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# Formation of Organic Rice Production Areas and Specialized Farmers Cooperatives in Northeast China -A Case Study of Wuchang City-

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## Summary

Growing as a production area of japonica rice, Wuchang City in Northeast China has been attracting attention as a major production area of organic rice during the last decade. The formation of this region as a production area seems to be closely linked to the farmers' organizations, which have undertaken the changing role of processing and distribution companies. This role is particularly important to the way the farmers' organizations have developed in rural China. Since the Law of the People's Republic of China on Specialized Farms Cooperatives was introduced in 2007, Specialized Farmers Cooperatives have been rapidly forming, which is regarded as a supplement to the processing and distribution enterprises in the market. The first part of this paper explores the reasons for Wuchang City becoming a production area of high-quality rice. The second part examines Wuchang City's Minle Township, for a closer look at the way the organic production areas formed. The final part of this paper uses FS Organic Specialized Farmers Cooperative as a case study to investigate the role of farmers' organizations in this process. The signification of rural organizations during the formation of production area had been revealed when gradually changed from type 2, exclusive marketing cooperatives led by processing and distribution enterprises, to type 1, cooperatives promoted by administrative and technology organizations. Township officials had played a significant role in helping FS cooperative shift from farmers' cooperative of type 2 to type 1. It should be noticed that FS cooperative is managed by township officials under the conditions of market economy, other than the old bureaucratic system such as village-owned company. In addition, the operating plan of FS cooperative was discussed by village heads based on the administrative structure of the township. Until now the cooperative has covered more than 60% of the paddy fields, and its members' income has been well protected by a contract price. As the competition of rice business in Minle Township is very fierce, and the production base is in flux, it is difficult for a company to control farmers for their interests only by controlling the production materials. Different from the exclusive marketing cooperatives of type 2, farmers' cooperatives of type 1, promoted by local government, should not be regarded as a coincidence. Development of FS cooperative is a useful model to encourage further cooperation among local governments and farmers.

## I Introduction

In recent years, Northeast China including Heilongjiang Province has been undergoing rapid growth as a production area of japonica rice in Asia<sup>(1)</sup>. Planting zones of japonica rice

in Northeast China can be divided into two main regions, one is the early developed Songnen Plain in the west, and the other is the newly developed Sanjiang Plain in the east. The former began with Korean immigrants' large-scale rice farming before

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World War II, and then was adjusted to an average scale of 1 ha per household as family contract system was introduced in the 1980s. Most of the rice produced in this area is purchased by government or roadside merchants<sup>(2)</sup>. The latter, Sanjiang Plain, emerged primarily from the paddy field development projects led by state-owned farms in late 1980s. Part of its farmlands was leased to former employees of state-owned farms at an average scale of 10 ha. Rice produced in this area is often sold to rice milling companies in state farm system or private rice mills<sup>(3)</sup>.

As the target area in this research, the early developed Songnen Plain, with small-scale farmlands, has drawn a lot of attention in recent years by undergoing a transformation to production base of high-quality rice targeting rich people. For this development, it is necessary to maintain a supply system of organic materials for the production of organic rice, in addition, farmers have been organized through Specialized Farmers Cooperatives that promoted by local government for cultivation technology popularization.

Specialized Farmers Cooperatives have been rapidly forming since the Law of the People's Republic of China on Special Farmers Cooperatives was introduced in 2007<sup>(4)</sup>. Based on the case studies we did before on farmers' cooperatives in Jiangsu province and coastal areas of Shandong province, we divide Specialized Farmers Cooperatives into two different types including type 1 which is promoted by

administrative and technology organizations and type 2 - exclusive marketing cooperatives - which is led by processing and distribution enterprises<sup>(5)</sup>. In this paper at first we studies the expansion of private rice industry in Minle Township of Wuchang City, after this, certain farmers' cooperatives that shifted from type 2 to type 1 are introduced to reveal its process of gaining its independence.

#### Notes

- 1) For more information about the formation of rice production area in Northeast China, see Aoyagi[1], Kako[2].
- 2) For more information about more case studies in Jilin Province and the development of rice cultivation and farmer business, see Park[6].
- 3) For more information about the expansion of rice paddy fields of state-owned farms, see Park[11], Kako[2]. For more information about the promotion of rice cultivation technology, see Park[7]. For more information about the rice production and distribution structure of state-owned farms, see Park[10], Park[13].
- 4) For more information about the trend and legislative process of Specialized Farmers Cooperatives, see Kanda, Oshima[3].
- 5) For more information about the characteristics of Specialized Farmers Cooperatives in China, see Yuan[16]. For more information about the two types of Specialized Farmers Cooperatives in China, see Kurokawa[4], Sakashita[15].

## II Overview of Target Area

### 1. Characteristics of rice cultivation in Wuchang City

Wuchang City is located in the southernmost part of Heilongjiang Province, adjacent to Jilin Province and 110 km from the city of Harbin. The total area of Wuchang City is 751,000 ha, including 24 townships, 260 administrative villages, and 1,588 "natural" (spontaneously evolved) villages. The total population of Wuchang City is 980,000, including 750,000 farmers in 169,000 households. There are 258,630 ha of arable lands, 117,182 ha of which, or 45.6% of the total arable area, has been used to grow paddy rice. The rest of the arable land is planted with corn (98,014 ha, 37.9%) and soybean (35,574, 13.8%).

Wuchang City is famous all over China as an area of high-quality rice production. It has a suitable natural environment for growing rice, with 2,600 hours of sunshine per year and an effective accumulated temperature of 2,700 C°. The distribution of paddy rice is divided into two areas, one is the alluvial plain along the Mangniu River, and the other is the plain at the confluence of the Lalin and Mangniu rivers, which is located in the granary area in the southernmost part of Heilongjiang Province's Songnen Plain. As the target area of this research, Minle Township is an autonomous, Korean ethnic township with a population of 2 million. Led by ethnic Koreans, development of paddy fields has made it well-known as a production area of high-quality japonica rice since

ancient times. There has been a significant population movement in this region ever since the late 1980s, as ethnic Koreans migrated to South Korea or China's coastal regions for work<sup>(6)</sup>. As a result, agricultural land now has more liquidity than ever. Although the average land leasehold rate is 3.5% in Wuchang City, this rate is 41.1% in Minle Township, which shows that the township to have advanced, integrated farmlands<sup>(7)</sup>.

### 2. Overview of Minle Township

Minle Township was founded by a group of immigrants from the Korean peninsula in 1939; currently, about 51% of its population is Korean<sup>(8)</sup>.

The emergence of paddy fields began with the process of group immigration, and progressed gradually after World War II. In 2006, Mopan Mountain Dam was built to control the head waters of the Lalin River, thus the irrigation infrastructure was enhanced. The arable land comprises 3,248 ha of the total 5,530 ha area, and all of this is used to grow paddy rice (Table 1). Beginning in 2000, infrastructure was developed separately for the north and south of the

Table1 Trends in Paddy Field (Minle Township)

Year	Unit: ha		
	Farmland area	Paddy field	Upland field
1971	1,987	1,640	347
1981	2,074	1,884	190
1982-89	2,090	1,890	200
1990-03	2,051	1,856	195
2004	3,201	3,150	51
2005	3,201	3,145	56
2006	3,248	3,248	0
2007	3,248	3,248	0
2008	3,248	3,248	0

Source: Data from cooperatives materials.

township. The renovation of main trunk, branch lines and farm roads has already been completed, whereas field maintenance has not.

The township has six villages composed of 24 villager groups. According to 2008 data, the population of Minle Township was 13,053 in 4,164 households, including 3,454 migrant workers, who accounted for 26.5% of the population. South Korea is the destination for 70% of the migrant workers from this township; others go to work in big cities in the coastal areas of China, as well as Harbin. For this reason, 1,336 ha, or as much as 41.1%, of the land is leased, two-thirds of it by migrant workers, with small households and the elderly accounting for much of the rest. The average area managed by these 1,249 households is 2.6 ha each, far above the Wuchang City average of 82 a. In 2004, the rising market price of rice due to the abolition of the agricultural tax, as well as the implementation of various agricultural subsidies, together with a boom in migrant workers, all led to the expansion of the managed area. During this process, the leasehold fee per 10 ares jumped from 180 yuan in 2003 to 700 yuan in 2009.

#### Notes

- 6) For more information about the moving historical situation of ethnic Koreans from the Qing Dynasty, see Quan[14].
- 7) For more information, see Park[9].
- 8) Date from People's Government of Minle Korean Ethnic Township

### III Origin and Distribution of Green and Organic Rice

#### 1. Process of becoming a grade-A green food base and the changes in distribution

The production of rice in Wuchang City skyrocketed in line with the development of technology, such as the conversion from direct seeding to transplanting and development of a domestic breed derived from a northern Japanese breed, as well as the introduction of chemical fertilizers and pesticides<sup>(9)</sup>. This was also accompanied by the shift to a family contract system in the 1980s, which led to expansion of production, when drought seedling technology was introduced. However, distribution was not able to reform sufficiently to catch up with increased production. Although at the time, the tendency toward predominantly centralized food storage had been changed, private companies (rice companies) tended to focus on large quantities and low prices over quality. Furthermore, there was no local base for the rice industry; roadside stands were often used as distribution points. Accordingly, the village rice mills were small and only earned money through rice processing. Only milled rice was sold to roadside merchants<sup>(10)</sup>. Rice branding began to progress in the mid-1990s, when the Songjing System was introduced by the Wuchang Rice Research Institute for the development of better rice varieties, and when Wuyoudao No.1 (basmati rice) was developed by breeder Tianyongtai<sup>(11)</sup>.

After 1998, this structure changed

dramatically. First, beginning in the late 1990s, several rice companies were set up, with support from government. Meanwhile, the scale of these companies was getting larger as the second stage of the farm contract system was implemented, amidst growth in the population of migrant workers bound for South Korea. All of these led to an excess of rice production. More attention was paid not only to the quantity but to the quality of rice being produced; taste had come to be especially important in addition to exterior appearance. In 2000, Wuyoudao No.4 (Daohuaxiang No.2) was developed.

During this period, the Wuchang municipal government had played an important role to promote the making of green rice production base within Wuchang City area. In 1994, the municipal government managed to get a permit from the China Green Food Development Center to develop its own production base, and in 1998, a promotion center was set up with the aim of increasing the green food base of grade-A. In 1999, 27,000 ha of rice cultivated in Wuchang City were certified as "green foods" (Table 2). The green food office in Wuchang City

developed the Green Rice Cultivation Technology Operation Rule to maintain quality, and moreover, required that records of each producer's rice production be kept. Amidst these circumstances, more and more companies began to take notice of green food production, and this led to a sharp rise in rice production.

Until this time, although rice production had been on the rise, prices were being controlled by external merchants rather than the farmers, who had to accept a purchase price of 1.5 yuan per kg, even though the merchants could get much higher prices for certified green foods. To increase productivity for a better profit, many rice companies tried to impound farmers' lands, in a move that can be considered the beginning of the production base formation. Rice companies signed contracts with farmers in the spring without making any advance payments. Under these contracts a guaranteed minimum price was set, but this would sometimes change in line with market price fluctuations. In addition, the contracts were for no longer than one year, because the relationship between the farmers and companies was in flux; moreover,

Table2 Branding of Wuchang Rice

Period	Year	Changes in Agricultural Structure	Branding Process
Formation of Green Rice Production Base	1993	Promotion of Green Rice Base	China Green Rice Base by China Green Food Development Center Tokyo World Rice Expo second prize China Food Expo "Star of International Food"
	1994	Development of Wuyoudao No.1	
	1995	Establishment of Private Rice Companies	
	1996		
	1997		
Transition to Grade-A Green Food Base	1998	Extension of 30-year Rights in Agricultural Land Tenure;	National Green Food Mark, "Heilongjiang Brand" One of Five Large-scale Rice Production Area in China Original Certification Trademark of "Wuchang Rice" Certification of A.N.N.A Brand Rice of China's 16th National Congress of the Communist
	1999	Integration of Farmland due to Labor Migration of Ethnic Koreans	
	2000	Mushrooming of Private Rice Companies	
	2001	Development of Daohuaxiang No.2	
	2002		
Switch to Organic Farming	2003		"China Brand" from Chinese General Administration of Quality Supervision, Inspection and Quarantine One million Mu of Green Food Base from Ministry of Agriculture of the People's Republic of China Organic Rice Model of Heilongjiang Province
	2004	Promotion of Organic Farming	
	2005		
	2006		
	2007	Establishment of FS Organic Specialized Farmers' Cooperative	
	2008	Expanding Business of Organic Rice in Private Rice Companies	
	2009		
2010			

Source: Data from Government of Wuchang City

companies' capacity to process milled rice was also unstable.

## 2. The switch to organic farming

The switch to organic farming was based on grade-A green food, and was supported by the local government. The Wuchang Promotion Center, as well as the provincial government, played an important role in this. With their support, the Harbin HF Organic Fertilizer Company arrived in Wuchang City. This company had already tested organic rice cultivation at 86 locations in the three provinces of northeast China from 2002 to 2005. As a result, in 2006, it had established techniques for organic rice cultivation under the guidance of 20 technicians. The Heilongjiang government decided to make Wuchang City a model for organic rice cultivation, with a focus on Minle Township, and Mr. Wang, a technician with HF Organic Fertilizer Company, was commissioned to facilitate its organic rice cultivation beginning in 2006. This motivated the May 2007 establishment of FS Organic Specialized Farmers Cooperative (hereinafter referred to as "FS Cooperative"), with Mr. Wang as its technical advisor.

This period saw the establishment of various companies and cooperatives specializing in organic rice. With the improvement of organic technology, strong organizational development was one of the characteristics of these years.

Two agencies (China Organic Food Certification Center (COFCC), which is part of the Chinese Ministry of Agriculture, and the

Nanjing Guohuan Organic Food Development and Certification Center of China (OFDC)) became authorized to grant organic certification. Certification needed to be renewed annually, and was backed by unannounced inspections and questioning of randomly chosen farm workers, as well as verification of the farming records, the technical support, and the farming area. Both companies and cooperatives applied. The Wuchang Promotion Center was only in charge of issuing certificates for applications filed after the end of the switch to organic farming.

## 3. The development and characteristics of the rice business

Throughout the periods mentioned above, the rice business had gone through the normal stages of development in Wuchang City, especially in Minle Township. Table 3 lists the 14 companies milled rice producers in the township; three were established in 1994, six companies were added between 1998 and 2000, and another five have come into being since 2004, which shows a trend toward progressive growth.

The first company established in Minle Township was Longsheng Rice Company, a Japanese sole proprietorship equipped with rice milling equipment made in Japan. In 1999 this company received ISO 9002 certification, and was licensed for pollution-free rice production by Harbin City in 2001. Jingchun Rice Company was also established in the year 1994, with a head office in Wuchang City. It had its own seed production base and

Table3 Milled Rice Companies in Minle Township (2010)

Unit: ton, people, million Yuan

Company Name	Year of Establishment	Production of 2009	Employees	Capital	Brand Name	Remarks
Longsheng	1994	10,000	21	4.56	Minlexiang	Japanese-owned, production base village 10
Jingchun	1994	1,200	36	1.50	With no brand name	seed base, Jingchun Growers Association (2006)
Mopanshan*	1994	1,000				local farmers enterprise, Beidahuang Group
Wangxing*	1998	650				
Huami	1999	5,000	45	5.00	With no brand name	local farmers enterprise
Danbei	2000	6,000	85	6.00	Danbeixiang Rice	Heilongjiang Electric Power Company
Taida	2000	350	35	7.00	Taidaxiang Rice	production base village 3
Longyang	2000	900	32	2.40	Guo Rice	emerged from Minle Rice Research Institute and Longyang Rice Company
Songqing	2000	100	19		Songqingxiang	Heilongjiang Academy of Agricultural Sciences, Wuchang Rice Research Institute
Mile*	2004	100				
Jindalai	2005	350	13		With no brand name	local farmers enterprise
Zhongliang Meiyu	2006	3,000			Meiyu	Meiyu Organic Farmers' Specialized Cooperative (2008)
Fengsu*	2007	8,060	16	0.11	Jundan	village 11, polished rice consigned
Yibaishang*	2009	100				

Notes: 1) Corrected by interview with the People's Government of Minle Korean Township. Data marked with an asterisk is from the interview survey in 2010.

2) Production data is from 2009, employee and capital data is from 2006.

sold grade-green rice, mainly Daohuaxiang No.2. Mopanshan Rice Company, which was as big as Jingchun Rice Company, was established by local farmers in the same year. Huami Rice Company (local farmers' company) and Danbei Rice Company (which belongs to Heilongjiang Electric Power Company) were established around the year 2000. These two companies made huge progress in promoting better rice varieties and agricultural industrialization.

One of the characteristics of the rice business beginning in 2004 is the emergence of companies specializing organic rice, namely, Zhongliang Meiyu Organic Cereal Products Company (hereinafter referred to as "Zhongliang Rice Company") (2006) and FS Organic Specialized Farmers Cooperative (2007). The former is a subsidiary headquartered in Beijing, and the latter is a Farmers Specialized Cooperative. During this period, rice companies, such as Jingchun Rice Company and Zhongliang Rice Company, have been trying to impound farmers' land and hire them to work for company's own profits by setting up exclusive marketing cooperatives (Meiyu Organic Specialized

Farmers Cooperative (2008))<sup>(12)</sup>.

As is easy to imagine, competition in Minle Township is very fierce. The production areas and the market have expanded further since 2002, in line with the popularization of a superior variety of rice, Wuyoudao No.4 (Daohuaxiang No.2). In this process, it is worth noting that FS Organic Specialized Farmers Cooperative managed to operate its business independently and maintain its sales; as of 2009, more than 60% of the paddy fields in Minle Township belonged to FS cooperative. The following section takes up FS cooperative as a case study into the trends of farmers' organizations and the role of Specialized Farmers Cooperatives.

Notes

9) For more information, see Park[9].

10) Date from the township government the year 2010 and hearing from the village heads of three villages. For more information, see Park[12].

11) This so-called "Xiang Rice" is popular in China. Rice of Thailand is also imported and sold at a high price. "Xiang Rice" is organically cultivated through variety



improvement, which led to the formation of luxury brand rice production area.

12) For more information about exclusive marketing cooperatives, see Sakashita[15]. For more information about cooperatives set up by Zhongliang Meiyu Organic Cereal Products Company, see Park[12].

#### IV Establishment and business development of specialized farmers' cooperatives

##### 1. Establishment of the cooperative

FS cooperative was established in 2006 by 35 households in Minle Township, and registered in 2007 according to the Law of the People's Republic of China on Specialized Farmers Cooperatives. As of 2009, it had 450 households as its members, accounting for 36% of all farming households and for 2,000 ha, or 61.6% of the paddy fields, which averages out to 4.4 ha per household<sup>(13)</sup>.

As mentioned above, Minle Township is a major rice production area. Since 1997, the local government had made an effort to popularize pollution-free rice and green rice. But at that time, business with milled rice companies or merchants was only being done on an individual basis. It was decidedly a buyer's market, and this put farmers at a disadvantage.

To expand sales, Harbin's HF Organic Fertilizer Company had been looking for farmers to tests organic cultivation in Minle Township in 2006 and asked for the cooperation of the township government.

Finally, the local government contracted with HF company, with the following conditions: a) although the usual unit price for ordinary rough rice was 2-2.1 yuan/kg at the time, the price of organic rough rice would be set based on prices in developed regions, at 2.8 yuan/kg; b) HF company would buy all of the organic rice that was produced; c) payments would be made in cash; and d) the company would bear the costs of shifting to organic fertilizer, at 600 yuan/ha. After accepting all these conditions, the local government allowed HF company to use an 80 ha test field. Thirty-five households agreed to cooperate, and established an organization called the HF Organic Farm. After the harvest, product samples were sent to the inspection agency in Beijing for organic certification, and all of the 41 test items passed.

HF company shipped all of the organic rice produced in 2006 but due to low sales capacity, it was not able to properly handle the entire product. Only 80% of the contract payment was fulfilled, and the balance was only finally paid to the farmers after the local government intervened. According to the data from township government, the income per HF Organic Farm household was 1000-1200 yuan higher than that of households cultivating rice according to custom.

In 2007, 104 households with a production area of 433 ha took on organic rice cultivation. To improve sales capacity, HW Investment Management Company was contacted. Meanwhile, HF Organic Farm

changed its name to FS Organic Specialized Farmers Cooperative, registered with the Industrial and Commercial Bureau of Wuchang City, and became a corporate entity with a capital of about 1.1 million yuan, invested by HW company. It was the first Organic Specialized Farmers Cooperative in Heilongjiang Province. By the time of registration, there were 104 member households, which rose to 308 in 2008 and increased the production area to 1,000 ha, and 450 member households in 2009 with a production area of 2,000 ha (Table 4). After the two-year transition to organic cultivation, FS cooperative gained organic food certification from OFCC and OFDC in 2008.

The organic rice that FS cooperative had produced was consigned to a materials company. Meanwhile, it maintained a strong relationship with the local government, and gradually transitions from a company into a farmers' organization.

## 2. Business development

### 1) Characteristics of the organization

FS cooperative has an unusual board of directors, with one president and one director.

**Table4 Rice planted area and number of members of FS cooperative**

Year	Unit: ha	
	Rice planted area	Number of household
2006	80	35
2007	365	110
2008	567	314
2009	1,000	456
2010	2,000	804

Source: Data from cooperatives materials.

The former is the initial investor (in the amount of 1.1 million yuan), represented by the president of HW company, and the latter is the president of the HF company. These are honorary posts. Five directors and two auditors are chosen through a large-scale vote among the farmers. The chief auditor is the official in charge when there is a request for organic cultivation, and voluntarily acts in a supervisory capacity. The company is organized into the following five departments: the Market Sales Department (two people), the Finance Department (two people), the Business Department (warehouse and daily management, five people), the Quality Laboratory (two people), and the Administrative Office (five people).

As such, the cooperative has become the main organization driving farming techniques in the village. Eleven Minle village heads (generally the same people who lead the village subassemblies) are positioned at the center, and the farmers' cooperative fulfills an important role as contact channel among its members.

### 2) Technical guidance and material supply section

The primary work of this division is harmonizing production techniques and cultivation methods. New information and techniques are regularly obtained from provincial and municipal centers that aim to popularize the use of techniques, experimental stations, universities, and research institutions via the Township Livestock & Farming Integrated Research and Development Centre, and then introduced

to all the cooperative's members. The most difficult aspect of organic cultivation is the use of organic fertilizers, which has been a recent focus of this technical information. The cooperative members' planting skills have equalized at a high-level due to all these efforts. The average yield of organic rice in Wuchang city is 650-700 kg per 10 ares, and the yield among cooperative members' averages at 825 kg, with the highest yield coming to 900 kg.

The supply of production materials, particularly seeds and organic fertilizers, has become the cornerstone of high-quality rice brands. Daohuaxiang No.2 seed has decisively contributed to branding, as mentioned above, and Jundan is the brand name of the cooperative's organic rice. HF company has supplied the organic fertilizer from the beginning. The cooperative settles payment with its members in March of every year, some of whom pay with their own funds, and some of whom borrow money from credit unions. The repayment due date for those in the latter group is in November, and the cooperatives shoulder this so that the members can pay the principal back to the cooperative after they receive money from rice sales, constituting a type of interest rebate.

### 3) Logistics and polished-rice sales section

HF Organic Farm became independent as a cooperative named FS Organic Farmers' Specialized Cooperative in 2007, before that it was only an exclusive marketing cooperative belonging to HF company. Shanghai's HW company of Shanghai invested and obtained

the marketing rights.

In 2007, in addition to the initial sales by HW company (supplying special rice for central government officials and Shanghai retail), the S Grain and Oil Company of Shenzhen, the J Group of Beijing, and rice traders in big cities all over the country began selling the unhulled rice. Similarly, in 2008, two other companies sold it, and individual traders gradually began to sell it as well. In 2009, in order to bring about a high added value, unhulled rice sales were stopped and all sales were in polished rice. The cooperative stopped trading with HW company, but added S company and M company of Shenzhen, finally gaining sales outlets in 130 stores in Beijing, Tianjin, and other big cities.

Distribution and logistics work are as follows: firstly, the paddies dry naturally and are threshed in the paddocks during the month after harvest. After that, four office workers (two inspectors, one manager, and one accountant) inspect the rice's quality, measure and record its weight, and write up a custody receipt. Further, the grain is transported to the cooperative's warehouse using the cooperative's trucks. For polished rice sales, the rice is outsourced to the neighboring Anjia Town. Organic rice is registered under the Jundan trademark, and the names of the place of origin and the cooperative are printed on the packaging. Depending on what the buyers ask for, some members' names are also indicated on the packaging, at times. The rice is transported to the Shanghai market by train, or it is

transported to the Shenyang market by truck and onward by freight wagon. Settlement happens during the 10-15 days it takes to complete shipment. The sales are firstly credited to the cooperative's bank account (Agricultural Bank of Wuchang city), and then the cooperative pays into the members' accounts in the order of shipment.

The price at which the cooperative buys from its members is protected, and is determined by the contract signed in March of each year. The reference price is a 20% increase over the price of conventionally cultivated rice, with a lowest possible price of 2.8 yuan/kg guaranteed. This ensures that the number of members—in other words, the shipment—increases every year. The actual shipping price after harvest is determined by the price committee, which is made up of five or six cooperative workers, the 11 village group heads, and several member representatives. During this process, market price from the previous year, the price of organic fertilizer, changes in leasehold fees, and employment wages are all used as references.

The cooperative's purchase bid prices for unhulled rice in 2007 and 2008 were 2.84

yuan/kg (versus 1.96 yuan/kg for conventionally cultivated rice) and 3 yuan/kg (versus 2.14 yuan/kg for conventionally cultivated rice) respectively. Its sales prices were suggested by Shanghai's HW Company, the main sales office for rice from the cooperative, and ultimately set by the price committee at 4.7 yuan/kg in both 2007 and 2008. This price ended up being a mere 50% of the price that could be had through other routes, potentially resulting in the end of dealings with HW Company in 2009.

### 3. Sales achievements and the cooperative's management

#### 1) Sales achievements

Sales achievements within three years are shown in Table 5. The price at which the cooperative purchases the unhulled rice from its members was 2.84 yuan/kg in 2007, the quantity came to 2,888 metric tons, and the overall purchase price came to 8.2 million yuan. The overall sales price was 13.57 million yuan, representing a marginal gain of 5.37 million yuan.

In 2008, the cooperative purchased 6,670 metric tons of unhulled rice from cooperative members at a price of nearly 3 yuan, for a

Table 5 Sales achievement of FS cooperative

110,000n, million Yuan, Yuan/kg

	Quantity purchased	Purchase price (A)	Purchase unit price	Current unit price	Quantity sold		Sales price (B)			Profit (B-A)
	Unhulled rice	Unhulled rice	Unhulled rice	Unhulled rice	Unhulled rice	Rice	Unhulled rice	Rice	Total	
2007	2,888	820	2.84	2.0	2,888	0	1,357	0	1,357	537
2008	6,670	2,001	3.0	2.6	4,669	1,241	3,285	1,688	4,973	2,972
2009	13,000	5,720	4.4	3.6	0	8,060	0	13,702	13,702	7,982

Source: Data from interviews with the cooperative.

Note: Milling rate is calculated as 62%.

total cost of 20.01 million yuan. Of the amount sold, 70%, or 4,669 metric tons, was unhulled rice. HW Company (40% of all rice sold, or 2,668 metric tons) paid 4.7 yuan/kg, and Shenzhen's S Company and Beijing's J Group (30% of all rice sold, or 2,031 metric tons) paid 10 yuan/kg, for a combined sales price of 32.85 million yuan. The remaining 30% of rice was sold polished (2001 metric tons before polishing, reduced 38% by polishing and yielding 1,241 metric tons of polished rice) to Shenzhen's S Company and individual traders in Beijing and Tianjin at a sales price equal to 13.6 yuan per kg of unhulled rice (24-40 yuan/kg retail), for a total of 16.88 million yuan, for total rice sales of 49.73 million yuan and a marginal gain of 29.72 million yuan.

In 2009, sales were composed entirely of polished rice. The quantity was 13,000 metric tons, double that of the previous year. The price of purchase from cooperative members increased to 4.4 yuan/kg (versus 3.7 yuan/kg for conventionally cultivated rice) for a total cost of 57.2 million yuan. Also, the cooperative sold the rice for 17 yuan/kg at a total value of 79.82 million yuan (including 5 million in inventory). Although it was only in small quantities, the sales price reached 24 yuan/kg (55.2 yuan/kg retail) for the Jihua Resort & Convention Centre, Beijing High-level Spa Villa. The overall marginal gain was 79.82 million yuan.

The fact that purchase price from its members increased from 2.84 yuan/kg to 4.4 yuan/kg has caused a widespread rise in rice prices of production areas and affected

company's marketing capability. In this process the cooperative finally got its independent distribution rights after negotiating with HW Company.

## **2) Allocation of surplus and cooperative management**

The cooperative members are separated into investors and subscribers. The former consists of the president and the director, who each receives 500 thousand yuan annually in remuneration and do not participate in profit-sharing. Rather than basing profit sharing on subscription monies from the farmers, as a general rule, 20% of the cooperative's revenue is allocated to the subscribers according to management area and shipment quantity. However, there was no dividend in 2007 due to early development needs. In 2008 the cooperative sales revenue came to 29.72 million yuan, and, deducting 3.4 million yuan in costs, net income was 23.52 million yuan. As a result, the amount subject to profit-sharing was 2.8 million yuan (11.9% of revenue) —420 yuan for every metric ton of rice shipped, or a 9,114 yuan average allocation for each member. The rest of the profits were accumulated as retained earnings, which is expected to be used as investment funds. An organic fertilizer plant and rice polishing plant are currently under construction, both with investment from the cooperative.

In fact, investors' dividend is considered as cooperative' debt repayment, their positions in cooperative are in name only. They made investment at the beginning and received a high dividend in return after a certain

percentage of the revenue was kept for cooperative's further development. Because there is no consignment sale in this chain, profits only come from the difference between purchase price and selling price.

In addition, some of the members have been doing business through tenancy in nearby towns. The cooperative also plans to expand in scale, as the water resources and land conditions both contribute to the establishment of branches in the area. It is estimated that the quantity of rice the cooperative will buy will increase from its current 13 thousand metric tons to 50 thousand metric tons in the near future. What's more, not only domestic strategies, but strategies with a view to export have also been developed.

Note

13) For more information about the following description, see Park[9].

## V Conclusion

In this paper we studied the formation of organic rice production center of Wuchang City in Heilongjiang province which is well-known as China's major production area of japonica rice. Afterwards, we discussed the characteristics and roles of farmers' specialized cooperatives during this process. Success of this formation attributed to the introduction of basmati rice and promotion of cultivation techniques from green rice to organic rice, most of which was led by

Wuchang government. On the other hand, rice private enterprises have taken responsibility on expanding rice sales channels since the privatization of rice business began in the 1990s. With high-quality seed and organic materials controlled by rice private companies, farmers were enclosed to work for those companies on rice production bases. However, as contract price was set for sales and technical guidance on organic farming was provided, farmers' organizations have developed on various levels. Exclusive marketing cooperatives of type 2, such as the exclusive marketing cooperatives in Jingchun Rice Company and Zhongliang Rice Company, have maintained a strong relationship with rice private enterprises.

This study put focus on FS cooperative. As an exclusive marketing cooperative set up by an organic fertilizer company at first, with the help from township government, FS cooperative gradually got independent from HF Company which was short of sales capability. Both the technical department of township government and HW Company had played a significant role in helping FS cooperative shift from farmers' cooperative of type 2 to type 1, to set up its own management structure. It should be noticed that FS cooperative is managed by township officials under the conditions of market economy, other than the old bureaucratic system such as village-owned company. The operating plan of FS cooperative was discussed by village heads. From this perspective, FS cooperative is formed based

on administrative structure of the township. Until now the cooperative has covered more than 60% of the paddy fields, and its members' income has been well protected with a contract price.

As the competition of rice business in Minle Township is very fierce and the production base is in flux, it is difficult for a company to control farmers for their own interests only by controlling the production materials<sup>(14)</sup>. Different from the exclusive marketing cooperatives of type 2, farmers' cooperatives of type 1, promoted by local government, should not be regarded as a coincidence. Development of FS Cooperative is a good model to promote further cooperation between local governments and farmers.

#### Note

14) It has been proved in flux from a case study of the rice business of 4 villages. For more information, see Park[12].

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