CHAPTER 5

FARMERS' DECISION MAKING AND PRODUCTION CONSTRAINTS

Understanding the farmers' decision making with respect to cultural practices is necessary to identify the limitation of crops and their management in specific environments, as well as to ascertain the possibility of improving a particular system appropriately. This section will reveal the farmers' decision-making for selecting rice varieties, sources of technical knowledge, the farmers' opinion of supporting factors and constraints on rice production in Thua Thien Hue province.

5.1. Socio- economic information of the sampled farms.

5.1.1. Land holdings.

The results from the survey in Table 13 reveal that the average farm size and number of plots per farm in the rainfed area are larger than in the irrigated area having 0.63 and 0.44 ha and 3.07 and 3.15 plots respectively. But the total rice planted area and the number of rice plots in the irrigated area are higher than in the rainfed area (83 %, 3.3 plots compare with 61. %, 2.8 plots respectively). This survey is not extended to study other crops in detail, it only describes the cropping pattern. The actual as well as the percent of the areas of other crops to the total area in the rainfed area are higher than in the irrigated area.

Table 13: Land holding by location

Items	Irrigated area	Rainfed area
Total area (ha)	0.44	0.63
Rice land (ha)	0.30	0.38
% of rice land to total	83.00	60.60
Other crops (ha)	0.07	0.25
% of other crops to total	17.00	39.50
Number of plot (plot)	3.15	3.78
Number of rice plot (plot)	3.12	2.80

Source: survey 1998

5.1.2. Age, household size and occupation

Table 14a: Household characteristics

	Irrigated area (n=60)		Rainfed area (n=60)	
Items		SD		SD
Family size (person)	5.9	1.6	5.6	1.5
Age structure (%)				
<17	41		44	
18-40	33		33	
41-60	18		12	
>60	8		11	

Source: survey 1998

The average number family members and the distribution of family labour, as well as the education level of the household head at secondary school in the irrigated

area are higher than in the rainfed area (5.9 persons, 51%, 58% and 5.6 persons, 45%, 50% respectively), as shown in table 14a.

Table 14b: Household characteristics

Education of household head (%)		
Primary school	40	45
Secondary school	58	50
High school	2	5
Occupation (%)		
Crop & livestock	30	71
Crop, livestock & trade	17	3
Crop, livestock & waged labor	53	26

Source: survey 1998

Occupation: The majority of farmers in the rainfed areas would practice integrated crop-livestock farming. On the other hand, households with integrated crop-livestock farming coupled with small scale trade and/or services predominate in the irrigated areas (Table14b)

5.1.3. Use of labour in rice production

Due to the limitation of the planting time in the spring and summer seasons, the number of family labour, hired labour and exchange labour have play an important role in rice production, particularly at planting and harvesting time. The results in Table 15 indicate that the labour used for rice broadcasting in both planting seasons

Table 15: Labor used in rice production

	Irrigated area				Rainfed area			
	Spring season 1998							
	Tr (n=60)		Br (n=60)		Tr (n=60)			
	ME	SD	ME	SD	ME	SD	ME	SD
Planting (manday/sao)	2.4	0.3	0.9	0.2	1.7	0.3	-	
Crop care (manday/sao)	2.4	0.4	2.4	0.4	1.3	0.5	-	
Harvesting (manday/sao)	2.0	0.3	2.5	0.4	1.8	1.5	-	
Total (manday/sao)	6.8	0.5	5.8	0.6	4.8	0.8	-	
Type of labor								
Hired labor (%)	7.0	0.8	6.0	0.5	4.0	0.7	-	
Exchange labor (%)	12.0	0.9	13.0	0.6	28.0	0.7	-	
Family labor (%)	81.0	0.9	81.0	0.6	68.0	1.1	-	
	Summer season 1997							
	Tr (n=60)		Br (n=60)		Tr (n=30)		Br (n=30)	
Planting (manday/sao)	2.2	0.3	0.9	0.2	1.8	0.4	0.9	0.2
Crop care (manday/sao)	2.0	0.4	2.0	0.5	0.6	0.3	2.3	0.8
Harvesting (manday/sao)	2.0	0.3	2.4	0.3	1.9	0.2	2.4	0.4
Total (manday/sao)	6.2	0.6	5.3	0.6	4.3	0.9	5.6	1.3
Type of labor								
Hired labor (%)	7.0	0.8	5.0	0.5	3.0	0.5	1.2	0.4
Exchange labor (%)	15.0	0.9	15.0	0.6	39.0	0.7	17.8	1.8
Family labor (%)	78.0	0.9	80.0	0.6	58.0	0.7	81.0	1.6

Source: survey 1998

Note: Tr = Transplanting; Br = Broadcasting

Are lower than for rice transplanting, the average labour used was 6.8 and 6.2 man days per sao for transplanting rice in the spring and summer seasons, while the total labour used for broadcasting rice is only 5.8 and 5.3 man days per sao for the spring and summer seasons. The rates of hired labour and exchange labour used for transplanting rice are higher than for broadcasting rice in both planting seasons, this is because the labour used for seed-bed and sowing of transplanting rice are two times higher in comparison to that of broadcasting rice.

The ratio of hired labour for rice production is not over 10 %, thus the percent of exchange and family labour contribute over 90%. So it can be seen that, labour used for rice production in the lowland of Thua Thien Hue province depends on family labour sources and the relationhip between farmers for exchange labour.

5.2. Factors influencing the farmers' decision in selecting rice varieties.

As presented in Table 16 all of the farmers in both environment require high yielding varieties, and short duration varieties in the summer season. Nearly 90% and 60% in the rainfed area required drought and flooding resistantt varieties respectively and 68% of farmers in irrigated area like disease resistant rice varieties. Interestingly only 18% of farmer in the irrigated areas and 10% of farmer in the rainfed area want to grow high quality varieties.

The results indicate that, the first priority in selecting the rice variety for most farmers in Thua Thien Hue province is high yield. This is because farmers in Thua Thien Hue have not enough rice for consumption. Therefore, selecting the high yielding varieties is the primary purpose of the farmers' rice production. On the other

hand, the limitation of harvesting summer rice due to flooding time has caused farmers to select short duration rice varieties

Table 16: Factors influencing farmers' decision in selecting variety by location and planting season (% response)

Factors	Irrigated area		Rainfed area	
	Planting season			
	Spring (n=60)	Summer (n=60)	Spring (n=60)	Summer (n=30)
High yielding	98	97	90	83
Suitable to soil	53	40	57	57
Drought tolerant	17	27	78	86
Flooding tolerant	7	5	28	0
Disease resistance	68	63	23	43
Medium maturity	98	2	0	0
Short maturity	2	98	0	100
High quality	18	20	0	10

Source: survey 1998

5.3. Farmers' opinions of rice growing.

The rice area in Thua Thien Hue province is smaller than in other regions of Vietnam, therefore 100% of the farmer in this region plant rice for consumption and then for livestock feed. The ratio of farmer growing rice for sale is 15% in the rainfed areas and 47% in the irrigated areas. The results in Table 17 indicate that over 78% farmer in both area used rice straw for fuel and fodder.

Table 17: Farmers' use of rice output (% response)

	Irrigated area (n =60)	Rainfed area (n =60)
Grain		
Consumption	100	100
Selling	47	15
Grain & straw		
Livestock feed	98	97
Straw		
Fuel for cooking	78	85

Source: survey 1998

5.4. Source of technical knowledge.

The sources of technical knowledge include both formal and informal sources. The formal source of knowledge comes from local extension officers and cooperative farms with various activities such as field days and direct information to farmers. The informal knowledge can come from both farmers, radio and TV. The results in Table 18 reveal that the main source of technical knowledge is informal transfer from farmer to farmer.

Most of the farmers in both regions say that sometimes they obtain information from local extension officers about planting dates, plant protection,and the technology of fertilizer management in addition to some information on the characteristics of new rice varieties.

Table 18: Sources of technical knowledge (% response)

Source of knowledge	Irrigated area (n=60)	Rainfed area (60)
Extension officer		
No	0	8
1-3 time / year	70	80
> 3time/year	30	12
Cooperative farm		
No	9	0
1-3 time / year	78	87
> 3time/year	13	13
Radio & TV		
No	0	10
1-3 time / year	75	67
> 3time/year	25	23
Farmer		
No	2	0
1-3 time / year	38	53
> 3 time/year	60	47

Source: survey 1998

5.5. Constraints to rice production in the lowland of Thua Thien Hue province.

Many factors influence rice production, such as physical, biological, credit and weather. The results in Table 19 demonstrate that 42 % and 33 % of farmers in the irrigated and the rainfed areas respectively lack capital for rice production.

Additionally, 100% of farmers in the rainfed area show that lack of water resources, poor soil fertility and low quality varieties strongly influence their rice production. High disease levels and rats are also factors which can reduce yields in the irrigated areas, and 65 % of farmers in the irrigated areas and 90% of farmers in the rainfed area indicate low temperature at flowering time in the spring season could sometime reduce their rice yield. This result explains why rice yield in Thua Thien Hue province is not stable.

Table 19: Factors constraining irrigated and rainfed rice production in Thua Thien Hue province (% response)

Factors	Irrigated (n=60)	Rainfed (n=60)
Lack of capital	42	33
Poor soil fertility	63	100
Lack of water resources	10	100
Low seed quality	52	100
High disease levels	100	35
Rats	92	46
Difficult material service	20	30
Low temperature at flowering in spring season	65	90
High temperature at flowering stage in summer season	12	93

Source: survey 1998

The ratio of farmers' responses to low rice price are very small, this may be because farmers in Thua Thien Hue produce rice for home consumption

5.6. Farm equipment and assets.

Most of the farmers own only a sprayer and a bicycle in both regions. The percentages of farmers who own tractors, television, motorcycle and radio cassettes are higher in the irrigated area than the rained areas (Table 20)

Overall, It can be considered that the total value of household assets in the irrigated areas is higher than in the rainfed areas.

Table 20: Some main farm assets by location

Items	Irrigated area (n=60)	Rainfed area (n=60)
2 wheel tractor (%)	5.0	1.7
Water pump (%)	0.0	1.7
Threshing machine (%)	3.0	3.0
Milling machine (%)	1.7	1.7
Farmer owned sprayer (%)	100.0	100.0
Boat (%)	20.0	3.0
Bicycle (unit)	2.2	1.7
Motorcycle (%)	35.0	15.0
Television (%)	45.0	33.0
Radio cassette (%)	23.0	20.0
Telephone (% Household)	2.0	0.0
Total value (1000DVN)	5,906	3,078

Source: survey 1998

5.7. Livestock production.

Many farmers in Thua Thien Hue province raise chickens, and duck for family consumption and sale. They raise buffalo and cattle for land preparation and sale, and all of the farmer breed pig for slaughter and piglets for sale and to obtain manure for rice cultivation.

Table 21: Livestock production by location

Items	Irrigated region (n=60)		Rainfed region (n=60)	
		SD		SD
Chicken (head/household)	33.7	12.7	35.1	15.9
Duck (head/household)	15.6	6.4	18.2	9.8
Buffalo(% of household)	12.0		25.0	
Cows (% of household)	-		17.0	
Pig for slaughter (Kg)	254.5	90.1	167.7	64.2
Piglet (Kg)	30.2	100.0	35.2	53.0
Total value (1000DVN)	4,087.0	2,696.0	4,141.0	2,260.0

Source: survey 1998

The results of the survey show that in the rainfed region farmers raise more chickens, ducks, buffaloes and cow than farmers in the irrigated region.