	China Certification and Accreditation Association (www.ccaa.org.cn)
CERES	CERES - CERTification of Environmental Standards GmbH (www.ceres-cert.com)
CGFDC	China Green Food Development Centre (www.greenfood.org.cn)
CIQ	China Entry-Exit Inspection and Quarantine Services, also under AQSIQ
CNAS	China National Accreditation Services for Conformity Assessment (www.cnas.org.cn)
CNCA	Certification and Accreditation Administration of China (www.cnca.gov.cn)
COFCC	China Organic Food Certification Centre (www.ofcc.org.cn)
CQC	China Quality Certification Centre (www.cqc.com.cn)
ECOCERT	ECOCERT China, China (www.ecocert.cn)
EU No. 2092-91	European Union Organic Standard
EUCTP	EU China Trade Project (www.euchinawto.org)
GMO	Genetically Modified Organism
ICAMA	Institute for the Control of Agrochemicals, Ministry of Agriculture (www.chinapesticide.gov.cn)
IFOAM	International Federation of Organic Agriculture Movements (www.ifoam.org)
IMO	Institute for Marketecology, Switzerland (www.imo.ch)
JAS	Japanese Agriculture Standard for Organic Products
JONA	Japanese Organic and Natural Foods Association (www.jona-japan.org)
MoA	Ministry of Agriculture (www.moa.gov.cn)
Mu	Unit of Chinese land area: 1 hectare = 15 mu
NIES	Nanjing Institute of Environmental Sciences (www.nies.org)
NOP	National Organic Program of United States Department of Agriculture
OCIA	Organic Crop Improvement Association, USA (www.ocia.org)
OFDC	Organic Food Development Centre (www.ofdc.cn)
OMIC	Overseas Merchandise Inspection Co Ltd, Japan (www.omicnet.com)
OMRI	Organic Materials Review Institute (www.omri.org)
OTRDC	Organic Tea Research and Development Centre (www.organicteachina.com)
SAC	Standardisation Administration of China (www.sac.gov.cn)
SEPA	State Environmental Protection Agency (www.sepa.gov.cn)
SGH	Sunny Green House
SGS	SGS-CSTC Standards Technical Services Co Ltd, China (www.cn.sgs.com)
TRI	Tea Research Institute (www.caas.net.cn)
WFOEs	Wholly Foreign Owned Enterprises
WIT	Wantai Quality Certification Co Ltd (www.wit-int.com)

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EXECUTIVE SUMMARY

This report presents the main conclusions of an independent project to investigate China's organic agriculture production. The project, carried out during autumn 2007, was supported by the EU-China Trade Project (EUCTP) in cooperation with the China Organic Food Certification Centre (COFCC). The project involved a series of meetings with certification bodies and 17 on-site farm visits in China's main production areas for rice, tea and vegetables. The main conclusions of the report introduce the current situation and challenges facing the development of organic agriculture in China. The report is not endorsed by the EU Commission and in no way represents EU recommendations for China's organic agriculture.

The report focuses on four key areas: the accreditation of the organic certification bodies, their certification of organic products, the management of organic production and an analysis of the main issues and challenges facing China's organic agriculture.

The accreditation and certification procedures and organic product standards are clearly described in China's recent statutory regulations, although their recent and rapid development leaves room for improvement. The two-stage accreditation process, whereby a significant number of certification bodies have gained commercial approval to establish a company, but have not gained accreditation to certify organic products due to lack of competence, has serious implications for the credibility of China's regulatory regime. Its speedy resolution may be imminent and would be beneficial.

The certification industry is managed by the China National Accreditation Services for Conformity Assessment (CNAS), under the direction of the Certification and Accreditation Administration of China (CNCA). CNCA now maintains a central and publicly viewable database. A competitive certification industry is emerging with the top four certification bodies having more than 80% of market share. The farm visits which were accompanied by the local auditor, demonstrated a standard certification procedure and competent auditors, whose professional training and registration is managed by the China Certification and Accreditation Association (CCAA). The ongoing expansion of organic production may test the supply of suitably experienced auditors.

The investigation found some excellent organic agriculture, as demonstrated by a diverse and abundant local ecology at those production sites, although it is not clear how representative this is of China's overall organic situation. Whilst organic agriculture provides an excellent route to developing a sustainable environment and no visible signs of pollution were seen during the site visits, detailed ecological and environmental analysis were outside the project scope and the one-off visits did not allow for any comparisons in relevant parameters over time.

All farms quoted pest and disease control as a major issue. Organic production often involved the use of varying amounts of biopesticides, which are regulated in China under the same system as for conventional pesticides as a first step before specific requirements to be certified as biopesticides. There is also a need for operational improvements, e.g. separation of organic products from non-organic products and food traceability. The availability and supply of technical and management information to farms was limited and certification bodies, in the absence of alternatives, found themselves as the key providers.

The biggest challenge facing the industry is the need to improve its commercial viability by developing the domestic consumer market. So far, the domestic consumer market remains poorly informed about organic produce and is sceptical of its certification. Additionally, better economies of scale can help the industry to become more competitive.

INTRODUCTION

I. Terms of Reference

This report was initiated to provide information in response to the recent growing interest from European stakeholders in China's organic agriculture. Interest has further increased recently given continued food safety problems surrounding agrochemical residues in conventional agricultural products.

This was set against the poor image and low credibility of China's organic agriculture due to the:

- Immature state of its regulatory framework
- Poor understanding of its regulation
- Presence of unscrupulous operators taking advantage of weak regulation

The report aims to present the current situation of organic production and certification in China, its challenges as well as its related regulatory environment. Conclusions are mainly based on a series of on-farm site investigations as well as on a number of meetings with key Chinese agencies.

The project's practical findings are hoped to be of value to the EU and its member state stakeholders in better understanding China's organic agriculture and its challenges. In addition, it may be of value to the Chinese Government to guide the further development of their domestic organic standard.

It must be very clearly stated that this report does not constitute a formal review of Chinese organic standards and their national regulation. At the same time is not a formal assessment by the EU of the Chinese Government's request for acceptance of their organic standard and system.

II. Project Objectives

The report objective is to present an overview of organic agriculture in China and the challenges it faces. To achieve this, the report attempts to answer three key questions:

- Accreditation: What is the accreditation and control process of organic certification bodies in China? Who is accredited to date? What are the main challenges of the accreditation process?
- Certification: What is the process of certification and control of organic products? What are the results to date? What are the main challenges faced during the certification process?
- Farm Management: What are the key challenges faced at farm level to produce organic food? What practices have been developed?

In addition, the report proposes a series of recommendations that would support the continued sustainable development of organic agriculture in China.

III. Project Methodology

The project was supported by the EUCTP in cooperation with COFCC. The project involved a series of meetings with certification bodies (COFCC, OFDC and ECOCERT), competent authorities (MOA and CNCA) and 17 on-site farm visits in China's main production areas for rice, tea and vegetables carried out by a team of International and local experts as well as series of interviews with key stakeholders.

See Appendix 1 for the Project Experts Team and Appendix 2 for the detailed project methodology.

IV. Outline of Local Conditions

Being a continental sized-country, China has an extremely diverse range of ecosystems, some of which have high pest and disease pressures sustained by favourable climates, e.g. Guangdong, Fujian and Shanghai. Other areas have developed high pest and disease pressures through intensive production, some of which is in protected sunny green houses, e.g. Shandong when cold winter temperatures would naturally regulate some of these pest and disease populations, although the hot and humid summers sustain others.

However, in northern China the long, cold winters and cooler, drier summers can create favourable environments for organic production through the effective control of pests and diseases to low levels. Higher altitude mountain locations are also well suited to certain crops, e.g. tea where temperature is the critical controlling factor.

V. Overview of Recent Developments in Organic Agriculture in China

1. Historical Development and Current Production

1.1 Production: Rapid Development Over the Last 10 Years

In 2006 2.1 millions hectares were certified as organic¹ farm land in China. This places China as the third largest country in the world in term of certified organic farm land after Australia (11.8 millions hectares) and Argentina (3.9 millions hectares)². In addition, more than 2 million hectares of wild collection were reported to be certified organic as well. The organic area certified should continue to rise in the short term as 1.1 million additional hectares of conversion were reported in 2006.

Type	Area (Million ha)	Production (Million tonnes)
Organic	2.10	2.80
Conversion	1.10	1.00
Wild collection (not farmed)	2.08	0.05
2006 Total	5.28	3.85

Table 1: Current level of organic production in China (Source COFCC)

Note: The harvesting of wild production in the wilderness areas can be certified as organic, although no production management is involved; the sustainability of the harvest rates are not known.

1.2 Exports: Main Driver of Early Stage Development

Before 1999, at the early stages of organic production development in China, over 95% of China's organic products were exported through organic traders, mainly to Japan, EU and North America. Major crops were soybean, vegetables, rice and tea. Organic vegetables was the biggest category with 80% going to Japan, with organic field crops second with exports to Japan and the EU and organic tea third with exports mainly to the EU³.

In 2006, China's organic exports were valued at USD 350 million, which is 1.2% of China's total food exports by value and the domestic retail market was USD 750 million⁴.

¹ COFCC. According to the IFOAM, this figure reached 2.3 millions ha.

² The World of Organic Agriculture – Statistics and emerging trends 2007, IFOAM Publication

³ The Evaluation of Organic Farming Development in China, Yunguan XI, SEPA, 2004

⁴ The Developing State and Prospect of Organic Agriculture in China, Xianjun LI, COFCC at the Organic Farming in a Global Perspective Conference, 18 October 2007

2. Perspectives of Development

Despite little understanding of the term “organic” or of awareness of organic labels amongst domestic consumers, who also still have limited confidence in the certification process, the perspective for China’ organic food is positive according to local certification bodies⁵ who expect the following development in the coming ten years:

- Average annual increase in production volume is 30 – 50%
- Organic agricultural production volume and area will be 1 – 3% of China total agriculture production
- Organic exports will reach or exceed 5% of total food exports by volume
- China’s organic food will gain 5% global market share

3. Organic Label versus Other Quality Labels

In parallel to the development of organic certification, other quality labels have been developed in China since the early 2000’s driven by local consumer demand for safe food from an increasingly wealthy urban sector willing to pay a premium price for safer food.

The two main other quality labels are managed by the Center for Agri-Food Quality and Safety and the China Green Food Development Centre (CGFDC) under the administration of the Ministry of Agriculture (MoA).

Wugonghai (无公害) or Pollution-free label

This label sets the foundation level for agriculture production, addressing basic food safety issues with a broad level of promotion. The label was launched in 2002 and since then the number of certified products and companies has grown exponentially. Up to the end of 2006, 23,636 products have been certified, equivalent to 144 million tonnes (against 1,971 products and 12 million tonnes in 2003). By the end of 2007, 24% of China arable land used for crop and plant production has been certified as Wugonghai.

Lüse Shipin (绿色食品) or Green Food label

This is intended to be the equivalent to integrated crop management systems in developed Western countries and was created in 1992. It includes 2 levels: the grade A is the basic integrated management system and the grade is AA presented as equivalent to an organic standard. As for the Pollution-free label, the Green Food label is promoted very actively by the MoA. As a result the development of Green Food products has been very rapid. Up to the end of 2006, the number of Green Food certified products reached 12,868 (from 4,615 companies) against 4,030 at the end of 2003 (from 2,047 companies).

Box 1: Introduction of the Pollution-Free and Green Food labels

4. Support and Incentives to Organic Production Development, Coexistence of Various Schemes Mainly at Provincial Level

There is no specific national subsidy or other support for organic agriculture, although varying levels of support are received from different provinces, or when the organic project comprises part of broader national development programs. During the interviews a national program to cover the cost of certification for small and medium enterprises to assist them to penetrate international markets was mentioned, this could be an example of a national level initiative,. At the local level, the strong support given by the Shanghai Government was also mentioned several times. It reimburses specific investments e.g. the full purchase price of insect lamps with solar panels for each organic company to ensure pest control with a sustainable electricity supply. Each unit costs about €500. It also supports the purchase of certified organic fertiliser from Shanghai production companies at about €45 per tonne.

⁵ The Developing State and Prospect of Organic Agriculture in China, Xianjun LI, COFCC at the Organic Farming in a Global Perspective Conference, 18 October 2007

MANAGEMENT OF ORGANIC PRODUCTION

This section is based on the data collected during visits to 17 selected organic production bases. It demonstrates some trends in practices developed by organic production farms in China to answer the technical, information, marketing, financial, and human challenges they face in their daily operations and in the medium and long term.

I. Reasons for Organic Production

All companies visited had a very clear set of reasons to begin organic production:

- Product quality and safety: All thought it a better way to produce safe food and with a claim that many of these organic products had better nutrition and flavour
- Follow-up to “Green Food” certification: Most companies already had certified ‘Green Food’ production and so had a suitable foundation to develop organic production⁶
- Market opportunities: Many believed there was a developing market opportunity to sell higher value organic products, although few had a clear understanding of the market before starting
- Suitable environment: All the rice and tea production companies visited saw their natural environments as excellent opportunities to take advantage of organic production
- Export opportunities: Originally, the development of organic production was export-driven focusing on the production of organic tea and some fields crops, where production conditions were favorable for organic and the product was non-perishable. Now the domestic market is also targeted

II. Source of Information on Organic Production

All companies started organic production with no experience and limited information, given the very short history of certified organic agriculture in China. They presented their main sources of information as follows:

- Certification companies: Many earlier-starting companies used the German-based BCS as the most valuable source of practical information because it was established early in China and it provided an international level of organic expertise. OFDC was also well regarded for quality information
- Ministry of Agriculture: MoA has an extensive network of agriculture bureaus, from provincial to local level. Related to this was the earlier development of China’s Green Food production and certification standard, which provided the foundation for most of the organic production visited
- Agriculture universities and institutes: They are closely related to the above Ministry of Agriculture
- Internet: All companies quoted searching the internet as a source

Note: There is no real profitable service industry (e.g. consultants) supporting organic agriculture, although the Organic Food Development Center (OFDC) does operate an affiliated commercial consulting team within their SEPA organisation in Nanjing.

⁶ Note: Before the establishment of the national organic standard, the Green Food AA grade was equivalent to organic.

All major certification bodies organise annual training where their customers are provided with legal and technical information. In addition, other initiatives have been developed to support producers' capacity building such as the in-house quarterly publication *Organic Food Times* published by OFDC.

III. Outline of the Structure and Business Models of the Production Systems

1. Outline of the Structure of the Production Systems

Different models of organic production system were seen during the site visits as outlined below:

- Own production: The company manages and controls production. The company usually has a long term rental contract for the land, hires local farmers to work on the farm and employs its own local management and supervisory staff. Five out of the 17 farms visited followed this model (for rice it was three out of six, for vegetables it was two out of six and none for tea)
- Contract production: The company contracts all of its production to local farmers, on an individual basis or through the village committee and the farmers' land is certified organic in the same way as 'own production'. These contractual arrangements often include the provision of inputs e.g. biopesticides and organic fertilisers, and technical and managerial assistance supplied by the contracting company. The main benefits to the farmers are the establishment of stable and mutually beneficial contractual relationships resulting in guaranteed sales and revenues. Out of the farms visited, four out of 17 farms follow this model (for rice it was three out of six, one out of five for tea and none for vegetables)
- Mixture of own production and contract production: As outlined further in the report, this structure has been seen as the emerging model during the project visits, with the own production base providing the core and then production is expanded through contracting local farmers or co-operatives, which reduces both investment and unit operating costs. Six out of the 17 farms visited follow this model (none for rice, three out of five for tea and three out of six for vegetables)
- Farmer cooperative: To date this is a less common model because of the managerial resource needed to establish them. Two out of the 17 farms visited follow this model. Only one of the tea farm visited and one of the vegetable farm visited were run on as cooperative

The key issues and challenges for each model are outlined through the next section.

2. Outline of the Ownership Structure of the Industry

During the site visits, three ownership structures were encountered:

- State owned: Three of the 17 farms were large state owned farms which turned to organic production to expand their product portfolio and penetrate the high-value, mainly domestic, market. Organic production represented only a very small part of their overall business, but gave them a higher profile market presence
- Private Chinese: 11 of the 17 farms had private local Chinese investment and were more focused on organic production and partly producing both organic and conventional products. Their major markets varied considerably, depending on product, and covered domestic and export
- Private international: Three of the 17 farms were owned by international investors. They were initially set up to target international markets and emerging domestic consumption, especially in Shanghai and Beijing

IV. Organic Production

Based on the site investigations, this section underlines the key challenges met at the production level to ensure the integrity of the organic production.

Adequate Production and Pack House Sites

All rice and tea sites were located in areas with high quality natural environments. All vegetable sites were located in or near major population centres. Because they were reliant on local fresh retail markets, this created significant challenges for pest and disease control.

At Rice Farm ⑤ contract rice fields in Jilin Province, the organic rice fields were only separated from conventional rice fields by the normal soil wall running along the edge of the field for flood irrigation. Therefore, agrochemical spray drift could occur at the margins, but the cost to local farmers to develop efficient organic separation was prohibitive.

Farm and Land Management

Management Resources

All companies had their own dedicated production management teams, with local technical supervisors to monitor crop growth and check organic production standards.

Rice Farm ① in Liaoning Province openly explained that they could not ensure their production was organic at their contract production sites as they could not implement appropriate supervision. They instead relied on low pest disease pressure to allow contract local farmers to produce organically. No other companies reported this problem.

There was no direct evidence to suggest that any of the other companies were not producing organic products, although pest and disease control is a critical issue for organic vegetable production.

Own Production Bases versus Contracted Land

The model emerging is to have an own production base as the core production and development centre and expand additional production through contracting or co-operatives, as management and technical competence strengthens.

All companies without their own production bases aspired to that model to reduce the significant additional management resource needed to persuade contract farmers to start organic production and then train, develop, supervise and manage the local contract farmers. However, most companies with their own production bases were expanding organic production through contract production with agricultural companies, co-operatives or local farmers, because the investment needed to establish an own production base was high.

Land, both for own production base and with contract and co-operative farmers was on average contracted for a 30 year term, but ranged from 20 to 50 years.

Tea production above 600m, e.g. at Tea Farm ⑤, sometimes had a more flexible contractual basis with local farmers. As there were no real alternative commercial crops for the local farmers, Tea Farm ⑤ used a three-year term.

Pest and Disease Control

A full report on the pests and diseases at the farms visited and their management is given in Appendix 3 for vegetables and Appendix 4 for tea.

This was a critical area of interest to determine the authenticity of China's organic agriculture and whilst our one-off visit provided valuable, but limited evidence, the abundance and diversity of the local ecology in the production fields was the best indicator of the successful organic control of pests and diseases.

One very effective management method was to group local contract farmers together for collective responsibility – at Vegetable Farm ① in Shandong Province, five farmers were contracted together, so that if one farmer engaged in non-compliant practice, all five suffered the consequences with the company not purchasing any product from all five farmers.

Overall, excellent organic rice and tea production was seen, because they were located in very suitable areas where the climate provided a high degree of natural control of pests and diseases. For tea, this was by growing at altitudes above 600m, where no biopesticide control was needed; whilst pests and disease were present, they did not impact tea yields. For rice, the very cold winter climate and dry summer weather in Liaoning and Jilin Provinces kept pest and disease levels naturally low, however even here biopesticides were necessary, but in limited quantities.

Rice Farm ④'s contract organic rice production in Jilin Province had excellent ecology in the rice fields (the best seen in all of the rice visits), including crabs, frogs and a range of insects. The crabs were kept in the paddy field by low plastic fencing around the entire fields.

Given the shorter cropping cycles, the major seasonal impacts on the pest and disease pressure and the need to locate production near retail markets, the authenticity of organic vegetable production was much more difficult to assess. A very high standard of farm management, especially for protected crops in sunny greenhouses, is essential. Both good and bad examples were seen with the consequences on pest and disease damage to crops. The use of biopesticides was essential and extensive.

In Shanghai, leafy crops were the majority of the production, because pest and disease pressure was too high for the fruiting crops and the climate unsuitable for many root crops. Crop losses due to pest and disease damage of 30% were quoted as common and examples were seen.

Vegetable Farm ⑤ suffered production base crop losses of up to 30% and seen in one lettuce crop due to insect damage. While biopesticides were used, the concrete drainage channels alongside the greenhouses had a rich diversity of animal and insect life.

Weed control was an important operation for rice and innovative control practices have been developed:

- Rearing ducks in the paddy field to eat the weeds
- Rearing fresh-water crabs in the paddy field to eat the weeds
- Rearing fish in the paddy field to eat the weeds – but very difficult to manage
- Spreading rice husks on the water surface in the paddy field to starve the under-water weeds of light and oxygen
- Hand-operated mechanical inter-row weeding machines
- Hand weeding – this is the option of last resort because of it is the highest cost

Biopesticides

The use of biopesticides is essential to China's organic production located in less well-suited areas.

Rice Farm ⑥ relied heavily on biopesticides for control because the warm and moist climate created high pest and disease pressure; this farm is now planning all future expansion in organic rice production through strategic co-operation with a rice farm in Heilongjiang Province.

According to national regulations, all biopesticides are subject to the same registration procedures as conventional pesticides through the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA). Some of these products were also certified as organic inputs for agriculture by the organic certification bodies as a service to assure their certification customers of permitted inputs. The issue is more complicated when looking at what is permitted under different national organic standards. A biopesticide registered for use in China does not automatically mean that it is permitted for use in organic agriculture in the country of export.

Local Farmer Motivation and Reward

For those companies with their own production bases, labour was employed on a set wage so there was no difference in their earnings from conventional or organic agriculture. The only advantage was that organic production appeared to assure employment –seasonal and full-time– in remote locations where employment opportunities were more limited. In the high cost areas, e.g. Shanghai this led to recruiting older workers, who sometimes did not have sufficient commitment and did not pay enough attention to farm working practices.

Motivating and rewarding local contract farmers was critical, but sometimes a difficult management task. All companies with contract production paid a higher price to their local farmers to compensate for reduced yields, which ranged from 10 – 30%. In addition, the provision of organic fertilisers and technical support were critical to gaining full commitment from the local farmers. For organic rice, the additional revenue from selling mature crabs at the end of the season was a very important motivation.

The contract rice farmers for Rice Farm ④ in Jilin Province gained 30% additional revenue by selling the mature crabs at the end of the season.

Organic tea companies found it easier to start organic production at altitudes of 600m and above, because pest and disease pressure was too low to impact yields, so reducing input costs. In these remote locations, alternative crop opportunities were very limited and the availability of land was not a limiting factor, so crop yields were not under pressure.

Government Support

The Chinese Government has no central policy to subsidise organic agriculture and financial support is determined locally within each province. Actual funding was more difficult to assess, however the local government appeared to pay for the certification costs and to support the initial establishment; here the government often paid for the initial investment and leased back to the company (see Introduction V-4).

At every site, the local government was pleased to have an active farming company investing in the local area to help drive rural development, provide stable employment opportunities and to take leadership for the development of larger-scale agricultural production and marketing.

Starting organic production without any form of government support is an extremely difficult undertaking because it requires a lot of capital and it needs the local government to assist in managing the local farmers.

Soil Fertility Management

For rice and tea, the production teams relied extensively on their local experience to manage soil fertility; vegetable bases had annual soil nutrient testing. Given tea's low soil fertility requirement, very little was done to improve the soil. At all sites there was a growing recognition of the value of increasing soil organic matter and the development of on-site composting, except for the urban vegetable bases, where land value was too high to allow space.

All rice and especially vegetable sites, relied on local certified organic fertiliser; rice farms incorporated rice straw into the soil. Tea gardens relied almost exclusively on local vegetation to raise soil organic matter.

Rice Farm ⑥ grew a green manure crop during the winter, which was ploughed into the soil in the spring, requiring the farm to move from a two crop annual production to just one annual rice crop.

Sustainability

No company had an explicit set of sustainability targets or measurement methods, however all recorded crop yields and fertiliser inputs at each site. All companies understood the need to harness the benefits of a rich local ecology to develop a long-term sustainable production system that also generated financial rewards for the local farmers. However none yet appeared to be taking the next step to research or develop an integrated sustainability strategy, although it is difficult to assess if any investment was being made for this purpose due to commercial confidentiality.

Rice Farm ⑥ appeared one of the most progressive with reported co-operation with a Japanese institute and the localisation of the use of trichogrammatids, very small parasitic wasps.

V. Sales and Marketing

1. Sales and Marketing Strategies

Visits pointed out limited long-term business plans and strategies for most of the companies. Successful models are still being developed. The following comments on the overall approach can be made:

Importance of Manager Network and Relations

In several companies visited, the general manager played a leading role in the development of sales, mostly through the use of long term relationships with potential buyers, often through previous responsibilities, especially with the local government. This is particularly the case for small and medium privately run organic companies focusing on the segment of direct sales to state and government organizations. In the medium and long term, the main challenge for these companies will be to expand outside the local area where strong relations have been developed, to new markets. In addition, when the company is growing and reaching a critical size, the challenge is to establish a dedicated sales and marketing team.

Complementary Use of Other Quality Labels Green Food and Pollution-Free Agricultural Products Labels

Many of the companies visited were involved in Green Food and Non-Polluted agro-food production before engaging in organic production. The challenge for these companies is to establish complementary strategies for each range of certification schemes with particular attention to be paid to improve consumer understanding to avoid confusion. Clear pricing and labelling should be particularly ensured to build consumer awareness and confidence. Labelling of organic products on the domestic market is actually often confusing with the existence of products presenting both Green Food and organic logos as well as organic products displayed in shelves bearing Green Food labelling. One export-oriented company mentioned that Fair Trade certification provided complementary opportunities in the EU market.

Price Strategy

Achieving a premium price is one of the key motivations for most companies to begin organic production. However, pricing strategies are often weak with no market research and there was little comprehension of the difference between price being a limiting factor because the Chinese consumer generally did not understand the organic standard, or whether it was beyond the purchasing power of the consumer.

As a result of the lack of marketing strategies, of the low level of awareness of the organic label and difficulties for companies to build strong sales network, some companies said they sold part of their organic production under Green Food label where their sales network was stronger, hereby cutting part of their potential profit.

Clarity of the Sales Channels

Many of the companies visited began by focusing specifically on one market (the local government office, direct sales to local retailers or sales to local distributors). These companies are facing challenges when expanding to new segments or new geographical areas. For others, the strategy is to keep only one distributor that will strongly develop their brand on a specific market. Finally, some companies have their own distribution channels (small supermarkets) or supply directly to one of their investors.

2. Sales Channels

There were three main sales channels mentioned during the visits:

- Supermarkets and specialist shops in major cities: They represent the main channel to the individual consumer with important prospects for growth. It is mainly done through direct sales
- State and government organizations: This segment is particularly important for the “gift market” and thus often requires development of special packaging. It is mainly reached through direct sales or dedicated distribution networks. Companies supplying organic products to this segment often tend to solely to focus on it
- Direct sales and internet sales: When developed, direct sales on the farm and well as internet/VIP sales are anecdotal and limited to a small percentage of the turnover. However, they participate to an overall promotion strategy of the company by increasing visibility to the consumer and direct information
- Exports: Our investigation saw exports for tea only

3. Organic Premiums

Achieving premium prices was reported as one key motivation to begin organic production. If important variations exist, the visits pointed out the following trends:

- Rice: Major increase in sales price from around RMB 3.5/kg for Green Food to RMB 6-11/kg for organic at the retail level; for special packs, producer sales prices started from RMB 20-30/kg
- Tea: For famous-brand tea, there is no price premium because prices are already high in the sophisticated domestic market, from RMB500-3,000/500g and upwards; for ordinary organic tea to the supermarkets, it may reach 30%
- Vegetables: For specialist crops e.g. asparagus, double their sales price; for standard crops, 30% increase in sales price compared to Green Food

Note: Many companies did not sell their products under the organic-in-transition label and waited for full organic certification before selling to ensure fully organic.

4. Branding

Brands are commonly developed with use of special packaging with particularities according to the product categories as outline below:

- Rice and Tea: All companies use their own brand and those companies seeking major expansion are also willing to do own label for supermarkets, “no-name” brands were actually marketed in the fully developed way that many fast-moving consumer goods are.
- Vegetables: All use their own label on the packaging, but no real branding because the retailers have market power.

VI. Challenges Faced by Producers: Results of COFCC Kunming Training Survey

1. Introduction

An additional survey was made at COFCC’s annual training conference in Kunming on 11–13 November 2007. Participants were asked to complete an anonymous questionnaire related to their sales and marketing as well as pest and disease control practices. The objective of the exercise was to take the opportunity of the event attended by more than 100 representatives of China organic sector to further learn about their strategies and practises.

2. Questionnaire: Participants’ Profile

A total of 97 organizations returned the questionnaire, although only 40 of these were validated with their annual production volume, so these 40 were used as the basis for evaluation. They also had a higher response rate to all the questions. The total annual production volume of these 40 organisations was 21,800 tons and they represented 14 provinces. Companies producing the main categories of China organic products were represented (tea, crop, fruit and vegetables, aquatic and animal products...).

3. Questionnaire: Results

Generally these results mirror the organic farm investigations. The section below outline the main conclusions of the analysis of the answers collected.

Sales

Most products are reported to be sold on the Chinese market and to local supermarkets. Government offices also appear to be a big market for organic products (both for local consumption and as presents).

Direct sales to consumers and sales to agents/distributors were quoted as the major channels to reach end consumers.

Geographical markets	Answers	Products sold to final customer	Answers	Sales channel	Answers
China	40	Local supermarket	32	Direct to supermarket	25
Export EU	13	Foreign supermarket	14	Direct to consumer	31
Export US	12	Organic shop	24	Wholesaler	20
Export Japan	14	Hotel/restaurant	23	Agent/distributor	31
Other (incl HK)	14	Government	29	Government	27
		Other	8	Other	5
<i>Number of questionnaires collected: 40</i> <i>Type of questions: multiple choices</i>					

Table 2: Survey results on sales of organic products

Marketing

Exhibitions followed by media advertising were quoted as the most common forms of current marketing and promotion activities. In the future, most of companies surveyed plan to put more emphasize on marketing directly to end customers. A low level of internet use was reported for marketing activities.

Current activity	Answers	Planned activity	Answers	Promotional Spend (% of turnover)	Answers
Exhibition	17	Exhibition	8	0 – 5%	7
Media advertising	15	Media advertising	8	6 – 10%	9
Internet	7	Internet	1	11 – 15%	4
End customers	10	End customers	15	16 – 20%	5
Sales channel	6	Sales channel	3	Over 20%	3
<i>Number of questionnaires collected: 40</i>					
<i>Type of questions : multiple choices</i>					

Table 3: Survey results on marketing of organic products

Pest and Disease Control

As the on-site farm survey showed, the survey answers also pointed out that the certification bodies play a key role in provision of information. This implies a lack of structured information channels or a support industry of consultants to assist organic agriculture development. The certification bodies are being obliged by their customers to deliver this service in order to achieve an adequate level of competence to gain certification. The internet is also seen as a good method to get information but it is not widely used yet.

Number one information source	Answers	Best method to communicate	Answers
Local agriculture bureau	4	Local agriculture bureau	26
Certification bodies	11	Certification bodies	36
Internet	6	Internet	32
Research institutes	3	University & Research Institutes	16
Within the industry	4	Other (e.g. exhibitions)	11
Customers	2		
Own experience	3		
<i>Number of questionnaires collected: 40</i>			
<i>Type of questions : multiple choices</i>			

Table 4: Survey results on pest and disease control of organic products

Reason for Organic Production

Organic production appeared to be mainly strategic and used as a marketing tool: Meeting the market needs is seen as the major reasons to begin organic production and developing market shares and channels as the biggest challenge to organic production. As well as getting higher prices, the key benefit of organic production is seen as helping to develop the brand or improve consumer trust in the product, or both. This is very similar to what the on-farm investigations revealed.

In addition, it should be noted that pest and disease control is not reported to be one of the main challenges of organic production and very few companies quote environmental benefits as a benefit of organic production. The results also indicate that the issue of “subsidy hunters” is very limited, at least in the higher levels of organic production, but may be an issue with those producers of lower scale or competence.

Reasons for organic	Answers	Benefits of organic	Answers	Challenges of organic	Answers
Market trends / consumer	26	Improve product quality	5	Pest and disease control	4
Increase sales/ financial benefit	4	Develop brand / consumer trust	12	Marketing and export	18
Brand / company reputation	4	Improve management	7	Production scale / supply / quality	10
Improve product quality	5	Higher price / economic	14	Farmer management	1
Government support	1	Social / farmer benefits	3	Organic fertiliser use	1
Environment / sustainability	6	Competitive products	1	Diverse ecosystem	1
Take advantage of wild resources	1	Environmental benefits	2	Pollution in environment	1
Benefit farmers	2				
Improve farm management	1				
<i>Number of questionnaires collected: 40</i>					
<i>Type of questions : multiple choices</i>					

Table 5: Survey results on reasons for organic production

VII. Issues and Challenges

Strategic Sales and Marketing

Developing a strategic business plan is one of the two biggest challenges of the companies visited. All vegetables and rice companies visited wanted to expand the volume of sales, but did not know how to develop the market. They are limited by high production costs, and the higher price of organic rice and vegetables limits sales. By increasing sales volume, organic companies could reduce their unit costs to increase profitability.

China's organic products have major challenges to build domestic market share. The only clear strategy seen was the expansion of large-scale, low unit cost organic green tea to penetrate domestic and international retail markets through supermarket channels.

Pest and Disease Control

All rice and vegetable companies and two tea companies quoted organic pest and disease control as their other biggest challenge. The slower action, limited assortment and cost of biopesticides all limits their control methods. The same tea company was searching strongly for ways to improve the diversity and abundance of the local ecology to help develop a better natural pest and disease control environment, but apart from this, there appeared to be a general lack of awareness on how to develop alternative methods.

Biopesticides

In all areas except for high altitude tea production, China's organic agriculture relied to varying degrees on biopesticides. The project's requests for their views on the use of biopesticides from both IFOAM's head office in Germany and the UK's Soil Association received no response. Therefore the project's own view is that a heavy reliance on biopesticides because of high pest and disease pressure, as reckoned to be the case for at least vegetable production in Shandong and Shanghai, could be considered to be against the organic concept, which relies instead on a diverse natural ecosystem for control. A discriminating and limited application of biopesticides should be encouraged as a beneficial step in the development of a more sustainable agriculture in China.

Biological Pest Control with biopesticides based on natural products are growing in conventional as well as in organic agriculture e.g. products like Neem, natural pyrethrum and Rotenon, but also products like predators, bacteria, virus or fungi used for biological pest control are more common and represent a growing market. In regard to EU regulation, there is a list of allowed substances, but registration is not harmonised among EU member states. In the US, there is a harmonised system with registration procedures from the Organic Materials Review Institute (OMRI). (Source: Organic Services GmbH).

The biopesticide market globally is still very young and in its development stage. The approximate value of the global synthetic pesticide market was about USD 26 billion in 2005 and biopesticides at about USD 670 million, which represents a market share of 2.5%; however the average annual growth rate is estimated to be about 10%⁷.

⁷ Global Pesticides Market, E.I.D Parry (India) Limited, Bioproducts Division, January 2006

Labour

All companies complained that the younger generation was moving away from the countryside to seek work in the towns and cities, reducing the availability of labour, which apart from the tea companies relied on rural labour from outside their local area. The cost of labour was also beginning to increase.

Development of One International Organic Standard

The exporting companies, lead strongly by Tea Farm ⑤, all complained of the need for multiple organic certifications, one for each of the US, EU and Japanese markets. Tea Farm ⑤'s cost for the annual renewal of its organic certifications were about €60,000.

Information

The site investigations demonstrated very clearly the need for more information on how to improve the technical and managerial level of organic agriculture in China. Raising their awareness of what they do not know in comparison to practice in developed economies would be of great benefit to Chinese organic agriculture. However, despite that, excellent examples of organic agriculture were seen and were the result of great commitment and adaptation to the local environment by the organic companies.

Management System

The non-compliance issues revealed by the site investigations indicated weaknesses in the management system within the organic farms. Many of these examples should not be taken as a criticism of the management of the farms visited, but as an illustration of the major challenges they face in establishing an organic production system. This situation must not be used as an excuse for accepting lower standards, but as the need for continued support and development of the organic industry to achieve higher standards.

Two contributory factors sometimes had major impact on the management of these organic farms: the lack of incentive for local farmers and the small farm size. Providing a financial incentive for local farmers to practice organic cultivation is the best management method and compensates for the lower yields. The payment of the same wage to local labour for both conventional and organic production still provided the important benefits of both employment with a secure income (as opposed to no income) and regular working conditions. The small farm sizes made implementing a consistent and transparent organic production system more difficult requiring a much greater management resource and for some rice farms, more difficult to implement mechanization to reduce unit costs.

Lack of International Credibility

Whilst there are significant commercial exports of Chinese organic products, this project recommends the following steps for these products to gain greater international acceptance by demonstrating greater credibility:

Step 1: Organic tea be the first organic product category under the Chinese organic standard to be internationally recognized, subject to its organic product certification by an IFOAM accredited certification body and prior spot tests on product samples taken from registered production bases for agrochemical residues

Step 2: Rice, other field crops, pulses, fungae and top fruit may be additional categories for further approval, given the same conditions as for Step 1

Step 3: Given the major post harvest challenge of exporting organic fresh vegetables, but the current trade in processed organic vegetables, further on-farm investigation should be made of pest and disease control through the different crop cycles through the production year. Therefore, this product category should remain on hold until further evidence of the compliant control of pests and diseases is established.

ACCREDITATION OF ORGANIC CERTIFICATION BODIES

I. Regulatory Framework: Developments since 1990

China's regulatory and enforcement framework for organic agriculture has developed only since the beginning of the 90s. The main steps of this development are presented in the box below.

1990	Dutch SKAL certification body issued the first organic certification in China (for tea) in co-operation with the Nanjing Institute of Environmental Sciences (NIES), now part of the State Environmental Protection Agency (SEPA), which was the starting point for organic agriculture in China
1992	MoA established CGFDC. The Green Food AA standard was equivalent to organic
1994	OFDC established in Nanjing under the National Bureau of Environmental Protection (now SEPA), when it started to administer China's organic farming development and organic food certification
1995	"Approach to Management of Organic Certification" and Technical Norms on Organic Food promulgated by SEPA (and revised in 2001)
	BCS started operations in China
1998	ECOCERT started co-operation with China Agricultural University (CAU)
1999	The Chinese Academy of Agricultural Science, Tea Research Institute, established the Organic Tea Research and Development Centre (OTRDC) to specialise in organic tea certification
2002	MoA established COFCC to certify organic products and COFCC was the first certification body registered at CNCA
2003	CNCA took over the administration of China's organic products certification from SEPA to build a stronger national regulatory framework
	OFDC become accredited by the International Federation of Organic Agriculture Movements (IFOAM)
2005	"Regulatory Measures on Organic Product Certification Management" were issued by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ)
	China's detailed National Standard for Organic Products was issued by AQSIQ
	"Implementation Rules for Organic Product Certification" were published by CNCA
	Uniform national logo for Organic Products was issued
	CCAA established
	COFCC started co-operation with BCS Oko Garantie GmbH

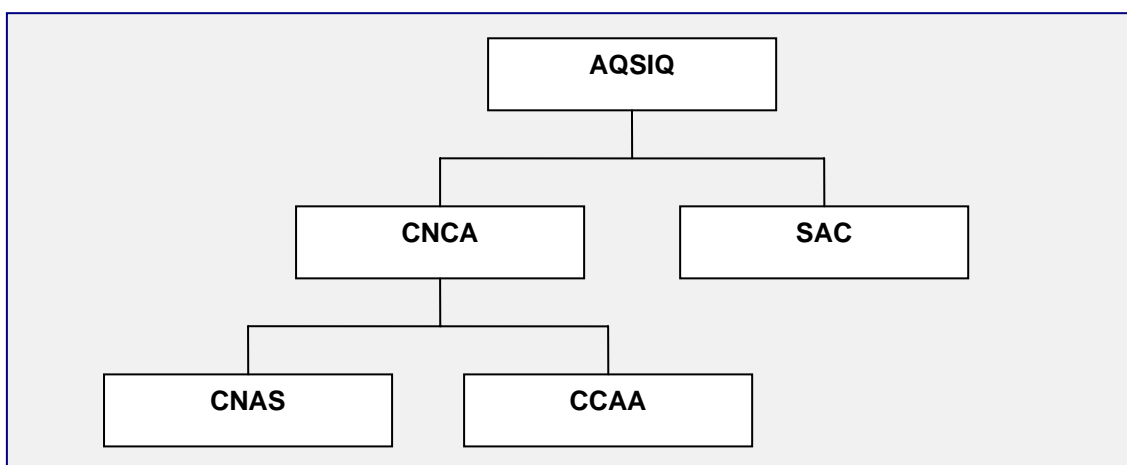
Table 6: Key steps in the historical development of the organic agriculture framework in China⁸

⁸ The Evaluation of Organic Farming Development in China, Yunguan XI, SEPA, 2004 and The Developing State and Prospect of Organic Agriculture in China, Xianjun LI, COFCC at the Organic Farming in a Global Perspective Conference, 18 October 2007. The Ministry of Environmental Protection of the People's Republic of China replaces the SEPA Since the 27th March 2008.

II. Accreditation Process: A Two-Stage Process Still in Transition

1. Competent Authority

CNCA administers, supervises and coordinates certification and accreditation systems in China including that for organic agriculture. CNCA is managed by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), which is a state-level department. The regulations governing these responsibilities were issued on 3 September 2003 by the State Council and became effective on 1 November 2003⁹. Before 2003, SEPA was facilitating organic farming development and organic food certification.



Box 2: Relations between competent authorities

2. A Two-Stage Process

The establishment of organic certification bodies is a two-stage process in which the approval stage is followed by the accreditation stage.

2.1 First Stage: Approval of the Certification Body

This approval stage, undertaken by CNCA, involves checking compliance to The Regulations of the People's Republic of China on Certification and Accreditation. A standard application approval takes 90 days. Under this first stage and as mentioned in the article 10, all domestic and foreign certification bodies must have:

- "Fixed premises and necessary facilities
- Management systems that meets the requirements for certification and accreditation
- Registered capital of not less than RMB 3 million
- Not less than 10 full-time certification personnel in relevant fields"

Under these same regulations foreign certification bodies applying for accreditation in China under this first stage must also meet additional requirements:

- Accreditation by an accreditation body in their home country or region
- Engagement in certification activities for not less than 3 years

⁹ English translation available at <http://www.lawinfochina.com/law/display.asp?db=1&id=3128>

This approval licence is valid for four years during which the approved certification bodies can issue a maximum of three organic certificates, which would be used for the assessment process of accreditation as detailed below.

If this approval licence expires without accreditation, they can re-apply for a new approval however they will be less likely to regain this licence.

2.2 Second Stage: Accreditation of the Certification Body

This stage is undertaken by CNAS, CNAS is a subsidiary department within CNCA. It evaluates the competence and compliance of the applying certification body to undertake organic certification to China's standards. These standards have not been seen by the project.

Outline of Key Steps:

- Submit written application to CNAS
- CNAS performs a document review
- CNAS performs an office review to check management and systems
- CNAS performs field inspection of an actual on-site organic certification by the applying certification body
- CNAS approves the accreditation application
- CNAS performs an annual supervisory inspection to ensure continuing compliance

Box 3: Key steps on the accreditation process

This second stage takes CNAS three to six months for a standard application, providing the application is made when there are crops available for CNAS to inspect one or more in-field certification audits by the applying certification body. Accreditation licenses are valid for three years for domestic certification bodies and four years for foreign certification bodies; before their expiry, they need to be renewed by application to CNAS.

3. International Certification Bodies

These bodies are permitted to operate within China under three business models:

- Joint-venture with a domestic certification body
- Wholly foreign owned enterprise¹⁰
- Sub-contractor to a domestic certification body which then certifies the organic standards on their behalf

Given that international certification bodies have already been accredited to certify to one or more of these internationally recognised organic standards, CNAS cannot accredit these international certification bodies again in China. Therefore, CNCA instructs CNAS to do a so-called 'approval', which is very similar to their current accreditation process.

CNAS will only award an initial approval to the international certification body of one year, however on achieving its successful first year audit, the certificate will be renewed for the normal four year period.

Most of the international certification bodies can only certify to their internationally accredited organic standards in China (Only Ecocert has been accredited to certify to Chinese standard to date). As a result all these certified products are for export. To sell organic products within China, the products must be certified to China's national organic standard, therefore an international certification body must also gain this domestic accreditation.

¹⁰ Before the current regulations were implemented on 11 December 2005, foreign certification bodies were only permitted to establish a joint-venture in China

4. Supervision of Auditor's Recruitment

Recruitment of specialized auditors that will carry out certification and inspection is strictly regulated. According to The Regulations of the People's Republic of China on Certification and Accreditation, all certification personnel must have been certified by CCAA, which operates formal training and registration examinations for all auditors.

CCAA operates three different sectors: planting, husbandry and processing, which follow the three main organic categories.

In addition, certification bodies may have their own requirements. As an example, OFDC's auditors must have minimum of four years of standard industry experience and two years of experience within their specialist sector.

5. Control and Supervision of Certification Bodies

CNCA controls and supervises accredited certification bodies through:

- Approval and accreditation process described above
- Annual site supervisory audits by CNAS
- Market supervision by the local China Entry-Exit Inspection and Quarantine Services (CIQ) to check product quality and labelling
- Special site visits to the certified farms to check their management system and production

During the interview, CNCA reported to that each certification body must submit both monthly and annual reports to CNCA giving the details of companies that have applied for certification and which companies have had certificates awarded, suspended or cancelled¹¹.

CNCA also reported that, from May 2007, certification bodies were also required to report immediately any major changes in the organic certified farm e.g. change of company name or production location, to CNCA.

¹¹ An example of COFCC report for December 2007 is provided on COFCC website:
<http://www.ofcc.org.cn/Ofcc/pdf/2007年12月号.pdf>

6. Communication of the Accreditation Results

The names of accredited bodies are published in the CNAS official bulletin which is available on line through the CNAS website¹².

CNCA maintains a complete database of the companies that are approved as well as those that are accredited. Foreign certification bodies are listed separately from the domestic ones. This database is publicly available on the CNCA website¹³.

7. Short Term Perspective in the Development of the Accreditation Regulatory Framework

According to CNCA, from 2008, international certification bodies will also be asked to submit to CNCA the details of their international certificates that have been issued, suspended or cancelled in China on a monthly basis.

In mid-2008, CNCA is planning to issue a new management code for certification bodies in order to strengthen their supervision.

¹² <http://www.cnas.org.cn/col812/col813/col816/index.htm?colid=816>

¹³ <http://www.cnas.org.cn/col812/col813/col817/index.htm?colid=817>

III. Accreditation Results

1. Domestic Certification Bodies

1.1 Domestic Certification Market Led by Four Key Players

Twenty six domestic certification bodies have been approved up to the 1st of February 2008 including twenty accredited.

Amongst these, four domestic certification bodies, all accredited, had an estimated 83% market share¹⁴ in 2006:

- COFCC – 30% (under MoA)
- OTRDC – 24% (specialised on organic tea certification and under the Chinese Academy of Agricultural Science, Tea Research Institute)
- OFDC – 18% (under SEPA)
- Wantai Quality Certification Co Ltd (WIT) – 11% (independent, general certification company, focused more on management systems)

COFCC is the most extensive organic certification body in China, operating through separate provincial teams, whose offices are co-located within the provincial MoA. This enables their certified customers to access more easily the comprehensive services provided by other branches of the provincial MoA, down to the township level and related research institutes. Whilst COFCC has extensive co-operation activities with international organic certification organisations, it cannot certify to international standards.

OFDC is the only Chinese certification body accredited by the IFOAM. In consequence, OFDC offers organic product certification to both China's National Organic Product Standard and their own OFDC Organic Certification Standard, which is based on the higher IFOAM standard and where the certified organic producers can also use the IFOAM label on their products.

Box 4: Introduction COFCC and OFDC

Some of the certification bodies are affiliated to agriculture universities or research institutes (Beijing Orient Jiahe certification is supported by China Agriculture University (CAU), NWAFCU is supported by the Northwest Agriculture and Forestry University).

Others are independent privately run organizations, some of which are involved in other certification schemes (Guangdong Zhingjian Certification Co). Some centers have a local focus (Research Institute of Environmental Protection of Xinjiang Production and Construction Crops) whereas others work across several provinces (Shanghai Quality System Audit Center).

See Appendix 5 for the detailed list of approved and accredited certification bodies.

¹⁴ The Developing State and Prospect of Organic agriculture in China, Xianjun LI, COFCC at the Organic Farming in a Global Perspective Conference, 18 October 2007

1.2 Moving Towards the End of the Transition Period

When SEPA originally administered the organic certification system, there was only a one-stage approval process. With the current legislation, issued in 2005, CNCA is trying to complete the transfer to the two stage process. As a result a number of certification bodies have been approved by CNCA but not accredited by CNAS. The recent evolution of the number of approved and accredited domestic certification bodies is as below:

Date	06/06	09/06	12/06	03/07	06/07	08/07	09/07	10/07	11/07	12/07	01/08
Approved certification bodies	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30	27	27	26
Accredited certification bodies	12	12	12	12	14	14	15	16	17	18	20

Table 7: Evolution of the number of approved and accredited domestic certification bodies¹⁵

In practice, the remaining approved but unaccredited certification bodies will lose their approval licenses when they expire after the four-year period. CNCA reported that this happened to three organisations in 2007. They expect those with approval licenses expiring in coming years may not to apply for accreditation and their approvals will expire.

Approval licenses last for four years and accreditation licenses for three years, so there is a long period for these approved, but unaccredited, certification bodies to gain their accreditation.

However the table above points out the acceleration in the clarification of the situation of approved but unaccredited bodies. Until October 2007, only 16 out of the 30 approved bodies passed accreditation, the remaining 14 having only passed the approval stage (administrative requirements only). By February 2008, these figures have changed to 20 out of 26 approved bodies passed accreditation. Out of the six remaining unaccredited certification bodies, the approval license for one expires in 2008, one in 2009 and four in 2010.

2. International Certification Bodies

CNCA reported that six international organic certification bodies are operating in China. Amongst them, CNCA reported the following four certification bodies were accredited and operating through joint-ventures or as Wholly Foreign Owned Enterprises (WFOEs).

- BCS – joint-venture with COFCC located in Changsha, Hunan Province
- Certification of Environmental Standards GmbH (CERES) – own operation in Shanghai
- ECOCERT
- Institute for Marketecology (IMO) – own operation: IMO Control China Co Ltd in Nanjing

ECOCERT entered the Chinese market in 1998 through co-operation with CAU to perform international organic certifications in China. In 2006, it established a formal joint-venture and as of February 2008 has passed through the second stage accreditation process with CNAS and has been accredited to certify to the China National Organic Standard.

¹⁵ Data from CNCA website

CNCA also reported two companies for which certificates have been delivered, the Organic Crop Improvement Association (OCIA) and the Japanese Organic and Natural Foods Association (JONA). OCIA operates the only example of sub-contracting its international certification to a domestic body, OFDC in Nanjing. No detailed information was found regarding JONA.

In addition, the Overseas Merchandise Inspection Co Ltd (OMIC), a Japanese certification body serving the Japanese supply chain has an office in Dalian, Liaoning Province.

3. Certification Bodies: Human Resources

Staffing levels for the auditing teams of the three certification bodies visited were reported as following:

Certification Body	Offices	Auditors		
		Full-time	Part-time	In training
COFCC	38 1 head office 37 local branches	142	0	30
OFDC	1	17	17	N/A
ECOCERT	1	15	15	N/A

Table 8: Auditing team of COFCC, OFDC and ECOCERT¹⁶

In addition, all certification bodies have technical experts (COFCC has 42), normally contracted from other universities or research institutes, to support their certification work specialist activities that are outside the scope of the auditors.

The registration process for inspectors started in 2006. All auditors should follow a specific training course, pass an examination and be registered by CCAA. Auditors with a number of years of practice are called 'Senior Auditors'. However, it was pointed out during an interview that candidates who undertook the training but have not yet passed the examination as well as 'interns' who undertook the training, were involved in certification work with certification bodies without having passed the examination.

4. Control and Supervision of Certification Bodies

The meetings with the certification bodies indicated satisfactory compliance with the monthly and annual reporting requirements for organic certification. CNCA was also satisfied with compliance.

However CNCA considered the timeliness of reporting major changes to certified farms was not working well in practice. This was either because the farm management system was not adequate or the quality of the information was poor.

¹⁶ Source: meetings with certification bodies

IV. Issues and Challenges

Accreditation Procedure: Existence of Approved, But Unaccredited Certification Bodies

Our meetings with the three certification bodies all demonstrated a structured accreditation procedure (although no documentation was seen of the detailed process) and the contribution of CCAA in managing the training, examination and registration of auditors.

The persistence of currently approved, but unaccredited, certification bodies illustrates the development of the regulatory environment in China. CNCA's deadline for these approved certification bodies to gain accreditation would appear to be generous by international standards.

However, until all approved certification bodies are either accredited or have their business licenses revoked, there is a suspicion that they may continue to issue non-compliant organic certificates and this seriously damages the domestic and international credibility of China's organic agriculture.

Communication of Information Related to Accredited Certification Bodies

Information is available and regularly updated on the CNCA web-site. However, the relative difficulty in finding the approved list of international certification bodies on the CNCA web-site indicates the learning curve that CNCA itself is going through to develop a customer-focused approach to communicating this information.

Limited Number of Experienced Auditors

With the continued annual increase in organic production and consequent need for certification, together with the recent development of China's organic agriculture, it would also appear that the supply of suitably experienced candidates to become auditors is limited and imposes a capacity constraint on the industry as whole.

During the site visits, it appeared that the field auditors were busy and travelled extensively. The limited capacity of auditors will also limit the opportunity for the certification bodies to make unannounced site visits to their certification customers.

CERTIFICATION OF ORGANIC PRODUCTS

I. Legislative Framework

Organic certification in China is regulated by three key binding documents, all of which became effective in 2005. They are outlined below:

The Regulatory Measures on Organic Product Certification Management¹⁷

The measures were issued by AQSIQ after approval by the State Council on 27 September 2004 and became effective on 1 April 2005. They set the overall regulatory framework for the operation of the organic regulatory system:

- Chapter I: General Provisions
- Chapter II: Management of the Certification Body
- Chapter III: Certification Execution
- Chapter IV: Certificates and Marks

The China National Standard for Organic Products

The standard was issued by the Standardisation Administration of China (SAC), which is a department of AQSIQ on 19 January 2005. It became effective on 1 April 2005:

- GB/T 19630.1-2005 Organic Products Part 1: Production
- GB/T 19630.2-2005 Organic Products Part 2: Processing
- GB/T 19630.3-2005 Organic Products Part 3: Labelling and Marketing
- GB/T 19630.4-2005 Organic Products Part 4: Management System

It should also be noted that these regulations state that organic products exported to China must also meet China's National Organic Standard, but they do not indicate how to do this in practice.

The Implementation Rules for Organic Product Certification¹⁸

The rules were published by CNCA on 2 June 2005 with immediate effect. They describe the industry regulations to deliver China's national organic standard:

Section 1 – 3: Purpose, Applicable scope and Normative reference (this is China's National Standard for Organic Products)

- Section 4: Procedures for certification
- Section 5: Administration after certification
- Section 6: Certificate, mark and identification of certification
- Section 7: Charge

¹⁷ English translation available at <http://www.lawinfochina.com/law/display.asp?ID=3924&DB=1>

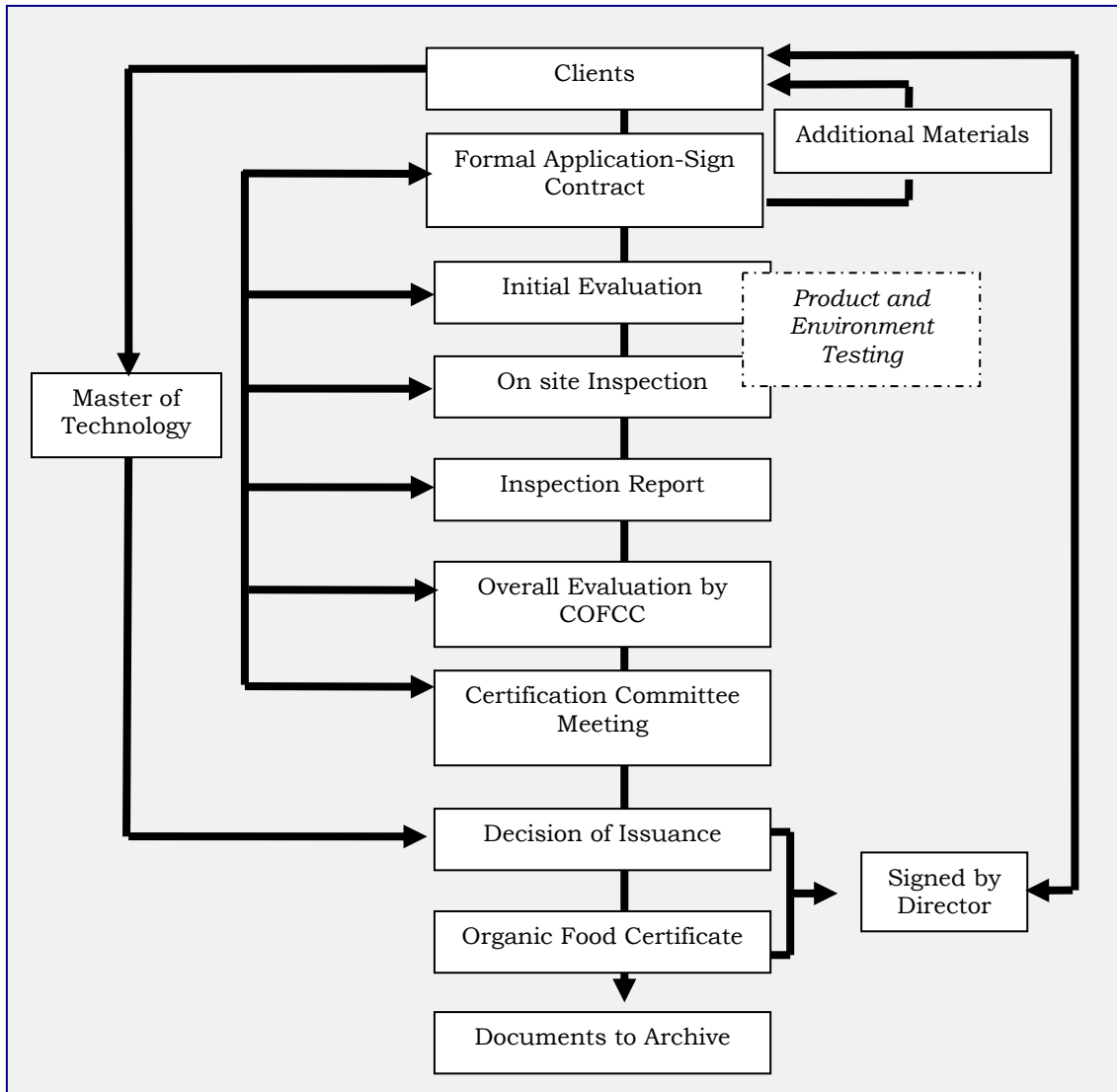
¹⁸ English translation available at <http://www.fas.usda.gov/gainfiles/200506/146130056.pdf>

II. Certification Framework

1. Certification to the Domestic Standard

1.1 Certification Process

The chart below presents the standard organic certification process for the industry in China.



Box 5: Organic certification flowchart¹⁹

Note 1: On the COFCC website, the additional step of product and environment testing is not shown. However, during the interview, it was presented as necessary prerequisites for successful initial certification and their annual renewals. It is the certification bodies that will take these samples, which are tested at national-level laboratories within the respective province.

¹⁹ Adapted from COFCC website

The application process may have some particular requirements according to each certification body. The box below presents the OFDC application process.

- Applying company contacts OFDC
- OFDC sends application form and questionnaire; this questionnaire has more than 100 questions to allow OFDC to understand their current level of production management and quality
- Company completes both forms and returns to OFDC
- OFDC analyses the company's suitability and readiness to start organic production
- OFDC sends the company its recommendations on what improvements its needs to do, if any, in order to start organic certification
- After the company has implemented these recommendations, it reports back to OFDC
- OFDC makes a site visit to audit and writes non-compliance report
- OFDC will only make a maximum of two site visits; if more are needed, the company will be rejected as not being ready for organic certification
- Within a month of the audit, when there is 100% compliance, the company will receive its organic certificate

Box 6: OFDC certification process

OFDC's report, which is completed only after the site visit, includes a conclusion and recommendations, which the applicant has to implement and report back to OFDC. After OFDC has checked the remedial action it will then issue the certificate. In addition, the pesticide residue test on the organic product is a critical for all applicants, however sometimes it is very difficult for the certification body to manage; if the applicant's product fails this test, they may find excuses in order to retest the product until passes.

1.2 Application Timing

The application for certification must be made at the appropriate time so that the certification body can see the crop or product in production and take the samples for testing. All certification bodies must give the applying company its reasons in writing should they fail to gain certification.

1.3 Application Questionnaire

The certification bodies seek ways to maximise their cost effectiveness, since their revenues are limited by a regulated price structure and industry competition, so they use their questionnaire, which the applicant has to complete at the same time as their application form, to assess suitability and readiness to start organic production.

1.4 Cost of Certification

The cost that the certification bodies can charge for this initial certification and its renewal is regulated under the Implementation Rules for Organic Product Certification. The on-site investigations found a reference price of about RMB 10,000 per initial organic audit and certification and slightly less for renewals. The larger the organic farm, the higher the price will be. Competition between the main certification bodies appears to have only a limited impact on price.

1.5 Conversion Period

There are standard regulations governing the duration of the conversion period depending on the product and land use.

1.6 Administrative Division of the Production Area

Where production is from a number of different locations, e.g. separate tea gardens, the certification body's audit must physically visit each site and then validate all these sites on the map and production area submitted for certification. Where production is spread across a second township, COFCC at least stipulates that a second certificate is needed because there may be divergent administration between them and which may affect the uniformity of the organic production system.

2. Renewal of Certificate

Domestic organic certificates are valid for a maximum of one year. Certification bodies can shorten the validity period. As an example, COFCC certificates for organic vegetables are valid for only six months. Before the end of the licence expiry dates, the farm must have a renewal audit. The new certificate will be issued on successful completion. Due to competition within the certification industry, certification bodies arrange this with their customers to ensure they remain compliant.

The steps for audit renewal are:

- Full site visit by the auditor to all the participating sites (e.g. farms, factory and office)
- Product samples sent for quality testing against national food quality standards
- Soil and water samples from the production site sent for pollution testing (see China National Organic Standard, Part 1: Production). The frequency of this testing is determined by the location of the site. If located in a remote natural environment without pollution, they may only be tested once every three years

3. Certification to Foreign Standards by Local Certification Bodies

Foreign certification bodies audit and issue certificates for the three major international organic standards: the European Union Organic Standard (EU 2092/91), the standards of the National Organic Program of the United States (NOP) and the Japanese organic agriculture standard regulated in the Japanese Agriculture Standard (JAS). OFDC is also able to certify to NOP and JAS, through its co-operation with OCIA, which also has a registered company in Japan. Other domestic certification bodies would also be permitted to certify to these standards if they were able to establish co-operation and legal agreement with foreign certification bodies.

4. Control and Supervision of Organic Production

As with all quality assurance systems, the certification bodies cannot be constantly on-site to ensure the organic production systems are being fully implemented. The certification bodies have the right of unannounced site visits for impromptu audits with unrestricted access to all relevant sites and appropriate information.

III. Certification Results

1. Number of Entities Certified

By end of 2006, the total number of enterprises with domestic organic certification was 2,300. Seventy-two per cent of COFCC's 2006 certifications were for planted crops. See Appendix 6 for details about COFCC certification results in 2003-2006. In addition, by the end of 2005, foreign certifiers have certified nearly 500 enterprises in China²⁰.

<i>Certification Body</i>	<i>2006 Certifications</i>	<i>Remarks</i>
COFCC	520 companies	Number of certification will be higher because one company may have more than one certificate
OFDC	400+ certifications	Number of companies will be less
ECOCERT	150+ certifications	100+ production bases and 50 processing operations

Box 7: Number of certificates issued by certification bodies visited²¹

The number of farms certified is different to the number of certificates as a single farm can get several certificates: certificates issued to any one organic farm may vary due to:

- Certificates for organic and organic-conversion
- Certificates for different product categories (crop, husbandry, processing, wild collection)
- Certificates for separate production sites
- Certificates to different standards (Chinese and international standards)

2. Success Rates of Certification

Success rates for initial organic certification were reported to be between 80–90%²², with failure mainly due to:

- Timing: timing of application was not appropriate to allow full inspection of the crop before harvest
- Technical competence: Applicants were not sufficiently competent in organic agriculture or certification procedures
- Immature stage: Applicants were gathering quotations from a number of certification bodies

Success rates for renewal audits were also reported to be between 80–90%. The main reasons for non-renewal are:

- Voluntarily stop: Poor organic sales
- Internal management: Changes in the management team, whereby key original staff had left
- Change of certifier: Switching certification bodies due to industry competition
- Production area: Production land was no longer available

²⁰ The Developing State and Prospect of Organic Agriculture in China, Xianjun LI, COFCC at the Organic Farming in a Global Perspective Conference, 18 October 2007

²¹ Meetings with certification bodies

²² Meetings with certification bodies

3. Prevention of Abuse of Organic Certification

Three tools are used in order to prevent abuse of the organic certification system:

- Estimation of volume: Annual production volume is stated on the organic certificate, based on the certified area and estimated yield
- Restricted supply of logo stickers: The number of organic logo stickers given to each customer after certification is calculated using this certified annual production volume and planned packaging
- Use of transaction certificates: Transaction certificates, which the certification bodies may issue in addition to the organic certificate, strengthen the authenticity of the organic sources in third party purchasing and as reported by some of the farms visited for exports to some Asian countries, e.g. to Korea, where this Transaction certificate is can be used in these importing countries; note that no relevant regulatory documents have been investigated or read on this last issue.

The farm investigations noted the importance of checking the organic raw material purchase invoices against the certified production volumes and with finished product sales and also purchases of organic inputs (biopesticides and organic fertilisers). The documents seen during these investigations and the behaviour of the farm staff indicated that this standard procedure was implemented by the certification bodies.

Note: during the investigation 'subsidy-hunting' was not found to be an issue, although there are reports that this is the key motivation for unscrupulous companies. The certification bodies' local staff members are important in screening out these undesirable applicants for certification.

IV. Certification Monitoring

CNAS monitors organic certification through the certification bodies as described in section *Accreditation II.5*, with monthly and annual certification reporting and the immediate reporting of major changes to the certified farms.

COFCC's most recent monthly report for December 2007 shows 253 organic certificates were awarded, 0 were temporarily suspended and 33 were cancelled.

Most of the project's on-farm investigations were accompanied by COFCC or OFDC's auditors. We found a systematic approach, good understanding and a high level of personal commitment by their field staff. These staff members were very valuable in assessing both the suitability of applicants for organic certification and informal monitoring through their local knowledge. The certification bodies only allow the same auditor to audit the same company for a maximum of two years and then rotate to prevent the development of subjective relationships.

This project only witnessed part of one renewal audit and was impressed by the thorough approach taken by the auditor.

However, as with all quality assurance systems, the auditors rely on the credibility, competence and commitment of each farm which the initial and renewal audits try to assess.

V. Organic Product Labelling

China's organic regulations include labelling. Since 2005, it includes a standard national label for both organic in conversion and organic.

Certifications bodies play a key role in disseminating information on organic labelling requirements. Attending COFCC's annual training in Kunming in November 2007, the updated national labelling regulations were presented and a high quality booklet distributed clearly defining the design of the organic logo and its use.

The farm investigations revealed one specific area of confusion in the organic tea companies. A number of companies used both the Green Food logo and the organic logo side by side on product packaging.

VI. Issues and Challenges

The conclusions presented below are mainly based on observations from the site visits. They aim at underlining the key challenges faced by the organic producers during the certification process.

Actions for Non-Compliant Events

In response to the question "How would you manage a situation when e.g. a conventional agrochemical was used on-site by a local farmer?" all companies replied that they would test the crop to see if it could still be sold under 'Green Food' or the 'Safe Food' and isolate the affected area. No company replied that they must immediately report this non-compliant event to their certification body, which then must cancel the organic certification for that site, or part of site. Whilst this was a deliberately sensitive and direct question, the correct answer was never given.

Tea Farm ②, Zhejiang Province, typically replied that they would isolate the affected area and then test the product to see if it could be sold under a lower level of certification, Green Food or Pollution-free.

Separation of Organic and Conventional Products

For the two companies where organic and conventional rice was being processed using the same equipment, there were no clear signs or visible standard operating procedures to substantiate the statement made during the investigation that there was clear separation. This raises the further question of how organic and organic-in-transition products are separated at these two and all other companies.

Rice Farm ② in Liaoning Province pointed out two outlet pipes from within a line of pipes from the processing plant, as those allocated for organic. There was no signage or other visible means of identification or physical separation.

Product Traceability

Most companies visited demonstrated good on-farm operating records. Two rice producing companies very honestly explained that they could not expect local contract farmers to record their on-farm operations and one vegetable pack house did not have explicit product traceability tags or labels, but relied on knowing that just one delivery truck had delivered product from a known outlying production base. However, the integration of these on-farm records with pack house or processing records and customer dispatch records into an effective traceability system is very doubtful for most companies. The large, modern rice processing plants seen in two companies make it much easier to do this, but their full traceability systems were not audited.

The project was impressed with the candid way in which Rice Farm ⑤ in Jilin Province explained the practical difficulties they experienced in trying, but failing, to get their local contract farmers to record on-farm operations and in recording their own traceability in their basic processing factory.

Certification of Contract Farmer Production Bases

Where organic production bases are composed of individual contract farmers' plots, it is difficult to manage changes when individual local farmers leave or join the contract production or change their plots. For organic tea, where they are above 600m above sea level, these consequences are minimal. However where there is pest and disease pressure, e.g. for rice and vegetables, local farmer changes may have significant impact on the validity of the organic certification.

Vegetable Farm ① provides promising model for rural development and sustainability with outstanding commitment and contribution from both the company and local co-operative farmers. However their certified organic production bases also contain conventional production for corn as a rotation crops between their organic peanut and soybean. They are aware of this problem and currently developing organic corn production.

Contract Organic Production

Where an organic company with its own central production base also contracts third party agricultural companies in other provinces to produce organic products that they buy and sell under their own brand and organic certificate, there is the risk that the contracting party may not ensure that the contractor is fully compliant to their own organic standards.

All organic vegetable companies rely on seasonal production bases in addition to their own central base to deliver a year-round supply to their retail customers. Where this was contracted out to third party producers, it was not clear how they ensured full compliance to their organic standards.

Credibility of Organic Certification

There are unsubstantiated reports that certification companies issue organic certificates primarily for commercial gain and not for upholding the integrity of the organic system. Commercial certification bodies sometimes face borderline cases, where there is temptation to place commercial gain first through the sale of the organic certificate and the case of Rice Farm ❶ raises the question of how it received organic certification when it so candidly explained during the on-site investigation that it was not able to effectively supervise organic production with its contract farmers. The certification body in question was an EU-based company. This sets a bad example to domestic Chinese certification bodies.

Potential Conflict of Interest

Given the lack of knowledge and the absence of a professional organic consulting and technical support sector, certification bodies themselves offer some services to support their customers, e.g. annual training meetings, periodical distribution of updated best practice and procedures. Whilst they declare they do not want to become consulting companies, there is a possibility of conflict of interest particularly when certification bodies provide trading platforms to connect buyers and producers.

However, this may generate a conflict of interest with their certification activities if they also gain profit from this platform. It would be impossible for the Chinese accreditation and certification authorities to detect if this income is received outside of China.

ECOCERT have developed a trading platform for their customers that they have certified as organic in China. Given the serious challenge of developing the market for genuine Chinese organic products, this is a very valuable role to help open marketing channels.

RECOMMENDATIONS

This section presents a number of recommendations that may help China demonstrate a higher level of credibility and competence to its international trading partners. These changes would require leadership in organic agriculture in order to proactively demonstrate credibility through transparency.

Development of a Centralized Information Platform on China's Organic Agriculture

The development of a central public web-based database providing a complete list of all:

- Domestic and international organic certifications issued by accredited certification bodies in China to organic production companies in China
- Biopesticides registered for use in organic agriculture
- Organic fertilisers registered for use in organic agriculture
- Organic seeds, especially vegetables seeds
- This should be undertaken by a Central Authority, i.e. CNCA or CNAS.

Publication of the List of Authorized Biopesticides in China, Including Instructions for Use

A study could be undertaken on the biopesticides that are registered and/or permitted for use in organic agriculture in the EU. A comprehensive list of these biopesticides together with the detailed instructions on their application in organic production could be submitted to CNCA or CNAS for inclusion on their web-site.

Completion of the Accreditation Procedure for Certification Bodies Still at Approval Stage

There are still some international and domestic certification bodies operating in China that have been approved by CNCA, but not yet accredited by CNAS. These bodies should be accredited or have their approval revoked as soon as possible. This issue affects China's case for international acceptance of its organic standard.

International Accreditation such as the IFOAM Accreditation for Domestic Certification Bodies and for the Domestic Standard

Domestic organic certification bodies and the domestic organic standard should gain international accreditation such as the IFOAM accreditation in order to demonstrate competence to an international standard. Over time given these rising standards, sub-standard Chinese certification bodies will decline and go out of business.

Development of Technical Information Platforms to Support the Improvement of Local Organic Producers' Technical and Managerial Level

Accredited certification bodies should be encouraged to provide a platform to certified members to improve the level of technical and managerial knowledge of organic production. This could be achieved through international exchange of information via foreign visits or technical assistance programs. IFOAM can provide a very valuable resource for the exchange of this information. Related European technical assistance facilities may also provide support in this regard.

Clarification of the Role of Certification Bodies and Support to the Development of Independent Organizations to Undertake Tasks in Potential Areas of Conflict of Interest

Given lack of knowledge and the absence of a professional organic consulting and technical support sector, certification bodies themselves offer some services to support their customers (See Section Certification VI). However, if these certification bodies gain profit directly from their trading platform, it may require additional regulation to separate this activity.

Further Strengthen Research and Development in Soil Micro-biology and Organic Pesticides

Lack of knowledge on soil micro-biology and organic pesticides was a major issue at most sites in the study. Issues included:

- Control of pest and diseases for all crops, except where production took place in environments where pests and diseases were naturally depressed by the climate
- Management of soil fertility with both soil analysis and on-farm composting were very limited
- Weed control, where the most important factor was the reduced availability or higher cost of local labour
- Development of a diverse local ecosystem, which in itself will improve the natural control of pests and diseases
- In addition to our recommendation on the development on technical information platforms, two key areas that would significantly improve the performance of organic agriculture are further research and development in soil micro-biology and organic pesticides.

Improvement in the Traceability of Organic Products

Traceability is a major weakness in Chinese organic production systems (see Section *Certification VI*) and technical assistance would be useful to develop skills in this area.

Implementation of Standard Operating Procedures (SOPs) to Assure Separation of Organic and Non-organic Products

In certain processing plants there was no clear separation of organic and non-organic products being processed at the same site (see Section *Certification VI*). These companies should implement clear SOPs and the certification bodies improve their performance in this part of their certification audits.

Development of Procedures in Case of Non-compliance

Knowledge about the procedure should a non-compliant event occur, e.g. a local farmer use a conventional pesticide or fertiliser in the organic production base was very limited (see Section Certification VI). It is recommended that the certification bodies immediately improve their auditing procedure.

Consideration of the Absence of Organic Vegetable Seeds

For vegetables, there is no commercial supply of organic seeds, with the exception of herbs, where open-pollinated seeds can be easily saved on farm. Given this absence, we recommend that organic vegetable producers purchase conventional seeds, which are F1 hybrid seed, without seed treatment.

Increased Support from Central Government

Organic agriculture is supported by local and provincial level government. Central government currently doesn't provide support to the development of the sector possibly due to the number of ministries involved and its small contribution to the domestic food supply. Technical and marketing support would help a more structured development of the production.

Further Strengthen Enforcement

This would provide the most balanced approach when combined with increased support from the Chinese Government. The obvious areas for strengthened enforcement are:

- Initiate surveillance audits by CNAS on the registered certification bodies
- Increase surveillance audits by the certification bodies on the certified organic farms
- Expand the testing of organic food products for conventional pesticide residues, both at the initial application for certification by the organic farm and at the renewal audits, and with spot testing of the finished product on the retail shelf

CONCLUSION

China has established a large organic agriculture industry in a short period starting only in 1990. Its development has been underpinned by some well suited production locations with low pest and disease pressure and for labour intensive crops, by China's traditional agriculture system.

However, China needs to overcome the poor image and credibility of its organic agriculture, which the field investigations found were, in most cases, not justified. China needs to take leadership in demonstrating to its international trading partners and its domestic consumer population the competence of its organic agriculture and credibility of its regulatory regime, through transparent regulation and industry information that is easily available to the public.

The recent and rapid development of China's organic agriculture: its standards, operation and regulation, leave opportunities for improvement. The investigation showed strong developing competence in the industry and its regulators as they rapidly gain technical and management experience. However, the toughest challenge facing the industry is its ability to improve its commercial viability by developing the domestic market through improving consumer knowledge and trust and increasing production scale and reducing unit costs on the farm. The farm investigations revealed relative strength in production and weakness in marketing, with most companies starting organic production without having developed a marketing plan.

The authenticity of organic production at the farms visited was very well demonstrated through the diverse and abundant local ecology in many production sites, although the visits did not take place during seasons of peak pest and disease pressure. Because this study was an investigation, not an audit, no samples were tested for pesticide residues. In many cases, production used biopesticides (these were essential for major vegetable production), which are regulated within the same framework as conventional pesticides.

Whilst this project visited some very good organic farms, it was not possible to estimate how representative they were of China's overall organic agriculture. There is a risk that organic farms at the bottom of the organic quality spectrum, or under financial pressure, impact on the credibility of China's whole organic industry through non-compliant organic operations. Better supervision of the industry and resolving the accreditation of the unaccredited, but approved certification bodies will bring benefits. China's organic regulations are still young and needed further development to bring them to a fully effective level. The current development of a government White Paper on organic agriculture and the preparation by the MoA of an "Organic Agriculture Production Base Management Method" underline this point.

SWOT ANALYSIS

Threats	Strengths
<p>Biopesticides: Over-reliance on biopesticides in unsuited areas for organic production.</p> <p>Non-sustainability: Unsustainable harvesting of wild production.</p> <p>Labour: Increase in rural labour costs.</p> <p>Over Pricing: The vicious cycle of high unit costs of small-scale organic production inhibiting the development of competitive retail pricing for organic products, which in turns reduces consumer demand.</p> <p>Logistic costs: Increase in logistics costs from remote production locations with well-suited natural environments.</p> <p>Conflict of interest: Conflict of interest within the certification bodies in providing commercial services, such as trading platforms as well as their certification services.</p> <p>Auditing capacities: Lack of experienced personnel that are suitable for qualification as auditors.</p>	<p>Environment: Some natural environments are extremely well suited to organic agriculture, where the climate maintains a very low level of pest and disease pressure.</p> <p>Farm structure: Chinese agriculture is structured on the individual farmer with a long history of small-scale, labour-intensive and sustainable farming, which is very well suited to labour-intensive crops, e.g. vegetables and tea.</p> <p>National organic regulatory framework: It continues to develop to address both national and international concerns.</p> <p>Competitive certification industry: Competition between the certifications bodies is improving their services.</p> <p>Research: Extensive conventional agricultural research.</p>
Weaknesses	Opportunities
<p>Environment: Some natural environments are unsuited to organic agriculture with very high pest and disease levels, which requires farmers to rely heavily on the use of biopesticides.</p> <p>Farm structure: This same small-holder structure of Chinese agriculture is unsuited for field crops e.g. rice, where large-scale cultivation is needed to lower unit costs to be competitive.</p> <p>Existence of approved, but not accredited certification bodies: This damages the credibility of China's regulatory regime.</p> <p>Standard enforcement: Poor supervision of organic agriculture standards on farm because of China's huge size and varied ecosystems, the developing state of its economy and society in general and agriculture industry in particular.</p> <p>Credibility: A small number of unscrupulous operators damage China's overall organic credibility.</p> <p>Farmer technical level: Generally low level of knowledge and management experience of organic production systems.</p> <p>Supporting services: Lack of professional support industry i.e. consultants and the lack of funds to purchase these services by potential customers.</p> <p>Access to information: Certification bodies are forced to deliver some support services to plug this gap.</p> <p>Consumer confidence: Poor consumer confidence in the certification of organic products.</p> <p>Consumer understanding: Poor consumer understanding of organic agriculture.</p> <p>Organic seeds: No supply of organic seeds in China by domestic or international seed companies.</p>	<p>Expansion: Sustainably develop organic agriculture in areas with well-suited environments.</p> <p>International recognition: Develop a transparent and international level (e.g. IFOAM accredited) domestic certification industry.</p> <p>Domestic market: Develop the domestic consumer market, given the concerns over food safety and newly emerging ones on environmental sustainability.</p> <p>International markets: Develop exports of specific products with international standard of organic certification taking advantage of the quick growth of international markets such as the EU market.</p> <p>Rural development: Develop the rural economy with high value and labour intensive organic production.</p> <p>Support services: Develop the existing agricultural infrastructure to support organic agriculture.</p> <p>Conventional agriculture: Leadership opportunity that organic agriculture provides to conventional agriculture towards more sustainable production systems, e.g. through soil fertility and biopesticides.</p>

APPENDICES

Appendix 1: Project Experts team

Appendix 2: Project Methodology

Appendix 3: Vegetable Pests and Diseases and their Control

Appendix 4: Tea Pests and Diseases and their Control

Appendix 5: List of Approved Certification Bodies

Appendix 6: COFCC Certification Results 2003 – 2006

Appendix 1: Project Experts Team

Role	Crop & Location	Name	Organization
Leading EU Expert	All	Stephen Scoones	Independent consultant
China Experts	Rice: Liaoning & Jilin	Mika Yuan	Organic Services
	Vegetables: All	Pr Guo Ren ZHU	Chinese Academy of Agricultural Sciences
	Tea: Zhejiang	Dr Kun WENG	National Centre for Tea Quality Examination & Hangzhou Tea Research Institute
	Tea: Jiangxi	Dr Chun Hua SHI	Zhejiang Plant Protection
Project Manager	All	Laure Elsaesser	EUCTP

Appendix 2: Project Methodology

Project Partners

This project was developed in co-operation with COFCC, an organization under the MoA, and one of China's major Organic certification bodies.

Project Team

A team of international and local experts participated in the information collection and analysis as underlined in Appendix 1.

Project Activities

The project main steps included:

- Selection of farms and certifications bodies to be investigated
- Design of the farm questionnaire
- Meetings with selected farms and certification bodies
- Development of meeting reports
- Development of the final report

Investigations with Accreditation and Certification Bodies

Interviews with the following organisations were undertaken

- CNCA, the Chinese government's department responsible for administering the accreditation process, was interviewed in Beijing
- COFCC in Beijing and the OFDC in Nanjing were interviewed as two of the major local certification bodies
- The Beijing-based international certification body ECOCERT was interviewed because it certifies products for the European market

Farm Investigation

Site visit questionnaire

A standardised questionnaire was developed to be used during all site visit investigations. The objective of the questionnaire was to develop a systematic approach to collect information related to the characteristics of each farm, including its pest and disease situation, production methods, sales and marketing, and certification. The box below underlines the main focus of the questionnaire. For each of category, a series of indicators were chosen.

1. Introduction

- . Company objectives and structure
- . Reasons for farming organically

2. Site

- . Farm and pack house or processing factory

3. Production History and Future Plans

- . Crops, cultivation areas and yields

4. Land and Production Management

- . Land and local farmer management
- . Stakeholder relationships

5. Sales, Marketing and Financial Aspects

- . Customers, sales channels and branding
- . Pricing and turnover

6. Major Pests and Diseases

- . Diseases, insects and weeds
- . Control methods

7. On-site Farm Records

- . Initial and renewal certifications, including organic-in-transition
- . Farm management records

8. Organic Production Management System

- . Sources of information
- . Sustainability, including composting
- . Compliance to organic standards

9. Certification and Inspection

- . Inspection and certification process
- . Selection of certification body and cost

10. Conclusion

- . Key challenges and how to overcome them for future development

Box 1: Main sections of the farm questionnaire

Farm selection process

COFCC supported the choice of most of the farms as well as the investigations. Three additional farm investigations were also made through the OFDC. The project thanks all certification bodies and organic farms visited for their co-operation and support.

Farm selection criteria

Based on the overall level of production for both the domestic and export markets, three of the most important Chinese organic crops were selected: rice, tea and vegetables.

To gain a basic level of consistency and depth to the field investigations, a minimum of five farms were visited for each target crop within different provinces.

However, the question of how representative these farms are of China's overall organic agriculture remains a large and open question, but beyond the scope of this project.

Farm visit organisation

Each visit was attended by a team of 2 experts (plus a representative from a certification bodies in most cases) and the duration of each visit was about half a day.

Farm selection result

As a result, the following farms were selected to be investigated by the project team:

Company & Province	Ownership	Organic Farm Production	Organic Area	Major Market
A. Organic Rice ⑥				
Rice Farm ①	Private Chinese & German JV	100% contract local farmers No rice, other field crops & pulses	7,360ha	EU (70%) USA (20%)
Rice Farm ②	State-owned	100% own farm	1,250ha	Domestic, retail
Rice Farm ③	Private Chinese	100% own farm	300ha	Domestic, state
Rice Farm ④	Private Chinese	100% contract farmers	40ha	Domestic, retail
Rice Farm ⑤	Private Chinese	100% contract farmers	130ha	Domestic, retail
Rice Farm ⑥	State-owned	100% own farm	530ha	Shanghai, state
B. Organic Tea				
Tea Farm ①	Private Chinese	Own base (main) + contract farmers	33ha + 13ha	Domestic, state
Tea Farm ②	Private Chinese	Own base + farmer co-operative	53ha + 170ha	Domestic, retail
Tea Farm ③	Private Chinese	Own base + contract farmers	70ha + 190ha	Domestic, retail; 5% export
Tea Farm ④	Private Chinese	100% contract farmers	47ha	Jiangxi, state & retail
Tea Farm ⑤	Private Chinese	100% farmer co-operative	1,870ha	EU (90%), USA, Japan
C. Organic Vegetables				
Vegetable Farm ①	Private Chinese	100% farmer co-operative	55ha	Domestic, food industry & retail
Vegetable Farm ②	State-owned	Own base + contract farmers (main)	370ha	Shandong, retail
Vegetable Farm ③	Private German	Own base (leafy) + contract production	13ha	Shanghai, retail
Vegetable Farm ④	Private Chinese	Own bases	10ha	Shanghai, retail
Vegetable Farm ⑤	Private Chinese	Own base + contract production	8ha (own)	Beijing, retail
Vegetable Farm ⑥	Private Overseas Chinese	100% Own base	24ha (BJ)	Beijing, retail

Note 1: Regarding rice, unfortunately the project was not able, to visit the farms of China Organic Agriculture Ltd., which claims on its website (www.chinaorganicagriculture.com) to have a 40% share of the domestic organic rice market.

Note 2: Given that this project's objective was to understand China's organic agriculture and not to audit it, no pesticide or chemical residue analysis was made on any product or plant samples. The project team relied on their experience to determine the likelihood that fully authentic organic agriculture was being practiced.

Note 3: Due to project timing, these visits were made in September and October, just before the rice harvest, after the spring tea plucking and in the middle of the mixed cycle vegetable production.

Note 4: For confidentiality reasons farms names do not appear in the report.

Location of the Organic Farms Visited



Rice 3
Rice 4
Rice 5

Rice 1
Rice 2

Vegetable 5
Vegetable 6

Vegetable 1
Vegetable 2

Vegetable 3
Vegetable 4
Rice 6

Tea 1
Tea 2

Tea 3
Tea 5

Appendix 3: Vegetable Pests and Diseases and Their Control

Author: Professor ZHU Guoren, CAAS, 31 October 2007

This report was prepared following the visits to the six vegetable farms.

China is threatened by various kinds of disease, pest and weed, which result in heavy losses to the country's vegetable production. The negative impact arising from regular chemical control methods is fundamentally the same as in other major vegetable producing countries around the world and poses a large threat to the food safety of vegetable products.

The farms visited:

- Demonstrated good ecological environments and biodiversity, and feature relatively short transitional period from wasteland or arable crops to organic production; among them, four farms are far away from regular vegetable production, hence are at a distance from disease or pest sources or have a relatively lower chance of getting infected by pests or disease,
- Suffered less losses arising from disease and pests, though most of them have weeds,
- Conformed to the concept of organic agriculture production guided by ecological principles and aided by all-around management in key procedures,
- Took primarily agronomic measures in their production, coupled with necessary physical control methods that allow the use of biological or botanical preparation, resulting in good performance in controlling the main diseases and pests, as well as good protection to the ecological environment of the vegetable fields.

These measures showed a good performance in safeguarding the quantity, quality and food safety of the organic vegetables produced.

1. Main diseases and pests and their control methods for organic vegetables

In recent years, the six farms visited have been taking efforts in producing organic vegetable to meet the demand of market by integrating favorable local environmental conditions and the company's existing capacity:

- Vegetable Farm and Vegetable Farm produced leaf vegetables with a few herbs and fruit varieties, using open field or plastic greenhouses,
- Vegetable Farm produced purple asparagus, black soybean with green seeds and black peanut,
- Vegetable Farm, Vegetable Farm and Vegetable Farm produced leaf and fruit vegetables in various producing patterns, i.e. open field, plastic shed or sunny greenhouse, or large multi-span greenhouse

The main pests and diseases and their control methods for organic vegetable are described in the following tables. Due to the different of geographical locations and ecological environments in Shandong, Shanghai and Beijing, the distribution of pests, diseases and weeds in vegetables are not the same and so control methods vary.

Tables: Main diseases and pests and control methods of organic vegetable

Crop 1 – Herbs (Shanghai): mint, thyme, wrinkled glanthysop, etc. which are less likely to be disease/pest-ridden.			
Crop 2 – Leaf vegetables: 50~60 varieties including lettuce (head lettuce and leaf lettuce), cabbage, Chinese cabbage, Chinese kale, brassica oleracea, spinach, amaranth, chrysanthemum coronarium, water spinach, coriander (coriander) and gynura bicolor DC, etc.			
#	Pests & Diseases		Control Method
	Chinese & English name	Scientific name	
1	Tobacco whitefly	<i>Bemisia tabaci</i>	<ol style="list-style-type: none"> 1) Plant herbs e.g. mint around the poly-tunnel to repel pests. Cover the ventilation opening with an insect screen to prevent insects from entering, 2) Use yellow sticky traps to repel adult pests, 3) Spray biopesticides pyrethrin aqueous emulsion (San Bo Qi Hua) or matrine spray to the vegetable in the poly-tunnel or open field.
2	Striped flea beetle	<i>Phyllotreta striolata</i>	<ol style="list-style-type: none"> 1) During the land fallow period, irrigate the field to kill the larva in the soil, 2) Cover the land surrounding the poly-tunnel with film mulch. If broken, cover it with an insect screen to prevent insects from entering, 3) Spray biopesticides Qingyuanbao or matrine spray.
3	Diamondback moth	<i>Plutella xylostella</i>	<ol style="list-style-type: none"> 1) Apply sex pheromone for Diamondback moth to prevent insects from mating and ovipositing, 2) Spray biopesticides, 3) Cover with an insect screen to prevent worms from entering (Shandong and Beijing).
4	Imported cabbage worm	<i>Pieris rapae</i>	<ol style="list-style-type: none"> 1) Cover with an insect screen to prevent insects from entering (Shandong and Beijing), 2) Spray biopesticides.
5	Beet armyworm	<i>Laphygma exigua</i>	<ol style="list-style-type: none"> 1) Apply sex pheromone for Beet armyworm, 2) Spray biopesticides, 3) Cover with an insect screen to prevent insects from entering (Shandong and Beijing)
6	<ol style="list-style-type: none"> 1) Green peach aphid 2) Turnip aphid 	<ol style="list-style-type: none"> 1) <i>Myzus persicae</i> 2) <i>Lipaphis erysimi</i> 	<ol style="list-style-type: none"> 1) Cover the ventilation opening & poly-tunnel with an insect screen to prevent wing aphid from entering, 2) Use yellow sticky traps to repel wing aphid, 3) Spray biopesticides – pyrethrin aqueous emulsion (San Bo Qi Hua) or matrine to the vegetable in the poly-tunnel or open field.
7	Brevis front grasshopper	<i>Atractomorpha sinensis</i>	<ol style="list-style-type: none"> 1) Cover the bottom of the plastic shed with film mulch, or in case of a ventilation opening, with an insect screen, to prevent insects entering 2) Manually kill the worms when carrying out farming work.
8	Virus disease	Turnip moaic virus (TuMV) Cucumber moaic virus (CMV)	<ol style="list-style-type: none"> 1) Strengthen irrigation and fertilizer management, 2) Repel aphid, which spread viruses, in a timely manner.
9	Lettuce bacteria soft rot	<i>Erwinia carotovora</i> subsp. <i>carotovora</i>	<ol style="list-style-type: none"> 1) Rotation and reverse cropping, 2) After rotated crop is harvested, deep till and fertilize the soil, then leave the soil fully exposed to sunlight for two weeks so as to kill the pathogen in the soil.
10	Vegetable root rot	<i>Fusarium</i> sp. <i>Zhizoctonia solani</i>	<ol style="list-style-type: none"> 1) In summer, plough the soil and close the poly-tunnel in high temperature for at least seven days to kill the pathogen in the soil by sunshine, 2) Remove the diseased plants from the field.
11	<ol style="list-style-type: none"> 1) Alternaria leaf spot 2) Anthracnose 	<ol style="list-style-type: none"> 1) <i>Alternaria brassicae</i> 2) <i>Colletotrichum higginsianum</i> 	<ol style="list-style-type: none"> 1) Spray biopesticide – Qingyuanbao

Crop 3 - Fruiting vegetables: cucumber, tomato, sweet pepper, strawberry, etc.			
#	Pests & Diseases		Control Method
	Chinese & English name	Scientific name	
1	Tobacco whitefly	<i>Bemisia tabaci</i>	<ol style="list-style-type: none"> 1) Plant herbs like mint around the poly-tunnel to repel pests. Cover the ventilation opening with an insect screen to prevent insects from entering, 2) Use yellow sticky traps to repel adult pests, 3) Spray biopesticide – 1.5% pyrethrin aqueous emulsion (San Bo Qi Hua) to the vegetable in the poly-tunnel or open field.
2	Greenhouse whitefly	<i>Trialeurodes vaporariorum</i>	<ol style="list-style-type: none"> 1) Plant herbs like mint around the poly-tunnel to repel pests. Cover the ventilation opening with an insect screen to prevent insects from entering 2) Use yellow sticky traps to repel adult pests 3) Spray biopesticide – 1.5% pyrethrin aqueous emulsion (San Bo Qi Hua) to the vegetable in the poly-tunnel or open field.
3	<ol style="list-style-type: none"> 1) Green peach aphid 2) Cucumber aphid 	<ol style="list-style-type: none"> 1) <i>Myzus persicae</i> 2) <i>Aphis gossypii</i> 	<ol style="list-style-type: none"> 1) Cover the poly-tunnel openings with an insect screen to prevent wing aphids from entering 2) Use yellow sticky traps to kill the wing aphids 3) Spray biopesticide – 1.5% pyrethrin aqueous emulsion (San Bo Qi Hua) or Baicao No. 1
4	American leaf miner	<i>Liriomyza sativae</i>	<ol style="list-style-type: none"> 1) Cover the poly-tunnel openings with an insect screen to prevent wing aphids from entering, 2) Use yellow sticky traps to kill the wing aphids, 3) Spray biopesticides – 1.5% pyrethrin aqueous emulsion (San Bo Qi Hua) or Baicao No. 1.
5	Cotton bollworm	<i>Helicoverpa armigera</i>	<ol style="list-style-type: none"> 1) Cover the land surrounding the poly-tunnel with film mulch. If broken, cover it with an insect screen to prevent adult worms from entering 2) Manually remove eggs, larvae or diseased fruit from the field.
6	Virus disease	Turnip moaic virus (TuMV) Cucumber moaic virus (CMV)	<ol style="list-style-type: none"> 1) Choose varieties with strong disease resistance or tolerance, 2) Strengthen irrigation and fertilizer management, 3) Repel aphid, which spread viruses, in a timely manner.
7	Gray mold	<i>Botrytis cinerea</i>	<ol style="list-style-type: none"> 1) Plant some cucumber in the poly-tunnel or greenhouse; cover a layer of mulch on the surface of the land and water the field using drip irrigation method. Keeping the field ventilated properly shall lower the relative humidity, hence less chance of being infected by disease, 2) Take away in a timely manner the diseased fruit after the plant is infected, 3) Spray 2% Wuyiencin in proper concentration.
8	Tomato leaf mold	<i>Fulvia fulva</i>	<ol style="list-style-type: none"> 1) Choose varieties with strong disease resistance or tolerance, 2) Plant some cucumber in the poly-tunnel or greenhouse; cover a layer of mulch on the surface of the land and water the field using drip irrigation method. Keeping the field ventilated properly shall lower the relative humidity, hence less chance of being infected by disease 3) Spray 2% Wuyiencin in proper concentration.
9	Cucumber downy mildew	<i>Pseudoperonospora cubensis</i>	<ol style="list-style-type: none"> 1) Choose varieties with strong disease resistance or tolerance, 2) Plant some cucumber in the poly-tunnel or greenhouse; cover a layer of mulch on the surface of the land and water the field using drip irrigation method. Keeping the field ventilated properly shall

			<p>lower the relative humidity, hence less chance of being infected by disease,</p> <p>3) Keep the structure properly ventilated and adjust the temperature and humidity so as to avoid conditions favorable for the growth of. Diseases or pests (temperature 18~25°C, dew on leaves),</p> <p>4) Spray biopesticide Qingyuanbao.</p>
10	Cucumber powdery mildew	Sphaerotheca fuliginea	<p>1) 1) Spray 2% Wuyiencin in proper concentration,</p> <p>2) 2) Use electrothermal generator for sulfur fumigation.</p>

Crop 4 – Perennial purple asparagus

#	Pests & Diseases		Control Method
	Chinese & English name	Scientific name	
1	Asparagus stem blight	Phomopsis asparagi	<p>1) Clear the farmland in fall and winter, and avoid water accumulation in the summer,</p> <p>2) Spay root area with potassium permanganate solution in proper concentration,</p> <p>3) Spray the diseased plants with Qingyuanbao preparation during the growing season.</p>
2	Asparagus Fusarium root rot	Fusarium sp.	<p>1) Remove diseased plants,</p> <p>2) Spray with Qingyuanbao preparation.</p>
3	Asparagus needle blight	Cercospora asparagi	<p>1) Clear the farmland to reduce likelihood of bacteria sources,</p> <p>2) Spray with Qingyuanbao preparation.</p>
4	Cutworm	Agrotis segetum	<p>1) Trap larva manually,</p> <p>2) Trap adult worms using black light lamp,</p> <p>3) Trap larva using piles of green grass.</p>
5	Grubs	<p>1) <i>Holotrichia oblita</i></p> <p>2) <i>Anomala corpulenta</i></p> <p>et al</p>	<p>1) Trap larva manually,</p> <p>2) Trap adult worms using black light lamp.</p>

All Crops – Weeds

#	Weeds		Control Method
	Chinese & English name	Scientific name	
1	Common purslane, Garden purslane	<i>Portulaca oleracea</i>	<p>1) Avoid weed seeds flying into the vegetable field,</p> <p>2) Weeding the field after harvest or before planting,</p> <p>3) Manual weeding at proper times,</p> <p>4) Cover the field with functioning mulch that may effectively inhibit weed growth.</p>
2	Lambsquarters	<i>Chenopodium album</i>	
3	Radroot amaranth	<i>Amaranthus retroflexus</i>	
4	Spiny amaranth	<i>Amaranthus spinosus</i>	
5	Common chickweed	<i>Stellaria media</i>	
6	Siberian cocklebur	<i>Xanthim sibiricum</i>	
7	Common knotgrass	<i>Polygonum aviculare</i>	
8	Copperleaf , Threeseed mercury	<i>Acalypha australis</i>	
9	Pedunculate tigonotis	<i>Trigonotis peduncularis</i>	
10	Asiatic plantain	<i>Plantago asiatica</i>	
11	Litter thistle	<i>Cephalanoplos segetum</i>	
12	Common crabgrass	<i>Digitaria sanguinalis</i>	
13	Goosegrass	<i>Eleusine indica</i>	
14	Green bristlegrass , Green foxtail	<i>Setaria viridis</i>	

2. Management measures against the main diseases and pests of organic vegetable

2.1. Agronomic measures

Compared with European and American organic vegetable producers as well as others in the developed countries, three of the six sites visited had small-scale production, but a large pool of farm workers for their farms so that the organic vegetable production there was intensively farmed and the management was carried out properly. Specifically, the main measures are as follow:

(1) Diversity in the variety of organic vegetable plants

Among the six organic vegetable farms studied, five plant over 60-70 varieties of vegetable in efficient rotation at different growing seasons, which guarantees a year-round production. Vegetable Farm features farmland with diversity, where the field of purple asparagus, black bean with green nutlet and black peanut are surrounded by various plants like wheat, peanut, cotton, sweet potato, mulberry and orchard. And this type of diversity provides a good ecosystem and environment for the natural enemies of pests, and hence plays a role in taking pests under good control.

(2) Efficient rotation

Farm soil is both an over-wintering place and a primary source of infection for pests and disease. Efficient rotation is conducive to the inhibition of soil-transmitted diseases and pests and it is an effective means of overcoming the problems resulting from continuous cropping.

(3) Till deep in the soil after winter

(4) Choose varieties with strong disease resistance or tolerance.

This is an economic and effective means of managing diseases and pests of organic vegetable. According to Vegetable farm, the varieties produced in the company's organic vegetable base, such as Chinese cabbage, tomato, eggplant and beans, are all improved branded varieties, which demonstrate supreme disease resistance and high yield. Other companies were similar.

(5) Strengthen the management on irrigation and fertilization to safeguard the healthy growth of vegetable

Mature compost and certified organic fertilizer or biogas residue have been widely used in the organic vegetable bases visited. In this way, a balance of nutrient substance and other elements needed by vegetable growth is achieved in the soil, thus reducing the likelihood of disease and pest occurrence and forming a favourable soil ecosystem, so disease and pest damage to vegetable roots remains minimal. Film mulching in the protected fields, as well as the drip irrigation method, may lower or reduce the relative humidity in the air, which protects vegetable from getting pest and disease infestation.

(6) Keeping the facilities in the protected fields properly ventilated can lower humidity, resulting in lower pest and disease pressure.

(7) Weeding the field, manually removing the diseased or pest-ridden plants or leaves or fruit growing in the field and manually trap & kill insect pests.

2.2. Physical control measures

(1) Facilities and open field cultivation with protective measures

Cover the ventilation openings of the greenhouse or poly-tunnel with an insect screen to prevent insects from entering; this shows good results for preventing and repelling diseases and viruses. Insect screens are widely deployed in open field vegetable production across Shandong and Beijing. Among the farms, Vegetable Farm 2 alone deployed a screened area of 2.7 hectares. In addition, the use of shading net in summer reduces direct sunshine and lowers temperatures in the shed, and is helpful to repel insect pests and rainfall, to increase crop output and raise the quality of vegetable products.

(2) Trapping insect pests

Making use of the insect phototaxis, i.e. use of black light lamp or solar trap lamp, as well of yellow sticky traps or small piles of green grass in the field, has also shown good result in trapping the insect pests to reduce occurrence.

2.3. Biological control measures

Sex pheromone may be also used to trap pests or interfere in the mating of male moths, hence reducing the population size of Diamondback moth and Beet armyworm. Biopesticides like Wuyimycin and Polyoxin can be used to repel certain fungal diseases.

2.4. Permission to use biopesticides in the production standards for organic vegetable

Oxymatrine: commercial products include 0.6% Qingyuanbao agent & etc,

Matrine : commercial products include 0.3% Greenfield No. 1 agent, 0.36% Baicao No. 1 agent and 0.6% matrine agent which serves as fungicide,

Pyrethrins: commercial products include 1.5% San Bo Qi Hua emulsion & etc.

In addition, potassium permanganate can also be used for such purposes.

3. Weeding in the production of organic vegetable

Weeds compete with vegetable for space, sunlight, nutrition and water, weed is more often seen in the open field than it is in the plastic shed and weed growth is less prosperous in the greenhouse than it is anywhere else.

3.1. Avoid weed seeds flying into vegetable field:

Select well organic vegetable seeds prior to sowing; make use of mature compost or microbial fertilizer to avoid weed seeds flying into the field. In addition, compost enriches the organic content of soil and makes it loose. After all, weeding can be more easily handled in such a field.

3.2. Weeding after harvesting or prior to planting:

Till deep into the soil, irrigate the field and expose the upturned soil to the sun after harvesting the vegetable. This makes weed seeds grow so that they may be removed completely prior to sowing and planting time when the fine soil preparation is done.

3.3 Weed the field manually at the proper time:

This should always be done especially in the first half of vegetable growing season. Remove the weed early in its growth.

3.4. Cover the field with functional film to effectively inhibit weeding:

After land preparation cover with functional film. The colour selection of the film should be white on top (to reflect sunlight) and black in the bottom (to stop sunlight from penetrating into the soil). Make some openings on film at proper intervals conforming to right line or plant distance requirements, and then plant vegetable seedlings into the openings so as to restrain weeds from sprouting and growing.

For the above methods, the first three weeding measures have been widely used; the fourth one, according to the Vegetable Farm 4 is used on a small scale in some fields.

4. Existing problems and suggestions on the management of pest, disease and weed control in the production of organic vegetables

Production of organic vegetable is an artificial ecosystem aiming at the interests of the economy, ecology and society, as opposed to a natural system without human intervention. Some disease and pest can fly over into the organic fields by way of monsoon, airflow or migration. The attempt to control disease, pest and weed by taking the advantage of the system's internal regulating mechanism can be futile. With the increase of the production life of organic vegetable comes the increase of likelihood of disease and pest damage. Therefore, it is of great significance to implement plant protection.

4.1. Existing problems

(1) Shortage of technical personnel on plant protection:

Disease and pest control, according to the farm visits is a key issue surrounding the production of organic vegetable. On the one hand, the history of China's organic vegetable production is still not long enough to accumulate a sufficient knowledge base for our study and reference. On the other hand, it is a result caused by the shortage of technical personnel on plant protection among farm/base managers, or the fact that their skills, knowledge and theoretical attainment do not correspond to the demand of production.

(2) Imperfections in preventive measures:

There are occurrence of greenhouse whitefly (advice on control methods was given to the producers though) caused by insufficient preventive measures taken prior to field planting in some of the greenhouse during their fall/winter vegetable production. Should there be no steps taken to repel the pest, the greenhouses will be subject to an outbreak sometime during the production year, and to some extent, future production. One of the greenhouses with cucumber plants was managed badly, with serious downy mildew and so serious yield reduction; another seedling greenhouse was found to have indication of whitefly development. This reflects the management personnel paid no heed to the principle of "prevention first" on the control of pest and disease in organic vegetables.

(3) Insufficient varieties of plant protection products for certified organic vegetable:

According to materials provided by COFCC, there are 36 different certified fertilizer and plant protection products for organic vegetable production; there are only five certified plant protection products, accounting for only 13.9%. Due to the lack of certified product and the fact that the controlled pests and diseases are just a few, it can hardly satisfy the demand for production, and there is still a huge gap between plant protection products (or varieties)

offered and similar products offered in the marketplace in China. In addition, the information is not available to ordinary users because certified products have not yet been published on the internet.

4.2. Suggestions on future work

(1) Strengthening technical training on plant protection:

Built on the experiences of providing previous technical training sessions by COFCC and OFDC, we are hoping to enrich the content regarding the management of pest and disease control. This is to make managers and technicians grasp the principles of pest and disease control, as well as the occurrence and control methods for organic vegetable production. For organic vegetable groups with branches across provinces or cities, we suggest they hire specialized personnel on plant protection.

(2) Widen technical exchanges:

It is also suggested that COFCC, OFDC and organic agricultural authorities at the provincial or municipal level should hold technical exchange meetings on a regular or contingent basis and put plant protection on their priority list. By publishing on the internet and disseminating information on pests and diseases, as well as knowledge, skills and experiences in plant protection, they should form an environment favourable for peer learning and attainment of professional expertise or skills.

(3) Quicken the process of certification on the input products for plant protection of organic vegetable:

We hereby suggest COFCC and ICAMA form a close cooperative working relationship and co-host a conference on plant protection products allowed to use in the production of organic vegetable. In light of full discussion and subject to the approval of COFCC and ICAMA, areas of work in regard to product list, producers, control targets, dosage and concentration, as well as the method and precautions, are to be determined. We should also adopt various media, i.e. electronic network, magazine, training and newspaper, to spread the knowledge about organic vegetables, so that producers may form a good understanding on the subject and be of better service for the production of organic vegetable.

Appendix 4: Tea Pests and Diseases and Their Control

Author: Dr Chun Hua SHI, November 2007

This report was prepared following the expert visit of the three tea sites.

Site Visit: Tea Farm③, Jiangxi Province

Description: Tea Garden (in the third year of conversion with an area of 2,000 mu, 1,070 of which is self-owned; the site is around 200 metres above sea level)

Crop: Tea			
	Pests & Diseases		Control Method
	Chinese name	Technical name	
1	茶小绿叶蝉	Empoasca vitis (Gothe)	1. Ecological control: the site features a natural ecological environment where 78% of the area is covered by forest and 82% by vegetation. Cunninghamia are planted at a 50 metre spacing. The area abounds in biological diversity with rich animal & plant resources, e.g. many bird varieties. Tea pests are mainly repelled by a natural control method. 2. Tea garden management: tea cultivars are subject to collar-pruning every 6-7 years and heavy pruning every 3 three years. Pests are controlled by pruning and plucking. Pests in the soil, however, are repelled through field cultivation at the end of fall to prevent them from over-wintering.
2	茶毛虫	Euproctis pseudoconspersa Strand	

Site Visit: Tea Farm ④, Jiangxi Province

Description: Tea Garden (exceeding 800 metres above sea level, with an area of 410 mu; the company has secured an organic certification.)

Crop: Tea			Control Method
	Pests & Diseases		
	Chinese name	Technical name	
1	茶小绿叶蝉	<i>Empoasca vitis</i> (Gothe)	<p>1. Ecological control: the tea garden is located in woods with many trees mainly comprising of camphor, bamboo and yew, etc. There are many birds, but still many natural pests to the tea bushes can be found here, too. Among them are spiders, lacewings, mantis and scarabid beetles. A complete ecosystem is formed in this area, due to the relatively high altitude and big temperature difference between day and night, the local environment is not conducive to the growth of pests.</p> <p>2. Tea garden management: the garden is managed by way of spring tea plucking; plucking is usually not done in summer and fall. Pruning is done in June and shallow hoeing in February. Deep soil cultivation however is usually conducted during July ~ August for the collar pruning in the following year.</p>
2	毒蛾类	<i>Lymantridae</i>	
3	蜡蝉	<i>Geisha distinctissima</i>	
4	角蜡蚧	<i>Ceroplastes ceriferus</i> Anderson	
5	茶梨蚧	<i>Pinnaspis theae</i> (Maskell)	
6	茶橙瘿螨	<i>Acaphylla theae</i> (Watt)	
7	茶蚜	<i>Toxoptera aurantii</i> Boyer	
8	茶煤病	<i>Neocapnadium</i> <i>Theae</i> Hara	

Site Visit: Tea Farm ⑤, Jiangxi Province

Description: Tea Garden (approx. 500 metres above sea level, with an area of 270 mu; the company has secured an organic certification.)

Crop: Tea			Control Method
	Pests & Diseases		
	Chinese name	Technical name	
1	茶鹿蛾	Amatidae germana Felder	<p>For the purpose of repelling pests and diseases, the site is managed by way of integrating tea plants with other trees in the area so that bio-diversity is maintained inside the garden and a better regulative capacity is achieved among the local eco-communities. The following managerial measures used are:</p> <ol style="list-style-type: none"> 1. Batch & timely plucking of new tea shoots which are the main target, activity & propagation venue for the pests. In this sense, batch plucking of tea shoots is not only a key measure to guarantee the quality of tea, but also an effective weapon to repel pests directly from tea bushes. 2. Trimming and collar pruning: keep on pruning in late autumn or early spring so as to reduce the quantity of over-wintering pests. 3. Soil cultivation and weeding. Keep on shallow hoeing and weeding once, before the spring and summer plucking, respectively; and do a deep cultivation and weeding in the fall. This will not only improve the soil quality but also increase the fertility of the land and reduce the incidence of weed and pests to tea bushes. 4. At the end of fall, clear the tea garden to reduce over-wintering pests.
2	茶毛虫	Euproctis pseudoconsersa Strand	
3	茶白毒蛾	Arctonis allba Bremer	

Appendix 5: List of Approved and Accredited Certification Bodies – 1st February 2008

Ratification No.	Certification Body	Website	Valid Date
Certification bodies approved and accredited to date (20)			
CNCA-R-2002-001	中国质量认证中心/ China Quality Certification Centre (CQC)	http://www.cqc.com.cn/	2012-1-10
CNCA-R-2002-002	方圆标志认证集团有限公司/ China Quality Mark Certification Group (CQM)	http://www.cqm.com.cn	2010-12-10
CNCA-R-2002-003	上海质量体系审核中心/ Shanghai Audit Center of Quality System (SAC)	http://www.sac.org.cn/	2010-12-10
CNCA-R-2002-007	广东中鉴认证有限责任公司/ Guangdong Zhongjian Certification Co., Ltd.(GZCC)	http://www.gzcc.org.cn/	2010-12-10
CNCA-R-2002-013	浙江公信认证有限公司 (原浙江质量体系审核中心) / Gainshine Assessment (GAC)	http://www.gac.org.cn	2010-12-10
CNCA-R-2002-015	杭州万泰认证有限公司/ Wit Assessment	http://www.wit-int.com/	2010-12-10
CNCA-R-2002-028	北京中安质环认证中心	http://www.zazh.com	2010-12-10
CNCA-R-2002-100	北京中绿华夏有机食品认证中心/ China Organic Food Certification Center (COFCC)	http://www.ofcc.org.cn/	2010-12-10
CNCA-R-2002-105	中环联合 (北京) 认证中心有限公司/ China Environmental United Certification Center Co.,Ltd (CEC)	http://www.sepacec.com/	2010-12-10
CNCA-R-2003-062	北京陆桥质检认证中心有限公司/ (BQC)	http://www.bqc.com.cn/	2011-6-24
CNCA-R-2003-096	杭州中农质量认证中心/ Organic Tea Research and Development Center (OTRDC)	http://www.organicteachina.com/	2011-5-6
CNCA-R-2003-115	北京五洲恒通认证有限公司/ (CHTC)	http://www.bjhtc.com/	2011-6-24

CNCA-R-2004-122	辽宁方圆有机食品认证有限公司/ Fangyuan Organic Food Certification Center (FOFCC)	http://www.fofcc.org.cn/	2008-3-24
CNCA-R-2004-123	黑龙江绿环有机食品认证有限公司/ Heilongjiang Lvhuan Organic Food Certification CO.,LTD		2008-3-24
CNCA-R-2004-128	辽宁辽环有机食品认证中心/ Liaoning Environmental Organic Food Certification Center (LEOFCC)	http://www.leofcc.cn/	2008-3-24
CNCA-R-2004-129	北京五岳华夏管理技术中心/ (CHC)	http://www.bjchc.com.cn/	2012-1-10
CNCA-R-2004-131	新疆生产建设兵团环境保护科学研究所/ Research Institute of Environmental Protection of Xinjiang Production And Construction Crops	http://www.qsfruit.com/xibei/ gongsi/rz/index.html	2008-3-24
CNCA-R-2004-132	大连市环境科学研究院		2008-3-24
CNCA-R-2004-133	西北农林科技大学认证中心/ Northwest A&F University Certifier (NWFUC)	http://ylofcc.nwsuaf.edu.cn/	2008-3-24
CNCA-R-2004-134	南京国环有机产品认证中心/ Organic Food Development Center (OFDC)	http://www.ofdc.org.cn/	2008-3-24
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CNCA-R-2002-018	中国检验认证集团质量认证有限公司/ China Certification & Inspection (Group) Co., Ltd.(CICC)	http://www.ccic.com/	2010-12-10
CNCA-R-2002-084	中食恒信（北京）质量认证中心有限公司/ FQCC		2010-12-10
CNCA-R-2004-127	北京中创和认证中心有限公司/ (BECC)	http://www.becc.net.cn/	2008-3-24
CNCA-R-2005-082	安徽中兴产品认证有限公司		2009-9-5
CNCA-R-2006-142	吉林省农产品认证中心		2010-1-3
CNCA-R-2006-145	北京东方嘉禾认证有限责任公司/ Beijing Orient Jiahe Certification Co.,Ltd	http://www.jiahe.org.cn/	2010-6-15

Appendix 6: COFCC Certification Results 2003 – 2006

Index	Unit	2003	2004	2005	2006
Number of enterprises		102	228	416	520
Number of products		231	595	1249	2278
Area	000 ha	620	1,467	1,655	3,109
Production	000 tonnes	119	374	669	1,959
Domestic Sales	000 RMB	920	3,590	3,710	6,170
Export Sales	000 USD	400	241	136	106

Source: COFCC

ADDITIONAL READINGS

1	Regulations of the People's Republic of China on Certification and Accreditation http://www.lawinfochina.com/law/display.asp?db=1&id=3128
2	The Regulatory Measure on Organic Product Certification Management http://www.lawinfochina.com/law/display.asp?ID=3924&DB=1
3	The Implementation Rules for Organic Product Certification http://www.fas.usda.gov/gainfiles/200506/146130056.pdf
4	The Evaluation of Organic Farming Development in China, Yunguan Xi, Nanjing Institute of Environmental Sciences
5	Organic Agriculture and Poverty Reduction in Asia: China and India Focus, IFAD, July 2005 http://www.ifad.org/evaluation/public_html/eksyst/doc/thematic/organic/asia.pdf
6	'Organic Trends', 2007 Directory of Organic Food in China, CESDRRC, Beijing http://www.chinaeol.net/cesdrrc/Downloads/Directory%20for%20Organic%20Food%20in%20China.pdf
7	Development and Registration of Biopesticides in Asia, David Grzywacz, Natural Resources Institute, UK and Registration of Biopesticides in Europe and OECD Countries, Alison Hamer, JSC International Ltd UK, in DFID Crop Protection Program's Biopesticide Registration Workshop, 2004, http://www.cpp.uk.com/UPLOADS/publications/downloads/5Registration%20in%20rest%20of%20world+CLosing.pdf
8	Environmental Risk Assessment on Biopesticides – Benefit or Burden? Christina Pickl and Susanne Brock, German Federal Environment Agency, June 2007, http://se.setac.org/files/setac-eu-0312-2007.pdf
9	Development, Registration and Marketing of Biopesticides in Europe, Maiju Heith, Verdera Oy, 22 January 2004, http://www.biocontrol.ca/pdf/tr/QCregHeith-Verdera.pdf
10	Biopesticides: The Way Ahead, David Chandler et al, RASE, October 2006, http://www.relu.ac.uk/research/projects/biopesticides%20paper%20October%202006.pdf
11	USDA Report, Organic Products Market in China, 2006, http://www.fas.usda.gov/gainfiles/200606/146198045.pdf
12	Development of Organic Tea in China, Zhang You, Tea Research Institute, 2005 (Chinese)

Additional readings are available from EUCTP upon request.