

## CHAPTER III

### RICE PRODUCTION IN THE RED RIVER DELTA

#### 3.1. Rice Production Environment

The Red River Delta was characterized by irrigated agriculture region with Spring and Autumn rice crop as the two main crops in the systems. The irrigation systems in the Delta have 4 major subsystems are well constructed like: dike systems, canal systems, water control gate systems and water pumps station systems, which contributed important and advantage conditions for rice production in the region.

##### 3.1.1. Arable and Paddy Land

Soil natural quality is an important factor influences to rice production. Alluvial soil group in Red River Delta covers 599600 ha, while in Mekong Delta this indicator is 960600 ha which is nearly two times greater this soil group in the Red River Delta. Saline and acid-sulphate soil are 13.7 percent (169200 ha) in Red River Delta. These soil groups are 69.4 percent (2589400 ha) in the Mekong Delta and 10,7 percent (3131200 ha) in the total Vietnamese soils (Table 3.1). These indicators said that, in soil natural quality aspect, Red River Delta as well as Mekong Delta have some advantage and disadvantage conditions for agricultural and rice production.

**Table 3.1. Area of Main Soil Groups ('000 ha)**

Items	Viet Nam		Mekong Delta		Red River Delta	
	Amount	%	Amount	%	Amount	%
Total area	29303.1	100.00	3731.3	100.00	1234.7	100.00
Alluvial soil	2936.0	10.02	960.6	25.75	599.6	48.56
Saline soil	991.0	3.38	703.5	18.85	90.0	7.29
Acid-sulphate soil	2140.2	7.31	1885.9	50.54	79.2	6.42
Other soil	23235.9	79.29	181.3	4.86	465.9	37.73

Source: UNDP, 1990.

**Table 3.2. Red River Delta Arable and Paddy Land ('000 ha)**

Items	Area	%
Total arable land area	801.02	100.00
1, Annual crop land	710.28	88.67
- Paddy land	589.89	73.64
- Land for other cereals and annual industrial crops	67.82	8.47
- Vegetable production land	3.81	0.48
- Other crop land	48.76	6.09
2, Land for perennial crops	20.64	2.57
3, Grazing land	19.86	2.48
4, Water surface using for aquaculture	50.24	6.27

Source: General Office of Land Management, 1990.

Total arable land area in the Red River Delta is 801 thousand hectare, where 73 percent of this area is devoted for rice production and the rest of area is under other cereals and vegetable crops, perennial crops, aquaculture and grazing land (Table 3.2). With high pressure of population, the average population density in Red River Delta was 1104 persons per km<sup>2</sup> in 1993 (GSO, 1994). In the study areas, arable land available per capita is rather low. This indicator is 663 m<sup>2</sup> overall area, and raised from 490 m<sup>2</sup> in Co Bi to 759 m<sup>2</sup> in Hai Phong subdistrict. The average of arable land per labour force are 1051 m<sup>2</sup> in Nghia Hiep and 1434 m<sup>2</sup> in Hai Phong (Table 3.3). The small rate of arable land per capita makes serious constrains to develop agriculture as well as rice production in the region.

**Table 3.3. Arable and Paddy Land in the Study Area**

Items	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
Total area (ha)	776.0	552.0	534.5	489.8	324.0	2676.3
Arable land (ha)	568.0	320.0	415.7	278.0	247.0	1846.7
Paddy land (ha)	420.0	316.0	387.4	206.0	230.0	1559.4
Arable land per capita (m <sup>2</sup> )	759.3	627.2	571.3	490.1	682.9	663.8
Arable land per labor (m <sup>2</sup> )	1434.9	1163.6	1101.2	1137.7	1051.1	1198.5

Source: Subdistrict Statistical Units.

### 3.1.2. Cropping Systems

The cropping patterns in the study site is dominated by double-rice cropping system, i.e. Spring rice and Autumn rice. Cultivated duration for Spring rice crop was from February to May, while for Autumn rice from June/July to October. In both rice crops, most of the

farmers adopted Modern High Yield Rice Varieties (MHYV). Following the expended demand of high quality rice in the reformed economy of the country, more farmers produce Traditional High Quality Rice Varieties (THQV) in Autumn crop with the hope to receive higher income, but in the recent years the ratio of number of farmers involved land area under THQV cultivation is still not large as compare to MHYV . In Spring rice crop, in last few years, beside Recent Cultivation Technique (RCT) in rice production, Farmers try to apply a new cultivation technique - Modified Modern Cultivation Technique (MMCT). All of the innovation in rice production is made with the hope to get more benefit from rice industry.

In sum, the major cropping patterns in the study area were as follow:

- 1/ Spring rice - Autumn rice
- 2/ Spring rice - Autumn rice - Potato
- 3/ Spring rice - Autumn rice - Vegetables
- 4/ Soybean, Mungbean - Autumn rice - Vegetables
- 5/ Vegetables - Autumn rice - Winter corn

Beside this, lychee, longan, apple, lemon, banana, etc are also produced by some farmers in their own home gardens in the area.

### **3.2. Rice Production Operation**

Land preparation is the common practices followed by all the farmers in study area before plantation of both rice crops. Tillaging and harrowing are operated by tractor as well as bullock or both, but the level of application of each kind of power differs among sample

subdistricts. Percentage of farmers adopted tractor is highest in Hai Phong and lowest in An Hoa with 93.3 and 53.3 percent, respectively. (Table 3.4).

Transplanting is dominated method for crops established in all areas, only 6.7 percent of sampled farms in Minh Khai used direct seeding for crop establishment. In the rice fields, which applied MMCT in production, the rice hills is made by shallow transplanting with younger seedling. Such method facilitated seedling to recover early and easier to tiller.

Nutrient management in paddy fields is generally related to soil characteristics. In the Red River Delta, the alluvial soils, saline soils and acid-sulphate soils are included as the main soil groups. Soil types in the study areas are most the same above types. These soils types have also an impact on nutrient management for rice fields. Most of the farmers applied manure, lime and phosphate at the time of last harrowing just before transplantation. Nitrogen fertilizer are divided into 3 doses, and broadcasted at 10-15, 25-30 and 45-50 days after transplantation at the same time of weeding. In Minh Khai, An Hoa and Co Bi it found that some farmers applied small dose of nitrogen right before transplanting. These farmers argued that this action helped seedling to recover quickly and also enhance the growth rate after transplanting. Potassium fertilizer is used as the same time of last dose of nitrogen.

In all study sites, weeds are controlled by physical methods, such as, cultural, manual, and ecological means. Herbicides application is not observed in sample farmers. One of the major problems limited the high yield of rice is insect infestation. Brown plant hopper is considered the most harmful pest for rice in the region, that caused remarkable damages and reduced rice yield. Using modern rice varieties which is resistant to brown plant hopper and/or some other insect and diseases, and spray chemicals are popular methods for insect

management in Red River Delta as well as Viet Nam rice production in recent years.

Irrigation is reported the higher relative advantage for rice production in Red River Delta as compared to the rest of other regions in the country. This situation is due to the good irrigation systems in the area. Most of sampled farm fields are received water enough directly from public and cooperative irrigation systems. Irrigation fees is collected evenly from each cultivated land area units in each location on the basis of water utilization.

**Table 3.4. Farmers' Practices in Land Preparation and Seedling Establishment**

Activities	Percentage of Farmers' Responding (%)				
	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep
Land preparation					
By tractor	93.3	33.3	53.4	66.7	25.8
By bullock	6.7	66.7	46.6	33.3	74.2
Seedling establishment					
Transplanting	100.0	93.3	100.0	100.0	100.0
Direct seeding	0.0	6.7	0.0	0.0	0.0

Source: Survey.

The harvest time usually for Spring rice is about 105-115 days and for Autumn rice is about 100-110 days after transplanting. But for THQV in Autumn rice crop this time is 135-140 days. Harvesting of rice is done by hand, after that farmers transplanted threshing machines to fields for threshing or shifting sheaves of grain home for threshing. Most of the farmers in Hai Phong, Minh Khai and An Hoa adopted threshing machines, while in Co Bi and Nghia Hiep, farmers threshed by rotation threshers. Grain is properly dried under sunlight before selling and/or store in all surveyed subdistricts.

### 3.3. Incidence of New Cultivation Technique

As mentioned above, since last few years, in Red River Delta Agriculture Extension Office with support by Japan have established a Rice Cultivation New Technology Research Station in My Van district of Hai Hung province. The main purpose of this research station is to conduct research and transfer a new rice cultivation technique from Japan named as Modern Rice Cultivation Technique (MCT) to rice farmer fields in Red River Delta.

The MCT requires higher equipments and sophisticated technologies in each steps and components of rice production process which is quite difficult for farmers to practice in recent conditions. From that, a Modified Modern Rice Cultivation Technique (MMCT) is innovated from MCT which is easier for farmers to adopt. At present, this MMCT is mainly applied for Spring rice crop. The briefly description of these rice cultivation techniques is presented in Table 3.5 below.

**Table 3.5. Briefly Description of Cultivation Techniques in Spring Rice Crop**

Indicators	RCT	MCT	MMCT
1. Land Preparation			
Tillaging	-By bullock or tractor	-By small tractor	-By bullock or tractor
Harrowing	-Sunshine dried land -Irrigate water -Harrowing	-Sunshine dried land -Soil piece is broken -Irrigate water -Harrowing	-Sunshine dried land -Irrigate water -Harrowing
2. Seedling making			
Seed bed preparation	-Normal -With mud environment	-Hard floor -Broken dried soil environment	-Hard floor -Broken dried soil environment

Table 3.5(continued)

Fertilizer regime / m <sup>2</sup> seed bed			
Manure	1 kg	1 kg	1 kg
Urea	6 g	6 g	6 g
Potassium clorua	8 g	8 g	8 g
Superphosphate	20 g	60 g	60 g
Seed	-Long sprouted	-Just germinated	-Just germinated
Irrigation for seed bed	Normal	-Shower irrigation	-Shower irrigation
Seed density	100 g/m <sup>2</sup>	800 g/m <sup>2</sup>	800 g/m <sup>2</sup>
Seedling age	-Older seedling 5.5-6 leaves or 30-35 days	-Younger seedling 3-3.5 leaves or 15-18 days	-Younger seedling 3-3.5 leaves or 15-18 days
3. Crop establishment			
Depth of irrigation	5-10 cm	1-2 cm	1-2 cm
Transplanting	- Normal - By hand	- Shallow - By small machine	- Shallow - By hand
No. of seedling/hill	6-8	2-3	2-3
Density: hill/m <sup>2</sup>	45-50	50-60	50-60
4. Nutrient management	-Normal at farmers' conditions	-With special regime	-Normal at farmer' conditions
5. Pest management	-Normal at recent situation	-With special regime	-Normal at recent situation
6. Water control	-Normal at recent situation	-with special regime	-Normal at recent situation
7. Harvesting	- Handle	- Small machine	- Handle

Source: Rice Cultivation New Technology Research Station.  
District Agricultural Offices.

In the study area, only 25 percent of sample farmers adopted the new cultivation technique (MMCT). This indicator was highest in Minh Khai with 53 percent, followed by



Nghia Hiep with 42 percent, and in Hai Phong only a few farmers responded to the MMCT (Table 3.6).

**Table 3.6. Sample Farmers' Adaptation of Rice Cultivation Techniques**

Location	RCT		MMCT	
	No. of HH	%	No. of HH	%
Hai Phong	30	100.0	2	6.7
Minh Khai	30	100.0	16	53.3
An Hoa	30	100.0	4	13.3
Co Bi	30	100.0	4	13.3
Nghia Hiep	31	100.0	13	41.9
All areas	151	100.0	39	25.8

Note: No. of HH = Number of households  
Source: Survey.

#### 3.4. Incidence for Kinds of Rice Varieties

In recent years, after the open-oriented economy and improvement of rice production. The demand for high quality rice increased both for export and for domestic consumption. The adaptation and production of high quality rice has been gradually increasing in last few years. In the Red River Delta, Tam Thom – one traditional rice variety is considered has high quality and could be grown in Autumn crop only due to biological characteristics. It has been that, the production of this traditional high quality variety could satisfy the increasing demand of high quality rice. However, depend on the requirement of rice production for food security, therefore, at present, numbers of farmers who produce THQV

is limited. In the sample area, only in Hai Phong farmers produce THQV but the ratio produced THQV farmers to total sample farmers is rather high. In this subdistrict 93 percent of farmers accepted the THQV in Autumn rice crop (Table 3.7).

**Table 3.7. Farmers' Application of Rice Varieties in Autumn Crop**

Locations	MHYV		THQV	
	No. of HH	%	No. of HH	%
Hai Phong	29	96.7	28	93.3
Minh Khai	30	100.0	0	0.0
An Hoa	30	100.0	0	0.0
Co Bi	30	100.0	0	0.0
Nghia Hiep	31	100.0	0	0.0
All areas	150	99.3	28	18.5

Source: Survey.

During the survey, when response to the question about selection of rice varieties for production, some farmers in Minh Khai, An Hoa and Nghia Hiep subdistricts said that they would select THQV to next production season for market purpose.

### 3.5. General Socio-Economic Conditions

#### 3.5.1. Farm Household Size and Demographic Characteristics

Total population in the study site is largest of 7718 persons in Hai Phong subdistrict and smallest of 4498 persons in Minh Khai subdistrict. The average number of persons per

household in each subdistrict varied from 4.13 in Minh Khai to 4.65 in Nghia Hiep, while the average labor force is 2.13 persons in Co Bi and 2.42 persons in Nghia Hiep (Table 3.8).

### 3.5.2. Land Ownership

From 1988, following the Politburo's Resolution No.10 NQ/TU and the Land Law 1988, the arable land of agricultural cooperatives is distributed among the farmers to use and manage. Therefore, now every farmers have cultivation land. The exiting land ownership is considered as the most important factor that influenced the rapid increase in rice production of Viet Nam in recent years. In the sample subdistricts there are no landless farmers, but, due to high population pressure on arable land, the average farm size in the sample farm households is very small. It is also differed among locations from 6.96 sao<sup>1</sup> in An Hoa to 9.49 sao and Minh Khai.

### 3.5.3. Farming Experience

The farming experience in rice production of the farm household heads are highest in Co Bi subdistrict with 24.7 years and lowest in Hai Phong with 15.7 year. The average age of head of farm household is lowest in Hai Phong with 39.7 and highest with 48.4 years old in Minh Khai.

### 3.5.4. Education Level

Among the factors that influence rice production, education level of farm labor and household head has important role. This could have contributed to the farmer's ability to

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<sup>1</sup>one sao = 360 m<sup>2</sup>

manage and allocate resources, to increase rice yield and to produce with more efficiency.

Most of the farm household heads had finished primary school. The average education of household heads in areas is 6.76 years, but highest in Hai Phong with 8.73 and lowest in Minh Khai with 6.0 years. (Table 3.8).

**Table 3.8. General Socio-economic Information**

Indicator	Unit	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
<b>a. Sample Subdistricts</b>							
Population	person	7718	5102	7276	4711	3617	28424
Total area	ha	776.0	552.0	534.5	489.8	324.0	2676.3
No. of household	HH	1742	1049	1620	1121	778	6310
Family size	person	4.43	4.86	4.49	4.20	4.65	4.50
<b>b. Sample Farms</b>							
No. of farms	farm	30	30	30	30	31	151
Farm size	sao	7.50	9.49	6.96	8.39	7.97	8.06
No. of labor	person	2.23	2.3	2.23	2.13	2.42	2.26
Land ownership	%	100	100	100	100	100	100
<b>c. Household heads</b>							
Farming experience	year	15.73	20.76	23.43	24.70	23.19	21.57
Schooling year	year	8.73	6.00	6.33	6.60	6.16	6.76

Source: a: Subdistrict Statistical Units.  
b,c: Survey.

### 3.5.5. Farm Household Assets and Equipment

In the region of Red River Delta, the irrigation system was constructed rather well. It actively helps farmers in irrigating and draining water when necessary. Farmers in the sample subdistricts have advantageous irrigation conditions for agricultural and rice production. Most of the farm field plots could receive water directly from public or cooperative irrigation systems. Therefore, large number of farmers need not have their own water pump.

**Table 3.9. Farm Household Assets and Equipments**

Items	Unit	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
Water pump	unit %	0 (0.0)	0 (0.0)	1 (3.3)	1 (3.3)	0 (0.0)	2 (1.3)
Sprayer	unit %	25 (83.3)	30 (100.)	17 (56.7)	26 (86.7)	28 (90.3)	126 (83.4)
4-wheel tractor	unit %	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
2-wheel tractor	unit %	1 (3.3)	0 (0.0)	1 (3.3)	0 (0.0)	0 (0.0)	2 (1.3)
Threshing machine	unit %	1 (3.3)	2 (6.6)	1 (3.3)	0 (0.0)	0 (0.0)	4 (2.6)
Transportation boat	unit %	2 (6.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (1.3)

Note : Figures within the parentheses are the percentage of own-production-equipment farmers to total sample farmers.

Source: Survey.

Most of the farmers have sprayers, but in An Hoa this number is lowest with 56.7 percent. Very few farmers owned tractors and threshing machines (Table 3.9). Land preparation by hiring cooperative tractor is popular in the study area.

### 3.6. Input Market

The major inputs for rice production in the region are sold by public as well as private shops. Chemical fertilizers and pesticides are produced in the country and/or imported from outside.

Farmers can buy fertilizers and pesticides from any shops, at any time they want. All the sample farmers said that these main inputs are quite ready for their production demands. Input prices are found different among areas of the region (Table 3.10).

**Table 3.10. Input Prices in the Study Areas**

Location	Material Inputs Price ('000D/kg)				Labor wage ('000D/manday)
	Urea	Superphosphate	Potassium	Padan	
Hai Phong	1.718	0.716	2.450	115.495	6.336
Minh Khai	1.836	0.699	1.902	112.681	5.960
An Hoa	1.849	0.694	2.153	107.413	5.767
Co Bi	1.767	0.717	2.342	105.990	5.462
Nghia Hiep	1.802	0.673	1.875	108.027	5.357

Source: Survey.

For fertilizer and pesticide prices, 50 percent of farmers said that fertilizer prices is fair while 67 percent of them respondent that pesticide price is high. About tractor machine and threshing machine service charges, farmers replied that was reasonable with 69 and 84 percent, respectively. And 79 percent of the sample farmers answered that current labor wage was fair (Table 3.11).

Table 3.11. Evaluation of Farmers on Input Prices

Price Level	Percentage of Farmers' Responding (%)					
	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
Fertilizer price						
High	30.0	56.7	56.7	43.3	54.8	48.4
Fair	70.0	43.3	40.0	53.4	45.2	50.3
Low	0.0	0.0	3.3	3.3	0.0	1.3
Pesticide price						
High	63.3	76.7	70.0	66.7	61.3	67.5
Fair	36.7	23.3	26.7	33.3	38.7	31.8
Low	0.0	0.0	3.3	0.0	0.0	0.7
Tractor						
High	3.3	36.7	46.7	33.3	16.1	29.8
Fair	93.4	63.3	53.3	66.7	83.9	69.5
Low	3.3	0.0	0.0	0.0	0.0	0.7
Threshing						
High	10.0	3.3	33.3	NA	NA	15.6
Fair	90.0	96.7	66.7	NA	NA	84.4
Low	0.0	0.0	0.0	NA	NA	0.0
Labor wage						
High	6.7	0.0	0.0	0.0	0.0	1.3
Fair	56.7	63.3	86.7	93.3	96.8	79.5
Low	36.6	36.7	13.3	6.7	3.2	19.2

Note: NA = Non Available

Source: Survey.

### 3.7. Rice Marketing Practices and Constraints

Almost all of the study subdistricts except Hai Phong are located near by the national road systems that facilitated easy transportation of inputs and outputs. In the area, 65.6 percent of sample farmers were observed to sell their rice product at farm gate, other sold at the village markets with low marketing costs. Some other farmers sold sometime at farm gate and sometime at village markets. Only a few percentage of farmers in Hai Phong said

that they sold their product as far as 10 km at district market.

**Table 3.12. Rice Marketing Practices of Sample Farmers**

Location	Percentage of farmers selling at	
	Farm gate (%)	Market (%)
Hai Phong	66.7	26.7
Minh Khai	60.0	56.6
An Hoa	86.7	13.3
Co Bi	53.3	46.7
Nghia Hiep	64.5	32.2
All areas	65.6	32.5

Source: Survey.

There are some farmers in Hai Phong and Nghia Hiep who even did not sell their rice product. They kept rice for different purposes like food processing, pig feeding. For some other farmers, due to field damage their production was only enough for family consumption.

For THQR (Traditional High Quality Rice), with the purpose of production mainly for sale, 63 percent of farmers in Hai Phong could store their THQR product for sale until high price occurred. But for MHYR (Modern High Yielding Rice), most of farmers in the all study sites could not wait for higher price, they sold their product when necessary. Overall area, activity of selling rice before harvest was not found from sampled farmers (Table 3.13).



**Table 3.13. Observed Time of Rice Selling Activities**

Activities	Percentage of Farmers' Responding (%)					
	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
Before harvest	0.0	0.0	0.0	0.0	0.0	0.0
Right after harvest	0.0	3.3	3.3	0.0	3.2	1.9
When necessary	66.7	83.4	80.0	90.0	87.1	81.5
When high price	26.6	13.3	16.7	10.0	6.5	14.6
Non-selling	6.7	0.0	0.0	0.0	3.2	2.0

Source: Survey.

Evaluation on current rice price, 56 and 58 percent of sample farmers in Hai Phong and Nghia Hiep, respectively, said that rice price is reasonable, while most of farmers in Minh Khai, An Hoa and Co Bi estimated that the price is low. In the study areas, no one mentioned the high rice price practiced in the region (Table 3.14).

**Table 3.14. Farmers' Evaluation on Current Rice Price**

Price Level	Percentage of Farmers' Responding (%)					
	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
High	0.0	0.0	0.0	0.0	0.0	0.0
Rather high	13.3	0.0	3.3	0.0	9.7	5.3
Fair	56.7	26.7	33.4	33.3	58.1	41.7
Cheap	30.0	66.7	60.0	53.4	25.8	47.1
Rather cheap	0.0	6.6	3.3	13.3	6.4	5.9

Source: Survey.

### 3.8. Credit Operations

Most of the farmers in the area practiced their production by self capital capacity. There are only 19.2 percent of sample farmers borrowed money for different purposes. But, only 2.6 percent of farmers borrowed money for rice production, and 0.7, 0.7 and 2.7 percent of the farmers borrowed for animal husbandry, handicraft and reconstruct the house, respectively (Table 3.15).

**Table 3.15. Farmers' Indebtedness in the Study Area**

Types, Purposes	Percentage of Farmers' Responding (%)					
	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
Non-borrower	63.3	80.0	66.7	96.7	96.7	80.8
Borrower	36.7	20.0	33.3	3.3	3.3	19.2
Borrow From:						
AD Bank	13.4	13.4	0.0	3.3	3.3	6.6
Private	3.3	3.3	26.7	0.0	0.0	6.6
Relative	20.0	3.3	6.6	0.0	0.0	5.9
Purposes:						
Rice prod.	6.7	0.0	3.3	3.3	0.0	2.6
Raise animal	0.0	0.0	3.3	0.0	0.0	0.7
Aquaculture	0.0	0.0	0.0	0.0	0.0	0.0
Handicraft	0.0	3.3	0.0	0.0	0.0	0.7
Rebuild house	10.0	3.3	0.0	0.0	0.0	2.6
Other	20.0	13.4	26.7	0.0	3.2	12.6

Source: Survey.

Both, institution and non-institution are the major sources of lender. In an average, for all areas, 6.6 percent of farmers borrowed money from the Agricultural Development Bank with interest rate from 2.7 to 4 percent per month. And the same 6.6 percent of farmers borrowed from private sector with 2.7 to 5 percent of interest rate per month and 50 percent per year. The levels of interest rates are mainly depends on the length of borrowing time, borrowing purpose, and types of credit. There are also existed the form of lender-borrower among the relatives with interest free. In the area, 5.9 percent of farmers borrowed money in this form (Table 3.15).

From sample subdistricts, there are only 7.9 percent of farmers who have money for lending. But only 3.3 percent of sample farmers in Hai Phong are observed in the role of interest lender, while others lend their money to the relatives free of interest (Table 3.16).

**Table 3.16. Sample Farmers in Role of Money Lender**

Indicator	Percentage of Farmers' Responding (%)					
	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
Lender	20.0	0.0	10.0	0.0	9.7	7.9
With interest	3.3	0.0	0.0	0.0	0.0	0.7
Without interest	16.7	0.0	10.0	0.0	9.7	7.2

Source: Survey.

Table 3.17. Farmers' Requirement of Credit for Future Investment

Activities	Percentage of Farmers' Responding (%)					
	Hai Phong	Minh Khai	An Hoa	Co Bi	Nghia Hiep	All Areas
Rice production	3.3	0.0	10.0	3.3	6.5	4.6
Other crops	0.0	0.0	3.3	0.0	0.0	0.7
Horticulture	3.3	0.0	0.0	0.0	0.0	0.7
Raising animal	10.0	6.7	30.0	6.7	9.7	12.6
Aquaculture	3.3	3.3	3.3	0.0	0.0	2.0
Soil improvement	0.0	0.0	0.0	0.0	0.0	0.0
Handicraft	6.7	0.0	10.0	0.0	0.0	3.3
No required	73.4	90.0	43.4	90.0	83.8	76.1

Source: Survey.

Response to the question about requirement of credit for future investment, 76 percents of sample farmers said that they did not want to borrow money. Only 4.6 percents of farmers would like to borrow money for their rice production (Table 3.17). Across study areas, farmers in An Hoa have relative highest demand of money borrowing in the future. This indicator is lowest in Minh Khai and Co Bi subdistricts.