

**The organization of Organic vegetable supply chains in China –  
Flexible property rights and different regimes of smallholder inclusion**

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# **The organization of Organic vegetable supply chains in China – Flexible property rights and different regimes of smallholder inclusion**

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**Abstract:** This paper analyses from a property rights perspective to what extent Chinese smallholders are included and benefit from converting their land to organic vegetable production supplying chains under two different property rights regimes destined for either export or domestic sales. Two case areas were chosen for investigation: 1) the Shanghai metropolis where organic vegetable production goes solely for domestic consumption and 2) the rural area around Tai'an city in the province of Shandong where the organic vegetable production is destined for export only. In the Shanghai metropolis small holders are not included at all in the organic vegetable production due to better off-farm employment. Instead the local county has redistributed the land, left idle by the smallholders, and re-lease it out to larger organic farm enterprises providing jobs to migrant workers and local women. In the Shandong case village cooperatives act as a contractor between an organic processing industry and 1.300smallholders/households belonging to 17 different villages. The small holders/households are receiving a higher pay than an unskilled labour would get in the industry, as well as knowledge transfer on organic production and quality requirements. The two cases illustrate how organic farming contributes to a better livelihood for smallholders, farm migrants and women under the present politicized capitalism in China. However, the property rights regime, and the outcome of economic organizations found in the case studies, could raise serious questions upon the effectiveness and motivations at the farm level to secure a high level of quality control of the organic food products.

**Key words:** Organic farming, China, supply chains, property rights, contracts

## **1. Introduction:**

In a state socialist redistributive economy, goods and services are allocated through central direction by non-market means. By contrast, in a market society, decentralized market exchange serves as the main mechanism that allocates goods and services. The Chinese transition economy from state socialism to what today can be called 'politicized capitalism', has created various forms of ownership in the Chinese countryside (Nee, 2005).

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Campbell & Lindberg (1990) shows how a state can shape the economy through the manipulation of property rights. The state's actions create pressure for change that leads actors to look for new forms of economic organization. The state also assists, leads, or constrains the process of selecting new forms of economic organizations that emerge in response to these pressures, and it may or may not ratify these new forms. Likewise they contend that property rights also express and specify relationships among people, and therefore also define the institutional basis of power relations in the process of production, exchange, and accumulation.

Xiaolin Guo (1999) illustrates how the property relationship between the State, the village cooperative and the individual households concerning land rights in China are defined, enforced and modified by the township government and village cooperative.

Since property rights are not absolute and can be changed by individual's actions, the concept of property rights is closely related to that of transaction costs (Barzel, 1997). According to Barzel transaction costs are the costs associated with the transfer, capture and protection of rights.

During the rural reforms of 1978-1984, collective farming ended in almost all of China, and family farms returned as the dominant agricultural form. Each collective divided up the land among its individual household members, according to formulas negotiated within the collectives. Previous ownership (before the socialist era from 1949) was ignored in favour of formulas based on the number of workers and the number of mouths to be feed in a household. By all accounts this process went smoothly, and it has been called, with reason, the most egalitarian land reform in history (Naughton, 2007).

However, the land system has not changed over to a simple private property system. The land tenure system in China is based on land lease contracts, typically for 30 years, owned and controlled de facto by a 'village cooperative' which extend land lease contracts to individual farm households. Households have most of the property rights: they can use, sub-lease and transfer land, but they cannot sell it.

The village cooperatives usually comprise between 300-500 households and each household typically consists of several tiny and separated plots. More than 80 per cent of all farm households

operates less than 0.6 ha and confirms the dominance of small scale farming in China (OECD, 2005). Village cooperatives are again organized in ‘townships’, which normally comprise between 10-20 villages. In some areas townships may influence village land policies, including village-wide land re-allocations. Township districts themselves are under the jurisdiction of counties which are responsible for the overall planning of land utilisation. Their duties also include issuing land contract certificates to farmers. Counties belong again to the provinces.

The politicized capitalism practised under present day transition economy in China has created a variety of different property regimes, some of hybrid nature. According to Sanders (2006) four major types coexist in various parts of rural China: State ownership, partially-privatised common ownership, fully-fledged common ownership and open access.

However, the complexity, and in some cases lack of secure land tenure within the Chinese property rights regimes, combined with the fast development of the Chinese economy creating better off-farm employment opportunities, affects farmer incentives on longer term investments (OECD, 2005). Likewise the dominance of small scale farming combined “fuzzy” property rights would mean larger coordination and uncertainty cost downstream when demand from modern supply chains increases.

### **Organic market growth and demand**

Demand for Chinese organic products has grown rapidly since the first organic tea was certified in 1990. In terms of number of farm enterprises, arable land and export value the certified organic area in 2005 were estimated to be approximately 4.4 Mio. Ha. However, 2.1 ha are certified for wild collection, 630.000 ha are under conversion and 998.000 ha are used for crop acreage (Kledal et al, 2007). China’s organic farmland of 2.3 million ha would therefore represent approximately 2 pct. of the country’s 130 million ha of cultivated land, and the organic export value of 350 Mio. USD would amount to 1.5 pct. of Chinas total agricultural export of 23 Billion USD in 2004.

As illustrated in table A (Appendix) the major organic production is concentrated in 10 Eastern provinces out of Chinas 31 provinces. In the North East provinces production is dominated by various beans, cereals and oilseeds, whereas in the southern provinces production is mainly teas, fruits for juice, rice, ginger and vegetables. Approximately 1/3 of the organic arable land are in the

southern provinces, but characterized by more intensive crop production in terms of labour use. The vegetable production itself is concentrated in the two south east provinces of Jiangsu and Shandong as well as around the city of Shanghai. The Shandong province is the largest organic vegetable producer concentrated around Tai'an city with its 11.227 ha certified organic ([www.cqagri.gov.cn](http://www.cqagri.gov.cn), 2001 July 30<sup>th</sup>) & ([www.cctv7.com.cn](http://www.cctv7.com.cn) , 2007 January 26<sup>th</sup>).

The number of *enterprises* involved in organic primary production and processing are approximately 1.600, but the number of individual *households* growing organic is significant higher although the amount unknown (Kledal et al, 2007). One of the main reasons for this is due to the way land rights have been distributed historically in China.

However, studies reveal great flexibility on land allocation among counties, townships and villages making larger scale contract farming feasible for private foreign companies (OECD, 2005) as well as processing industries within organic production (Sanders, 2006). In this paper we have analysed to what extent Chinese smallholders are included and benefit from converting their land to organic vegetable production supplying chains under two different property rights regimes destined for either export or domestic sales.

## **2. Methodology and data collection**

To carry out studies of the organisation, economic as well as physical commodity flow of the organic vegetable chain in China, two case areas were chosen. The first was the metropolis of Shanghai, and the second the city of Tai'an in the province of Shandong. Shanghai was chosen because the domestic consumption of organic vegetables is most developed around Shanghai, whereas around the city of Tai'an the organic vegetable chain is the most important concerning export only.

Methodological approach applied has been a combination of qualitative interviews supported by quantitative data when ever possible to be obtained. The period of information and data collection was from January to May 2007.

### **The domestic consumer driven vegetable chain (Shanghai).**

In our preliminary studies the most valuable data found on organic vegetable production in Shanghai was the newsletter “Organic Trends - Newsletter for Organic Farming and food development in China, Jan/Feb 2006” [www.chinaeol.net/cesdrrc](http://www.chinaeol.net/cesdrrc). The newsletter was specifically describing where to buy organic food products with names and addresses of farms, restaurants and shop outlets in Shanghai. In table 1, the number of enterprises listed in the newsletter is illustrated. In the newsletter four farms were listed, but one of them produced only strawberries. The other three were purely vegetable producers. Two restaurants were selling organic meals, and 30 different consumer outlets like supermarkets, health shops etc. were selling organic food products

Table 1: Number of organic enterprises in Shanghai

Type of node	Number of enterprises
Consumer outlets	30
Restaurants	2
Farms	3

Source: [www.chinaeol.net/cesdrrc](http://www.chinaeol.net/cesdrrc) (Jan/Feb. 2006)

With this information qualitative interviews were made starting up with visits to the various consumer outlets, restaurants and farms interviewing key persons in the various nodes of the chain. In this way the organic vegetable supply network was drawn up, discovering that Shanghai had seven organic vegetable enterprises and one under conversion. This amount was later confirmed by the “Shanghai Agricultural Technology Development and Service Center” ([www.agri.sh.cn](http://www.agri.sh.cn)), where Yu Fanming, employed at the department of vegetables, had written respectively a book and an article on organic vegetable production [in Chinese] (Yu, 2001 & 2004/ Feb). Also the certification bureau OFDC (Organic Food Development Center) confirmed the number of organic vegetable farm enterprises in Shanghai since they were all certified there.

One may argue that information on the amount and type of organic farms existing around Shanghai could have been collected from the certification bureaus, but there are now 26 of them in China and their importance differs from each province and product. Since most of them are all private they are also reluctant to give valuable information unless good contacts and trust building are pre-established. There is no central office in China that gathers data on organic farms and production from province level and down.

After drawing up the chain in Shanghai a second round of more in-depth interviews was made with key persons in the various nodes of the chain. Information was collected on the type of vegetables produced; the amount harvested and sold; modes of contracting and payments for input factors (land, labour) as well as contracting for supplies downstream to various consumer markets.

### **The export driven chain (Tai'an – Shandong)**

Through earlier cooperation with Doctor Xi Yunguan from OFDC in Nanjing valuable insight was given by him to aim our focus at the Shandong province, and the rural area around the Tai'an city concerning organic vegetable production destined for export only. According to Doctor Xi Yunguan the organic vegetable production chain around Tai'an is the most developed and largest in China. The organic vegetable area around Tai'an covers 800 ha, and the export value amounts to 30 million USD, which covers 50 per cent of Tai'an's total vegetable export ([www.sdny.gov.cn](http://www.sdny.gov.cn), 2007 March 14<sup>th</sup> [in Chinese]).

Dr. Xi Yunguan also recommended establishing contact with the "Tai'an Taishan Asia Food Company (TTAFC)". It is the most important organic exporting company in Tai'an, contracting 534 ha and thereby covering 2/3 of all organic land around Tai'an. TTAFC is a food processing company exporting frozen organic vegetables mainly to Japan, USA and Europe. Ninety per cent of the export goes to Japan and USA with approximately forty five to each, and the last ten per cent goes to Europe.

Contacts were made with TTAFC and interviews as well as visits were made to the 17 villages which TTAFC contracts with concerning supply of organic vegetables. A similar set of data collection through the questionnaire was as in the domestic driven chain in Shanghai.

## **3. Results**

### **The domestic consumer driven vegetable chain (Shanghai):**

The general attempt in China to stimulate household-based larger scale farming (*dahu*) was on the organic vegetable production in Shanghai found to follow the form called *fanzudaibao*. It is a property rights form developed mostly in the coastal area where a village, township or a county rents land from farmers in a unified area, then invests in various types of facilities like roads, water supply or greenhouses, and later rents the land out to an external investor. It will be the form

classified by Sanders (2006) as partially privatised common ownership. The reason for this predominant property rights form in the coastal area was explained by the managers interviewed at the organic farm enterprises to be caused by the fast growing off-farm employment opportunities in this part of China. In several cases the farmland had been idle or underutilized for some years before converting to organic due to a combination of farmers having better off-farm employment, and in the same time not being able to make a more efficient allocation or land transfer.

However, the county districts of Shanghai mentioned in table 2 have been a major actor behind reallocations of underutilized household properties. Instead of just renting out the land to the farmers, who all have the property rights, the counties renegotiated and renewed the contracts with the farmers, so the farmers are now indirectly renting out the land use right to organic farm enterprises on contracts valid between 15-30 years. In Shanghai all organic vegetable production was based on such a property rights regime.

In table 2 the seven organic vegetable farm enterprises found are listed with the year of starting organic sales, their farm size, field workers employed and daily output. Output is approximately 112 kg/day/ha leaving total organic vegetable production from Shanghai to be 3175 tonnes/year.

Table 2: Organic vegetable enterprises in Shanghai 2007

County district	Company Name	Year of Organic	Organic land size (hectare)	Field workers employed	Daily Output (Kg)
Songjiang	Shanghai Organic Agriculture Co. Ltd	1999	12	40	1400
Songjiang	Shanghai Green Total Horticulture Co. Ltd	2005	11	53	1100
Fengxian	Shanghai Fengpu Organic Agriculture Co. Ltd	1999	12	46	1300
Fengxian	Shanghai Xinghui Vegetable Co. Ltd	2001	9		1000
Jiading	Shanghai Xiaxiyang Organic Agriculture Co. Ltd	2001	10		1200
Minhang	Shanghai Chengshi Vegetable Horticulture Co. Ltd	1998	6	30	700
Pudong New Area	Shanghai Jixiang Vegetable Company	2004	18	72	2000
Total	7		78		8700

Source: own table based on interviews



The organic farm enterprises produce around sixty different vegetables during the year consisting of two seasons. Some of the vegetables are produced all year around whereas others are bound to the season and its climate conditions.

In table 3 the ten most produced and sold organic vegetables are listed. They are also the products being produced all year round.

Table 3: Ten most produced and sold organic vegetable in Shanghai 2007 (random order)

Organic vegetable
Potatoe
Carrot
Tomato
Green pepper
Cucumber
Chinese cabbage
Green vegetable
Onion
Ginger
Chinese Onion

Source: Own table based on interviews

In the Shanghai property rights model smallholders are not included at all. They have indirectly abandoned farming for better paid urban jobs. The labour used at the new organic farm enterprises consists mainly of local women and elderly men migrating from other provinces. Asking the farm managers which provinces they came from they answered they did not know.

In relation to previous studies showing a rapid proportion of young people in Chinese migration specializing in off-farm employment to urban areas (de Brauw et al, 2002), our studies seems to indicate that men from thirty years of age and above, having low education and no real off-farm labour opportunities, make up the migrant force within Chinese agriculture.

In table 3 the labour input from one farm enterprise has been classified in terms of modes of organisation, male or female, local or migrated. The sex of the labour on the farm enterprises was generally fifty-fifty between male and female, but is made up by predominant local women and predominant migrant men. The migrant labour lives in dormitories for free and their wage of 700-800 RMB is supplied by 1 or 2 meals per day, often the organic vegetables discarded for not living up to the quality requirements demanded by the consumer outlets. Thirty to forty per cent of the

organic vegetables were on average discarded at the Shanghai Organic Agriculture Company, which is a dominant company brand among supermarkets in Shanghai. Cost of living in Shanghai was told to be around minimum 2.000 RMB/month. The 800 RMB/month is typically 200 RMB more per month than what an unskilled labour can earn in a factory in provinces outside Shanghai – this type of off-farm work is available.

Table 3: Labour input classification on organic farm enterprise in Shanghai metropolis 2007

Modes of Labour organization	Sex (%)		Sex (%)				Modes of payment	
	M	F	Migrant		Local		Wage/ month (RMB)	Free meals/day
			M	F	M	F		
2 work shifts (morning + evening)  Migrant labour lives in dormitories	50	50	100	0	30	70	700-800	1-2 meals  Consisting of discarded vegetables not living up to the quality requirements of the consumer outlets

Source: own table based on interviews

The local women were attracted by the work because it made it possible for them to earn an income, and in the same time sustain traditional housewife obligations close to home such as taking care of children and preparing food.

When contracting with various consumer outlets in Shanghai the contracts are negotiated for a whole year and prices are fixed. Typically the period of credit before consumer outlets pay back for the vegetables purchased is between 30-60 days. The Chinese organic farm enterprises therefore seem to follow a similar pattern found among the organic vegetable producers in Denmark during their introduction phase between 1981 to 2000 concerning fixed prices during a production season. However, today sales and prices in the Danish organic vegetable sector are decided weekly based on market demand and supply (Kledal, 2006).

The type of consumer outlets where the organic enterprises sell their products is listed in table 6. Like countries in the North supermarkets are the main driver of organic sales in Shanghai covering 2/3 of the consumption whereas restaurants, specialty shops and direct sales covers the last 1/3.

Table 6: Type of consumer outlets selling organic products and their market share

Type of outlet	Market share (%)
Supermarkets	60-70
Restaurants/Hotels	8-12
Specialty shops	5-10
Direct sales	2-5
Tourist resorts	1-3

Source: Own table based on interview

Among the supermarkets buying organic foreign companies like Wall Mart, Carrefour, Parkson are found in the market together with Chinese supermarkets like Hualian Shiji and Nong Gong Shang. The supermarkets selling organic products are all placed in residential areas of high income, or close to Universities, and the majority of consumers are foreigners from the North (USA, EU and Japan), Hong Kong and Taiwan. Chinese consumers buying organic are among the higher middle class. In (Fang, 2002 [in Chinese]) the proportion of organic consumers among foreigners and high middle class ethnic Chinese was found to be 8:2. That means for every eight foreigners buying organic there would be two high income earning Chinese consumers.

#### **The export driven vegetable chain (Tai'an – Shandong):**

In rural areas property rights have remained complex and locally negotiated. There is no national land registry where property rights are inscribed. Instead, each individual village cooperative holds records of the land-use rights that have been distributed by village action. The form of property rights hold by the village cooperatives would be classified by Sanders (2006) as fully fledged common ownership.

To secure a critical mass of supply to a vegetable processing company like TTAFC they would have to follow a different path in organizing the organic vegetable supply chain. With the dominant smallholder farming in China the organization of the supply chain would involve large coordination and control costs. To minimize these transaction cost barriers contracting is done at the village level.

As illustrated in table 7 the number of villages involved in contract farming with TTAFC is seventeen. The seventeen villages comprise altogether 1.300 households that have converted to organic vegetable production. Not all households in the villages have converted. The contracting area amounts to 534 ha leaving each household with 0.4 ha on average. Eighteen different vegetables are produced during three harvest times producing 9.133 tonnes of vegetables<sup>2</sup>. The villages were altogether paid (in 2006) approximately 13 million RMB leaving each household with 10.000 RMB.

Table 7: Production data of TTAFC 2006

Company contracting	No. of Villages contracting	Households involved	Hectare used	Vegetables produced/tons	Total village earnings (1.000 RMB)	Earnings per household (1.000 RMB)
TTAFC	17	1.300	534	18/ 9.133	13.000	10

Source: TTAFC and interviews with smallholder farmers at the villages

In the Shandong province off-farm employment opportunities are few, and wages as an unskilled labour in a factory amounts to approximately 600 RMB/month or around 7-8.000 RMB/year. The land as an asset for household food supply as well as a home is therefore relatively higher for smallholders in Shandong than in Shanghai. The trade off for the smallholders in the villages to take on the transaction costs of organizing and transfer land from mostly self-sufficiency to an ‘organic pool’ for vegetable production sold at a market, are therefore relatively high.

Since rural population has to pay for school and medical care, contrary to urban people, the income from producing organic vegetables for a market is also welcomed.

The contracting itself is taking place between the village and the company. The village cooperative arranges with its households to convert organic vegetable production supplying TTAFC. In the same contract TTAFC agrees with the village to buy the organic production specified in terms of hectare used, expected output etc. The village cooperative is the main node where control and production responsibility takes place. The company itself has a staff of 7 personal driving out everyday to the various villages consulting and making an overall control. Equally TTAFC has 1 or 2 technical staff stationed in each village to consult and control the production management.

<sup>2</sup> In appendix in table B the 18 vegetables are specified in terms of production and economic value.

In table 8 the specific contract requirements between village collective and TTAFC is illustrated.

Table 8: Contract requirements between village collective and TTAFC (2006)

General agreement	Village responsibilities	Company responsibilities	Sanctions
Type of product produced	Follow the organic rule	Buy what is specified in production contract	If pesticide residues found x vegetable company
Amount of ha utilized	Fulfil quality requirements specified	(amount & quality)	refuses to pay for x production
Amount of output expected	Control ha corresponds with contract	If yields +/- 5 % companies buys the production output	If conventional products found company refuses to buy x vegetable and pay for already bought x vegetable
Price/unit			
Payments two time per year: August & January	Secure time of planting/sowing		
	Secure time of harvest		
If company cannot pay in time company pays amount + interest rate	Village cannot sell to other companies		

Source: Contract between TTAFC and villages 2006

An indirect company control on village responsibilities, revealed through the interviews of TTAFC, was the one the company holds through its time of payments to the village cooperatives/farmers. Payments were deliberately made in August and January. In August school starts and the rural population with children has to pay a school fee. The households therefore need a larger sum of money at this time. In January Chinese New Year festival starts, and the households will require money to fulfil its obligations treating family and friends.

#### 4. Discussion

The cases examined on the organization of the organic vegetable chain show a very close link to the way land-use rights in rural and peri-urban areas are administrated in China's present transition economy of politicized capitalism. In both cases the local political administration has been the main actor on land transfer to obtain larger scale farming and economies of scale. In the Shanghai metropolis the county level was behind a re-allocation and land transfer, and they were the node of contracting between farm enterprises and farmers.

In the Shandong province the village cooperative was the node of contracting between farmers and processing company.

In the Shanghai metropolis smallholder farmers are not included at all in the organic vegetable chain, but their property right to the land entitles them to be included in a political process of negotiating a better re-allocation of their land use right. A re-allocation of their land together with their off-farm employment possibilities in Shanghai metropolis formalizes an already established migration from rural to urban. The re-allocation secures better economies of scale and introduces modern organic industrial farm production creating new jobs and income possibilities. In the Shanghai case these jobs were partly given to local women and elderly men migrating from other provinces.

In the Shandong province around the Tai'an city off-farm employment is poor leaving small holder farmers with no alternative than to stay in the village. The problem of high coordination and control costs for companies seeking larger scale farming in vegetable production is solved by the village cooperative. They organize the many small holders to join 'a pool' of organic land and thereby make it feasible for an organic processing industry to secure supplies and economies of scale. The small holder farmers have in this way connected themselves to an organic world market achieving greater knowledge on quality requirements, but also receiving an income higher than an unskilled factory job would give them. However, off-farm job opportunities are not an option.

Both examples illustrate the flexibility within the Chinese politicised transition economy to overcome the constraints of the present day Chinese farm structure, and how different administrative levels have taken advantage of the growing demand for organic products domestically as well as for export.

However, the property rights regime, and the outcome of economic organizations found in the case studies, could raise serious questions upon the effectiveness and motivations at the farm level to secure a high level of quality control of the organic food products.

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## Appendix

Table A: Chinese provinces concentrated with certified organic production, major produce, arable land and value (US \$) derived from domestic as well as export sales (2005)

	Province	Major crop produced	Certified organic area (1.000 ha)	Domestic sales (Mio. US \$)	Export sales (Mio. US \$)
North East	Inner Mongolia	Sunflower seeds Buckwheat Flax Various beans	404	23,5	2
	Heilongjiang	Soybean Wheat Maize Pumpkin seeds Various beans Rice	126	12,9	3
	Jilin	Soybean Sunflower Melon Pumpkin seeds Beans Peanut	404	29,9	4
	Liaoning	Maize Soybean Peanut Wheat Flax seed Beans	68	66,5	39
	Hebei	Various beans Soybean Clover seed Millet	1	9,7	21

East/ Southern	Jiangsu	Tea Rice Vegetables Wild c. canthus Wild rose	9	62,6	19
	Jiangxi	Green tea Oil tea seed Rice Strawberry Bamboo shoot	57	27,7	5,3
	Fujian	Ginger Oolong Green tea Mushroom	9	5,5	9,5
	Yunnan	Tea	394	12,5	3,6
	Shandong	Vegetables Fruits Rice	7,4	48	21,6
Provinces in table	10		1.481	298,8	128
Total China	31		4.400		350
% of total China			33		37

Source: Kledal et al (2007). The data are from the 10 provinces are based on information from COFCC and ECOCERT covering 33 pct. of all certified area in China and 37 pct. of the total organic export value. Thus there will be some bias in terms of the organic area in each province as well as its economic value

In table B the 18 organic different types of vegetables that TTAFC processes, produced at 534 ha are illustrated as well as the farm gate cost for TTAFC. In 2006 TTAFC bought organic vegetables for 13 million RMB.

Table B: Production description of TTAFC 2006

Number of vegetable produced	Type of vegetable	Hectare used	Price/unit purchased (RMB)	Total amount Purchased (t)	Total Cost (1.000 RMB)
1	Green Asparagus	69.3	7.26	1163	8444
2	Broccoli	130	1.66	2439	4048
3	Green Beans	99	2.26	1535	3470
4	Edamame	94.1	1.66	726	1205
5	Green Vegetable	69.4	0.56	2031	1138
6	Taro	20.1	1.26	761	959
7	Cauliflower	19	1.26	644	811
8	Green Pepper	2	4.83	101	489
9	Carrot	17.8	0.56	410	229
10	Sugar snap Pea	4.3	2.26	79	178
11	Burdok	2.8	1.66	105	174
12	Cucumber	2.5	0.9	172	155
13	Radish	2.5	0.56	106	59
14	小松菜 <sup>3</sup>	0.5	0.56	12	7
15	Peanut	0.7	3	2	6
16	Green Petiole Cabbage	0.4	0.56	8	4
17	紫苏 <sup>4</sup>	0.1	12	0.3	4
18	Potato	0.1	1.22	2	2
Total	18	534.6		9133.3	12.938

Source: TTAFC 2006

<sup>3</sup> In Chinese: “Xiaosongcai”, but the English translation has not been able to be found

<sup>4</sup> In Chinese: “Zisu”, but the English translation has not been able to be found