

Policy Option for Using Livestock to Promote Rural Income Diversification and Growth in Viet Nam

Final Report

February 2001

Hanoi, Viet Nam

VOLUME 2: TABLES AND FIGURES

Submitted to the Royal Embassy of Denmark
and the Ministry of Agriculture and Rural Development

Submitted by:
International Food Policy Research Institute
2033 K St. NW
Washington, DC 20006

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Table 3.1 Growth rate of Agricultural GDP (Percent)

	1990-99	1990-95	1995-99
Total GDP	7.70	8.20	7.00
Extended Agriculture	4.20	4.10	4.40
<i>Agriculture</i>	4.30	4.10	4.70
Crops	4.40	4.10	4.80
Livestock	4.40	4.50	4.30
Agricultural Service	3.00	2.90	3.10
<i>Forestry</i>	1.60	1.70	1.40
<i>Fishery</i>	4.40	5.20	3.30

Source: Data Obtained by GSO, May 2000

Table 3.2 Growth of Liveweight in Viet Nam 1990-1999

	Liveweight	Growth (percent)		
	(1000 tons)	90-95	95-99	90-99
Pig	1 318.2	6.96	6.97	6.96
Poultry	262	5.35	7.44	6.28
Chicken	198	5.71	7.33	6.43
Duck	64	5.08	7.87	6.32
Cattle	86	3.95	7.41	5.49
Buffalo	46	4.69	-2.68	1.42

Source: Data obtained by GSO, May 2000

Table 3.3 Capital and Current Expenditure by Agricultural Sub-Sector, 1997-1998

	Total Agriculture		Livestock and Veterinary	
	Million Dong	Share(%)	Million Dong	Share (%)
In 1997				
Total expenditure	3,712,494	100.00	151,418	4.08
Total capital expenditure	2,709,279	72.98	70,567	1.90
Total current expenditure	1,003,215	27.02	80,821	2.18
In 1998				
Total expenditure	4,591,435	100.00	146,333	3.19
Total capital expenditure	3,492,647	76.07	67,257	1.46
Total current expenditure	1,098,778	23.93	79,076	1.72
Average 97-98				
Total expenditure	4,151,965	100.00	148,876	3.59
Total capital expenditure	3,100,963	74.69	68,912	1.66
Total current expenditure	1,050,997	25.31	79,949	1.93

Source: Ministry of Finance

Table 3.4 GDP Share of Different Agricultural Sub-Sector (%)

	1990-99	1990-95	1995-99
Extended Agriculture	100.00	100.00	100.00
<i>Agriculture</i>	84.00	85.80	82.20
Crops	69.60	71.40	67.80
Livestock	12.60	12.70	12.60
Agricultural Service	1.80	1.80	1.80
<i>Forestry</i>	5.60	5.60	5.60
<i>Fishery</i>	10.40	8.70	12.20

Source: Data Obtained by GSO, May 2000

Table 3.5 Livestock Gross Income and Labor as a Proportion of Total

Farm Size	Livestock Gross Income as a share of total agricultural gross income	Non-Livestock Gross income as a share of total agricultural gross income	Livestock Labor as a share of total agricultural labor	Non-Livestock Labor as a share of total agricultural labor	Livestock gross income share / Livestock labor share
Small Farms	74.96	25.04	59.26	40.74	1.27
Medium Farms	90.43	9.57	69.45	30.55	1.30
Large Farms	94.97	5.03	78.17	21.83	1.21
All Farms	80.10	19.90	63.22	36.78	1.26

Source: IFPRI-MARD survey 1999.

Table 3.6 Offtake in Viet Nam (1990-1999)

	Offtake		Growth	
	1999	90-95	95-99	90-99
Pig	69.80	0.96	3.11	1.92
Poultry	1.50	-0.21	1.35	0.48
Chicken	1.50	-0.32	1.35	0.42
Duck	1.50	0.13	1.35	0.67
Cattle	21.00	0.82	4.49	2.45
Buffalo	15.60	3.93	-2.62	1.02

Source: Data Obtained by GSO, May 2000

Table 3.7 Number of Livestock, Vietnam (thous. head)

	Number		Growth	
	1999	1990-95	1995-99	1990-99
Pigs	18,886	5.97	3.74	4.98
Poultry	179,323	5.84	6.01	5.91
Chicken	135,760	6.28	5.90	6.11
Others	43,563	5.28	6.42	5.79
Beef	7,019	2.03	1.55	1.82
Cattle	4,064	3.16	2.80	3.00
Buffaloes	2,956	0.76	-0.06	0.39

Source: Data Obtained by GSO, May 2000

Table 3.8 Price of Lean Meat in Viet Nam and Chicago in 1999

Month	Viet Nam (USD/ton)	Chicago (USD/ton)	Ratio
1	1,779	1,202	1.48
2	1,860	1,202	1.54
3	1,830	1,200	1.52
4	1,797	1,189	1.51
5	1,825	1,324	1.37
6	1,832	1,130	1.62
7	1,801	1,013	1.77
8	1,757	1,000	1.75
9	1,736	1,009	1.72
10	1,726	1,009	1.71
11	1,722	1,009	1.70
12	1,678	1,049	1.60
Average	1,779	1,111	1.60

Source: Government Price Committee

Table 3.9 Average Growth in Real Price of Liveweight (Percent)

	1990-90	1990-94	1995-99
Pig	-0.38	-3.69	-2.20
Chicken	4.01	-0.74	4.28
Ducks	2.97	-0.69	1.77
Buffalo	0.92	2.45	-1.82
Cattle	1.38	5.01	1.18

Source: Data Obtained by GSO, May 2000

Table 3.10 Regional Price Variation

Year	1996	1997	1998	1999
Chicken meat (dong/kg)				
North	22,703	22,403	21,644	23,197
South	22,975	22,958	23,022	24,495
Range	272	555	1,378	1,298
Pig liveweight (dong/kg)				
North	10,490	10,070	9,505	10,471
South	13,733	11,593	12,134	14,870
Range	3,243	1,523	2,629	4,399
Cattle Upper Leg (dong/kg)				
North	29,233	30,636	30,517	30,233
South	36,000	37,906	36,106	36,411
Range	6,767	7,270	5,590	6,177

Source: Government Price Committee

Table 3.11 Range of Price Fluctuations for Different Types of Meat (Percent)

Month	Amplitude of fluctuations for chicken	Amplitude of fluctuations for beef	Amplitude of fluctuations for pig liveweight
North	14.76	10.17	9.14
Center	16.03	12.39	14.39
South	9.05	7.11	10.67

Source: Analysis by Thang, 2000 Based on Data from Viet Nam

Livestock Corporation 1994-1998 using 16 markets

Table 3.12 Percentage of Lean Meat and Deboned Meat by Region

Animal Type	Region			Average
	North	Central	South	
Local pig	33.60	36.00	34.00	34.50
Improved pig	40.60	41.40	46.00	42.60
Cattle	35.70	37.50	36.70	36.60

Source: IFPRI -MARD Survey 1999

Table 3.13 Input Costs as a proportion of total costs (%)

Farm Size	Labor	Animal Stock	Feed
Small Farm	1.57	21.14	77.29
Medium Farm	2.17	22.83	75.00
Large Farm	3.21	18.63	78.16

Source: IFPRI - MARD Survey 1999

Table 3.14 Measures of profitability by processor characteristics

	Ownership category			Size category			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Quantity (tons)	4830.00	10332.00	110616.00	2750.00	13250.00	90747.00	20535.00
Profit/ton (million D/ton)	0.51	0.12	0.92	0.19	0.24	0.78	0.30
Profit (million D)	2282.00	4356.00	122322.00	572.00	3963.00	93439.00	17364.00
Profit share (%)	11.30	2.50	23.10	1.70	8.30	22.00	6.80
Capacity utilization (%)	32.70	53.60	43.80	33.10	68.20	65.60	47.70
Return on investment (%)	71.30	152.70	215.40	81.20	94.90	411.10	141.30

Source: IFPRI - MARD Survey 1999

Table 3.15 Feed production by South Vietnamese feed mills by ownership category

	Ownership category				Overall South
	GOE	Private	Foreign	Other	Vietnam
Production (000 tons)	77	493	1037	74	1681
% Complete feed	98	93	51	88	67
% Concentrated feed	2	7	49	12	33
% of total complete feed	7	41	47	6	100
% of total concentrated feed	0	6	92	2	100

Source: La Van Kinh, 2000

Table 3.16 Average percent crude protein by feed type and processor characteristics

Feed code	Ownership category			Size category			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Lactating sow	19.10	14.40	22.70	17.90	14.70	18.80	17.00
Starter	19.20	16.50	19.50	16.80	18.10	17.00	17.40
Non-pregnant sow	15.00	13.00	13.00	14.00	14.00	13.00	13.60
Growth	17.00	14.30	24.80	15.20	14.80	20.60	16.40
Fattening	16.90	12.50	13.00	14.20	12.90	13.00	13.60
Concentrate for pig	36.60	28.00	34.00	32.00	35.90	30.40	33.30
Layer	17.10	17.00	22.20	15.20	18.30	20.90	18.80
Chicken	18.40	17.00	31.50	18.30	18.30	28.40	22.90
Starter	22.20	20.50	20.30	21.70	22.30	20.20	21.30
Growth	18.50	18.00	19.50		18.50	19.00	18.80
Concentrate for poultry	38.00		25.50	39.50	36.50	25.50	33.80
Dairy cattle	15.20	15.20	15.00	15.00	14.80	15.70	15.20

Source: IFPRI - MARD Survey 1999

Table 3.17 Average feed prices over the period from 3rd quarter of 1998 to 2nd quarter of 1999 by processor characteristics

Animal feed	Ownership category			Size category			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Lactating sow	3.10	2.49	3.28	2.83	2.58	3.00	2.78
Starter	3.56	3.19	3.79	3.58	3.06	3.46	3.35
Non-pregnant sow	2.50	2.12	3.22	2.16	2.35	2.78	2.36
Growth	2.75	2.32	3.00	2.42	2.44	2.75	2.48
Fattening	2.93	2.23	2.83	2.50	2.33	2.62	2.45
Concentrate for pig	5.35	4.76	6.28	4.97	5.09	6.04	5.30
Layer	3.37	3.22	3.44	3.33	3.36	3.44	3.38
Chicken	3.25	3.12	3.75	3.12	3.25	3.75	3.43
Starter	3.72	3.56	3.77	3.53	3.74	3.80	3.70
Growth	3.23	3.80	3.84	3.00	3.47	3.83	3.49
Concentrate for poultry	5.36		6.50	6.32	5.04	6.50	5.85
Dairy cattle	2.36	2.20	2.80	2.25	2.36	2.46	2.36

Source: IFPRI - MARD Survey 1999

Table 3.18 Proportion of Producers Partially or Fully Adopting Exotic Breeds

Farm Type	Pigs (%)	Chickens (%)	Ducks (%)
Small Farm	10.00	22.00	21.30
Large Farm	55.00	70.00	42.90

Source: IFPRI -MARD Survey 1999

Table 3.19 Proportion of Feed Types in Animal Rations

Animal Type	Crude Material(%)	Fodder (%)	Quality Feed (%)
Local Pig	55.50	42.00	2.50
Exotic Pig	60.10	23.10	16.80
Local Chicken	92.20	3.80	4.00
Exotic Chicken	38.90	1.90	59.20
Local Duck	88.20	2.40	9.40
Exotic Duck	67.80	8.80	23.40

Source: IFPRI -MARD Survey 1999

Table 3.20 Proportion of Producers Obtaining Pig Breeding Stock From Various Sources

Pig Breeding Stock Source	Small Farm (%)	Large Farm (%)
Farmers/ Traders	93.00	74.00
Government	5.00	16.00
Other Private	1.80	5.60
Other	0.20	4.40

Source: IFPRI -MARD Survey 1999

Table 3.21 Proportion of Producers Obtaining Poultry Breeding Stock From Various Sources

Poultry Breeding Stock Source	Small Farm (%)	Large Farm (%)
Farmers/ Traders	46.70	15.40
Government	14.19	22.33
Other Private	27.60	52.10
Other	11.51	10.17

Source: IFPRI -MARD Survey 1999

Table 3.22: Reported Pig Diseases (Percentage of total reported disease)

Pig Disease	Producer	Commune Level
Swine Fever	3.18	8.02
Pasteurellosis	10.38	14.04
Swine ersipelas	0.60	8.17
Swine Leptospirosis	0.09	3.44
Salmonella	10.99	13.32
Scouring/Diarrhea	49.61	15.04
Picoplasmas	3.43	5.87
E.Coli	5.49	9.31
Other	3.95	13.18
Internal Parasitism	2.49	9.60
Unknown Disease	9.78	0.00

Source: IFPRI - MARD Survey 1999

Table 3.23: Reported chicken Diseases (percentage of total reported disease)

Poultry	Producer	Commune
Pasteurellosis	20.97	17.58
Internal parasitism	1.69	8.20
Salmonella	2.71	7.42
Scouring / diarrhea	15.56	10.55
Newcastle disease	7.10	19.14
Duck plague	1.47	10.94
Picoplasmas	11.50	0.00
Fowl pox	1.13	11.72
Gumboro	8.91	6.25
E. coli	9.02	0.00
Other	1.24	8.19
Unknown Disease	18.71	0.00

Source: IFPRI - MARD Survey 1999

Table 3.24: Proportion of Producers Utilizing Veterinary Services

Veterinary Service Type	Proportion of Producers receiving Service
Internal Parasite Treatment	47.30
Castration	43.38
Disease Assessment	20.15
Infection Treatment	20.29
Regular Examinations	0.95

Source: IFPRI - MARD Survey 1999

Table 3.25: Animal Deaths as a Proportion of Animal Inventory

Animal Type	Pig	Chicken	Duck	Cattle	Buffalo
Local	2.48	14.67	4.71	0.97	1.67
Crossbred	2.28	8.29	4.60	0.75	-
Exotic	3.69	5.31	5.50	-	-

Source: IFPRI - MARD Survey 1999

Table 3.26: Proportions of Deaths Caused by Various Diseases

Disease	Pigs	Chickens	Ducks	Cattle	Buffalo
Pasteurellosis	13.19	25.92	17.46	16.43	50.00
Internal parasitism	0.25	2.00	-	3.57	-
Mineral deficiency	0.25	0.24	-	-	-
Salmonella	17.05	2.11	2.72	-	-
Scouring	36.63	15.87	23.34	10.71	-
Swine erysipelas	0.99	-	-	-	-
Hemorrhagic septicemia	0.49	-	-	5.00	-
Swine fever	6.60	-	-	-	-
Newcastle disease	-	9.89	1.32	-	-
Fowl pox	-	1.07	-	-	-
Gumboro	-	10.50	-	-	-
Mareks	-	0.64	-	-	-
Blackleg	-	0.18	-	-	-
Anthrax	-	0.04	-	-	-
Picoplasmas	1.35	8.98	2.63	-	-
E. coli	11.80	9.36	4.19	-	-
Duck plague	-	-	12.99	-	-
Rinderpest	-	-	-	3.57	-
Does not know	11.44	15.06	37.82	60.71	50.00

Source: IFPRI - MARD Survey 1999

Table 3.27: National Cost of Mortality

Species	Average Direct Mortality Cost as a proportion of total Animal sales by producers	National Mortality Cost (millions D)	National Mortality Cost (\$US million)
Pigs	2.38	325,425	23.24
Chickens	10.18	408,972	29.21
Ducks	5.68	48,054	3.43
Cattle	1.78	15,504	1.11
Buffalo	2.95	10,846	0.77
Total		808,000	57.77

Source: IFPRI - MARD Survey 1999

Table 3.28: Direct Mortality Costs of Various Diseases (D million)

Disease	Pigs	Chickens	Ducks	Cattle	Buffalo
Pasteurellosis	42,924	106,006	8,390	2,547	5,423
Internal parasitism	814	8,179	-	553	-
Mineral deficiency	814	982	-	-	-
Salmonella	55,485	8,629	1,307	-	-
Scouring	119,203	64,904	11,216	1,660	-
Swine erysipelas	3,222	-	-	-	-
Hemorrhagic septicemia	1,595	-	-	775	-
Swine fever	21,478	-	-	-	-
Newcastle disease	-	40,447	634	-	-
Fowl pox	-	4,376	-	-	-
Gumboro	-	42,942	-	-	-
Mareks	-	2,617	-	-	-
Blackleg	-	736	-	-	-
Anthrax	-	164	-	-	-
Picoplasmas	4,393	36,726	1,264	-	-
E. coli	38,400	38,280	2,013	-	-
Duck plague	-	-	6,242	-	-
Rinderpest	-	-	-	553	-
Does not know	37,229	61,591	18,174	9,412	5,423

Source: IFPRI - MARD Survey 1999

Table 3.29: Proportions of Animals Vaccinated Against Disease

Animal	Disease	Proportion of Animals Vaccinated
Pigs	Swine Fever	56.32
Breeding Sows	Swine Fever	63.91
Chickens	Newcastle Disease	42.88
Ducks	Duck Fever	44.53
Cattle	Bovine Pasteurellosis	40.14
Breeding Cows	Bovine Pasteurellosis	36.43
Buffalo	Bovine Pasteurellosis	38.22
Breeding Buffalo Cows	Bovine Pasteurellosis	35.89

Source: IFPRI - MARD Survey 1999

Table 3.30: Vaccination Drug Costs per Dose

Animal Type	Vaccine Dose Cost (D'000)
Pigs (swine fever)	0.34
Chickens (Newcastle Disease)	0.26
Ducks (Duck Plague)	0.57
Cattle (Pasteurellosis)	1.30
Buffalo (Pasteurellosis)	1.30

Source: IFPRI - MARD Survey 1999

Table 3.31: Benefits and Costs of Disease Eradication.

Animal	Disease	Cost of Disease (D million)	Drug Cost of Vaccination Program (D million)	Benefit/Cost Ratio
Pigs	Swine Fever	21,478	6 421	3.34
Chickens	Newcastle Disease	40,447	35 298	1.15
Ducks	Duck Fever	6,242	24 831	0.25
Cattle	Bovine Pasteurellosis	2,547	5 283	0.48
Buffalo	Bovine Pasteurellosis	5,423	3 842	1.41

Source: IFPRI - MARD Survey 1999

Table 3.32. Average Number of Inspections per Year

Type of inspection	Province	District
Regular	63.25	21.17
Exported meat	2.00	92.00
Carcass - dom mkt	332.07	69.85
Disinfection	415.14	13.95
Mkt wholesale	78.25	27.00
Restaurant	10.00	15.67
Ani hlth	102.50	17.23
Food premises insp	5.00	12.90
Live ani trans	408.53	75.97
Slaughterhouse	48.23	28.39
Transmissible dis	15.38	177.69
Food vehicle	70.00	

Table 3.33. Time Requested for each Type of Inspection

Type of inspection	Number of person days for inspection
Regular	3.60
Exported meat	2.00
Carcass - dom mkt	1.64
Disinfection	2.45
Mkt wholesale	2.34
Restaurant	4.00
Ani hlth	2.53
Food premises insp	1.44
Live ani trans	1.57
Slaughterhouse	1.96
Transmissible dis	7.15
Food vehicle	0.63

Table 3.34. Time Devoted to Inspection & Inspection Fees

Level	Proportion of Total Person Days for Inspection (%)	Inspection Fees as a Proportion of 1999 Budget	Total Number of Person Days for Inspection
Province	6.77	2.44	2246.46
District	15.56	6.47	328.9

Table 3.35. Test of Regional Price Convergence

	Pig liveweight		Chicken liveweight		Beef topside	
	Margin relative to country average	Indication of convergence	Margin relative to country average	Indication of convergence	Margin relative to country average	Indication of convergence
North	-9.24	No convergence	-6.79	Divergence	-5.20	Convergence
Center	-8.97	No convergence	6.16	Divergence	-2.94	Divergence
South	15.27	No convergence	4.85	No convergence	7.54	No convergence

Source: Viet Nam Livestock Corporation 1994-1998 using 16 markets

Note: Based on Analysis by Thang, 2000

Table 3.36. Correlation Coefficients of Different Livestock Product Price

	Average Correlation of Price Level	Average Correlation of Price Differences
Chicken Liveweight	0.49	0.16
Chicken Carcass	0.66	0.22
Pig Liveweight	0.71	0.23
Pig Carcass	0.70	0.23
Cattle Liveweight	0.26	0.15
Cattle Carcass	0.84	0.23
Paddy		
Rice		0.40

Source: Viet Nam Livestock Corporation 1994-1998 using 16 markets

Note: Based on Analysis by Hieu, 2000 and IFPRI 1996

Table 3.37. Proportion of Sales at Different Levels by Producers(Percent)

Farm Size	Sold at Farm gate	Sold at Market	Sold by Contracts	Other
Small farm	81.62	16.12	1.92	0.35
Medium farm	88.57	9.65	1.62	0.16
Large farm	88.83	7.01	3.12	1.04

Source: IFPRI -MARD Survey 1999

Table 3.38. Primary Information Sources by Proportion of Producers (%)

Information Source	Price/Market	Commercial Regulation	Credit
Radio/TV	13.98	74.40	11.69
Personal Contacts	38.73	5.45	13.19
Traders	42.80	1.30	4.50
Banks	0.00	0.00	64.98
Extension Agents	1.67	8.38	2.22
Other	2.82	10.47	3.42

Source: IFPRI -MARD Survey 1999

Table 3.39. Animal and Meat Marketer Travel Difficulties by Marketer Type

Type of Marketer	Percent of Marketers Experiencing Travel Difficulties
Assembler	47.8
Wholesaler	35.1
Retailer	9.2

Source: IFPRI -MARD Survey 1999

Table 3.40. Percentage of marketers having following restrictions

Type of Transport Difficulties	Assemblers	Wholesalers	Retailers	Overall
Police Conduct	36.7			
Inter Province/District Blocs	21.1	26.7	6.1	20.5
Tolls	12.2	8.0	2.4	8.7
Heath Inspections	5.6	9.3	3.0	7.4
		6.7	0.6	4.0

Source: IFPRI -MARD Survey 1999

Table 3.41: Sales and Processing Capacity in the Meat Industry by Size of Operation

	Small	Large	Total
Abattoir			
Sale (million Dong)	784.00	7178.00	2396.00
Capacity (ton/day)	0.48	4.18	1.40
Processor			
Sale (million Dong)	200.00	2633.00	809.00
Capacity (ton/day)	0.19	0.98	0.38

Source: IFPRI-MARD survey, 1999

Table 3.42: Profitability Measures by Type and Scale of Business

	Abattoir			Processor		
	Small	Large	Overall	Small	Large	Overall
Profit (million Dong)	104.00	966.00	321.00	29.00	499.00	147.00
Profit share (%)	12.90	12.40	12.80	13.20	16.30	14.00
Return on assets (%)	505.20	1518.30	750.00	196.70	1618.10	490.00
Profit/labor ratio	0.15	0.67	0.28	0.04	0.16	0.07
Labor/assets ratio	43.16	25.18	38.81	53.98	139.51	71.63

Source: IFPRI-MARD survey, 1999

Table 3.43: Profitability Measures by Type of Business and Region

	Abattoir				Processor			
	North	Central	South	Overall	North	Central	South	Overall
Profit (million Dong)	133.00	126.00	1000.00	321.00	32.00	370.00	80.00	147.00
Profit share (%)	12.50	11.40	15.60	12.80	12.30	16.70	13.70	14.00
Return on assets (%)	378.30	708.60	1672.70	750.00	635.00	131.60	674.20	490.00
Profit/labor ratio	0.11	0.15	0.82	0.28	0.04	0.11	0.09	0.07
Labor/assets ratio	37.46	51.88	19.60	38.81	107.46	19.79	53.68	71.63

Source: IFPRI-MARD survey, 1999

Table 3.44. Governmental budget for Central extension program

Item	Unit: mi												
	1993		1994		1995		1996		1997		1998		M. D
	M. Dong	%	M. Dong	%	M. Dong	%	M. Dong	%	M. Dong	%	M. Dong	%	
Crops	410.00	27.50	8616.00	66.70	10000.00	66.60	15312.00	66.00	18400.00	64.50	14361.00	54.70	123
Livestock	129.00	8.60	2819.00	21.80	3600.00	24.00	4160.00	17.90	4900.00	17.20	6200.00	23.70	59
Mechanics & Processing	50.00	3.30	-	-	300.00	2.00	300.00	1.30	300.00	1.00	500.00	1.90	27
`Water for crops	-	-	-	-	-	-	-	-	-	-	-	-	2
Information & Extension ability	903.00	60.50	1480.00	11.40	1100.00	7.33	820.00	3.50	1400.00	4.90	2512.00	9.50	24
Forestry	-	-	-	-	-	-	2600.00	11.20	3500.00	12.30	2660.00	10.10	30
Total	1492.00	100.00	12915.00	100.00	15000.00	100.00	23912.00	100.00	28500.00	100.00	26253.00	100.00	266

Source: Dept. of Agriculture and Forestry Extension (MARD)

Table 3.45: Local budget for extension and projects' investment in 1999

Unit: million VND

Region	Provincial level	District level	Project	Total
Red river delta	4,490	490	-	4,980
North – East	6,039	2,034	4,641	12,714
North-West	765	352	2,110	3,227
Central northern	5,557	990	600	7,174
Central southern	4,833	2,149	1,505	8,487
Central Highland	2,006	-	230	2,236
South-East	6,830	240	-	7,070
Mekong river delta	9,508	2,360	-	11,868
Total	40,028	8,615	9,086	57,729

Source: Dept. of Agriculture and Forestry Extension (MARD)

Table 3.46: Information sources to different beneficiaries by extension agencies (%)

Beneficiaries	Price and markets	Regulatory	Credit
Producers	1.67	8.38	2.22
Animal and meat traders	0.25	2.78	0.28
Feed traders	0.00	1.88	0.00

Source: IFPRI - MARD Survey 1999

Table 3.47.: Extension Source

Extension Source	Percent
Department of Extension Services	15.48
Department of Veterinary Services	15.71
Cooperatives	15.24
GOE	1.90
Informal Extension Clubs	5.48
Research Centers	1.43
Private Companies	5.95
Animal Association	0.95
Women's Union	9.05
Farmer's Union	11.90
Youth's Union	6.90
Gardening Association	4.52
Veteran's Association	4.29
Other	1.19
Total	100.00

Source: IFPRI - MARD Survey 1999

Table 3.48: Number of visits of extension agencies to different farm categories

<u>Regions</u>	<u>Small farms</u>	<u>Large farms</u>
RRD	0.20	1.05
NE	0.71	1.01
NW	0.86	0.75
NCC	0.27	0.07
SCC	0.59	0.98
CH	1.66	1.20
NES	0.00	2.66
MRD	10.25	2.32

Source: IFPRI - MARD Survey 1999

Table 3.49: Number of visits different farms categories by extension providers

Organization	Small farms	Large farms
1.Extension Service dept	1.5	3.0
2. Vet. Service Dept.	3.0	3.0
3. Cooperative	1.0	2.0
4. GOE	0.1	0.9
5. Informal extension clubs	1.3	
6. Research Centers	1.2	3.0
7. NGOs		11.0
8. Private company	0.8	1.8
9. Veterinary Association		
10. Animal Association	0.0	2.0
11. Women's Union	1.5	
12. Farmer's Union	1.1	2.0
16. Joint Venture	1.0	1.9
19. Other	0.4	1.4

Source: IFPRI - MARD Survey 1999

Table 3.50: Number of visits of extension agencies to different farm categories by animal species

Regions	Small farms	Large farms
Pig	0.32	1.00
Chickens	0.18	1.29
Ducks	0.20	5.26
Cattle	0.28	0.88
Buffaloes	0.20	0.14

Source: IFPRI - MAR Survey 1999

Table 3.51: Extension Service Quality Rating

Quality	Percent
Very Good	0.00
Good	1.43
Adequate	51.79
Poor	46.30
Very Poor	0.48
Total	100.00

Source: IFPRI - MARD Survey 1999

Table 3.52: Extension Service Quality Rating by providers

Extension providers	Very good	Good	Fair	Poor	Very poor
Extension Service Dept.		1.30	76.10	22.60	
Veterinary Service Dept.		3.40	84.30	11.90	0.40
Cooperatives		1.90	81.70	16.10	0.20
GOE		3.60	88.80	6.90	0.70
Informal extension clubs			80.00	20.00	
Research Center		12.80	53.80	30.80	2.60
NGO			100.00		
Private companies		3.30	70.80	25.80	
Veterinary Association			66.70	33.30	
Animal Association			90.90	9.10	
Women's Union		50.00		50.00	
Farmer's Union			71.40	28.60	
Joint Venture		2.70	73.00	21.60	2.70
Other		1.60	85.60	0.70	0.10

Source: IFPRI -MARD Survey 1999

Table 3.53 State budget allocation to research

Year	Total research (Mill.VND)	Livestock	Veterinary	Livestock and Veterinary	Livestock and Veterinary as share of total research
1993	31.82	2.60	1.04	3.64	0.11
1994	38.01	3.79	1.50	5.29	0.14
1995	49.30	5.72	2.25	7.97	0.16
1996	69.38	5.62	2.32	7.93	0.11
1997	79.17	7.09	3.41	10.50	0.13
1998	77.91	9.10	3.65	12.74	0.16
1999	80.05	8.40	3.95	12.35	0.15

Table 3.54 National Budget for Research Activities in Animal Science

Year	Total (Mill.VND)	Salary and Overhead	Of which				Labo Equip
			National Programs	Ministerial Programs	Standard Studies	Production* Studies	
1993	2.60	1.73	0.64	0.17	0.01	0.03	
1994	3.79	2.05	1.33	0.26			
1995	5.72	3.68	1.07	0.26			0.
1996	5.62	3.91	0.68	0.48	0.02	0.08	0.
1997	7.09	3.97	0.80	1.24	0.04	0.68	
1998	9.10	4.25	2.11	1.29		0.75	0.
1999	8.40	4.40	2.07	1.08		0.36	0.
Total	42.31	23.99	8.70	4.78	0.07	1.90	1.

Note: * Budget for this kinds of projects has to be reimbursed 80%

-Since 1996, highly increased total budget is due to combination of 3 ministries become one

Table 3.55 National Budget for Research Activities in Veterinary Science

Year	(Mill.VND)	Salary and Overhead	National Programs	Ministerial Programs	Standard Studies	Production* Studies	Laboratory Equipment	Upgrading Res. Facilities
1993	1.04	0.76	0.23	0.04	0.01			
1994	1.50	0.67	0.72	0.08				0.04
1995	2.25	1.53	0.58	0.09	0.01			0.05
1996	2.32	1.62	0.17	0.29	0.01	0.18		0.05
1997	3.41	1.62	0.40	0.38	0.10	0.10	0.71	0.10
1998	3.65	1.82	0.41	0.58	0.02	0.09	0.59	0.14
1999	3.95	1.80	0.63	0.65	0.02		0.70	0.15
Total	18.11	9.82	3.14	2.10	0.16	0.37	2.00	0.53

Note: * Budget for this kinds of projects has to be reimbursed 80%

-Since 1996, highly increased total budget is due to combination of 3 ministries become one

Table 3.56 MANPOWER IN THE FIELD OF ANIMAL AND VETERINARY SCIENCE

Year	Total manpower in NARS	Manpower in Animal Science	Manpower in Vet. Science	Manpower in Ani.& Vet.Sci.	Percentage in total		
					Animal Science	Vet. Science	Ani.& Vet.Sci.
1993	3,880.00	360.00	189.00	549.00	9.28	4.87	14.15
1994	3,880.00	365.00	181.00	546.00	9.41	4.66	14.07
1995	3,880.00	377.00	187.00	564.00	9.72	4.82	14.54
1996	4,738.00	391.00	193.00	584.00	8.25	4.07	12.33
1997	4,738.00	409.00	197.00	606.00	8.63	4.16	12.79
1998*	4,080.00	413.00	201.00	614.00	10.12	4.93	15.05
1999*	4,114.00	419.00	202.00	621.00	10.18	4.91	15.09
Average	4,187.14	390.57	192.86	583.43	9.37	4.63	14.00

Note: * Excluding staff of institutes belonging to General Cooperation

Table 3.57 QUALIFICATION OF STAFF IN ANIMAL AND VETERINARY SCIENCE

Field	PhD	MSc	BSc	Technician
<i>Animal Science</i>	55.00	58.00	251.00	85.00
<i>Veterinary Science</i>	28.00	26.00	78.00	33.00
Total	83.00	84.00	329.00	118.00

Table 3.58 National buget allocation for research by species*(In Millions VND)*

Year	Pig	Poultry	Cattle and Buffalo	Other	Total
1997	1103	539	763	415	2,820
1998	1166	1783	781	667	4,397
1999	1770	1420	827	416	4,433
<i>Avarage</i>	1346.33	1247.33	790.33	499.33	3,883.33
<i>Share (%)</i>	34.67	32.12	20.35	12.86	100.00

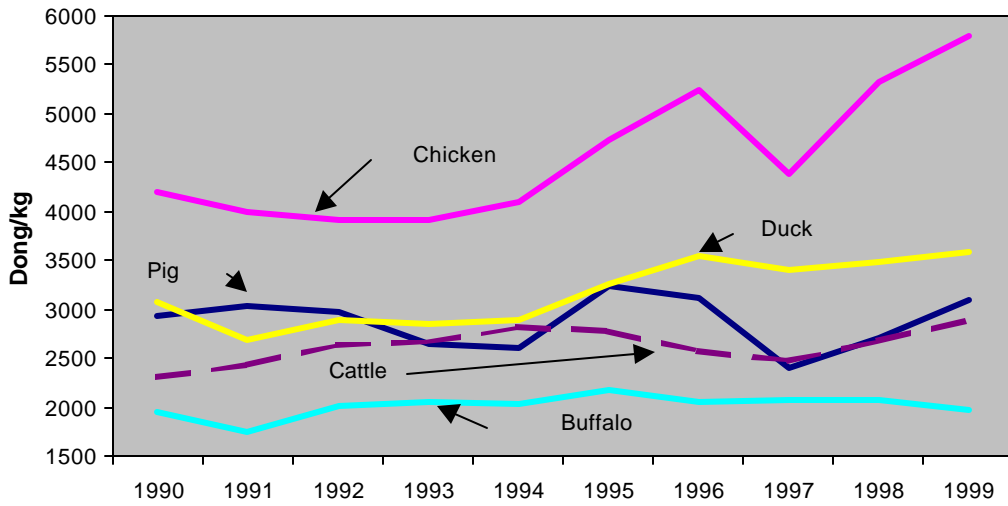
Source: Department of Science, Technology & Product Quality, MARD

Table 3.59 National budget allocation for research by disciplines*(In Millions VND)*

Year	Genetic and breeding	Nutrition	Farming techniques	AI	Veterinary	Others	Total
1997	1463	258	108	45	780	166	2820
1998	1492	907	532	271	997	198	4397
1999	1541	822	457	191	1280	142	4433
Average	1498.67	662.33	365.67	169.00	1019.00	168.67	3883.33
Share(%)	38.59	17.06	9.42	4.35	26.24	4.34	100.00

Source: Department of Science, Technology & Product Quality, MARD

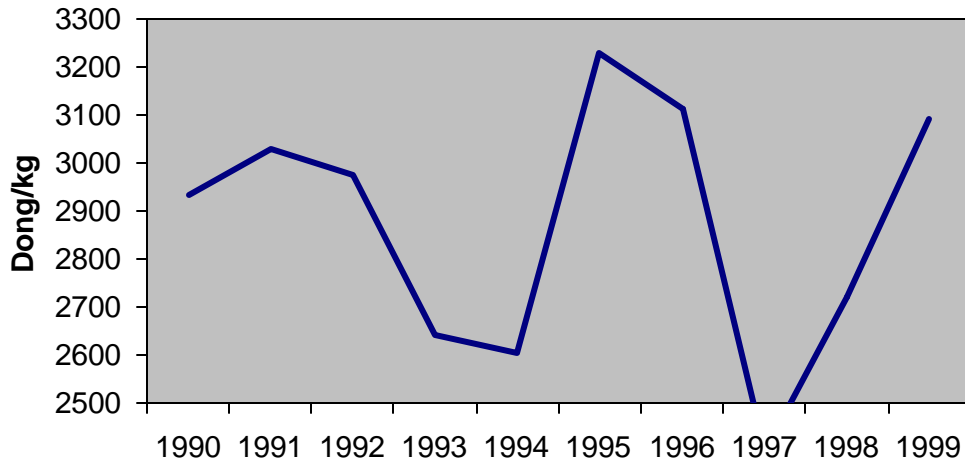
Figure 3.1. Real Prices of Liveweight (base 1990)



Source: Government Price Committee

Note: Calculation by Thang 2000 based on data from

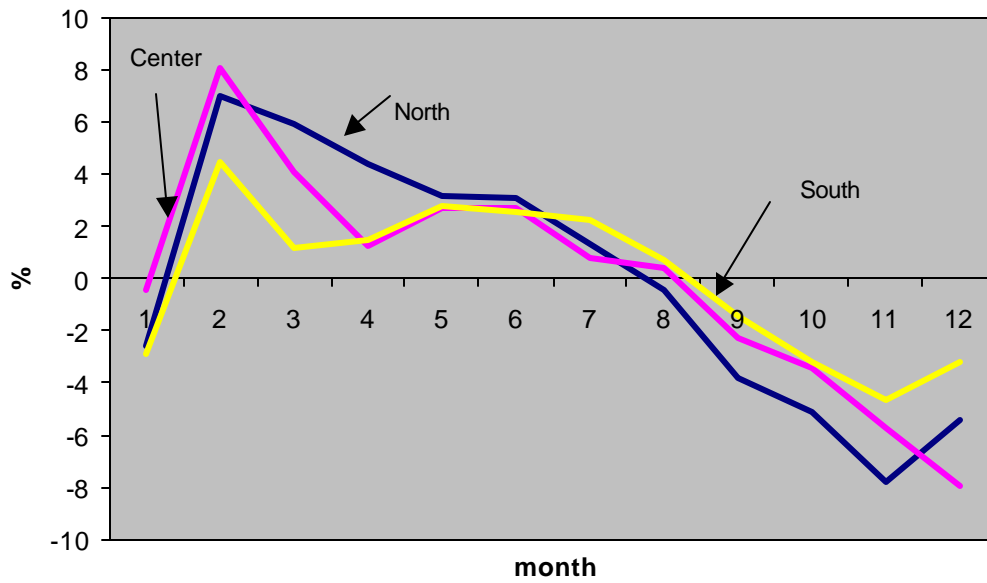
Figure 3.2 . Real price of pig liveweight (base 1990)



Source: Government Price Committee

Note: Calculation by Thang 2000 based on data from GSO

Figure 3.3. Seasonality of chicken liveweight price



Note: Calculation by Thang 2000 based on data from Vietnam Livestock Corporation 1994 - 1998, using 16 markets

Table 4.1: Regional Distribution of Surveyed Households

Region	Percentage of Sampled Households Located in Region
Red River Delta	20.11
North East	19.07
North West	6.37
North Central Coast	12.74
South Central Coast	11.70
Central Highlands	7.28
North East South	9.13
Mekong River Delta	13.60
Total	100.00

Table 4.2: Percentage of Male and Female Household Heads in Sampled Households by Region

Region	Male	Female
Red River Delta	81.55	18.45
North East	80.00	20.00
North West	81.43	18.57
North Central Coast	76.60	23.40
South Central Coast	78.21	21.79
Central Highlands	77.85	22.15
North East South	79.08	20.92
Mekong River Delta	75.69	24.31
Total	78.94	21.06

Table 4.3: Average Annual Non-Agricultural Household Income by Household Head Gender and Region (D'000)

Region	Annual Non-Agricultural Household Income (D'000)	
	Male Head	Female Head
Red River Delta	6429	7102
North East	6825	8114
North West	5942	6711
North Central Coast	5379	6862
South Central Coast	11084	7335
Central Highlands	9245	11645
North East South	11835	12336
Mekong River Delta	10433	12220
National Average	8089	8832

Table 4.4: Percentage of Household Heads by Highest Completed Education Level

Education Level	Percentage of Household Heads Completing Education Level
Primary School	98.8
Middle School	82.11
High School	33.29
Technical Training	7.12
Partial University	3.33
Undergraduate	2.59

Table 4.5: Percentage of Producers Employing Labor by Type

Type of Labor	Percentage of Producers Employing Type of Labor
Family male	90.8
Family female	93.8
Permanent male	5.7
Permanent female	2.4
Temporary male	27.6
Temporary female	17.9
Inkind male	0.7
Inkind female	1.4

Table 4.6: Average Person Days Worked Per Producer Per Year by Region

Region	Average Person Days Worked Per Producer Per Year
Red River Delta	727.39
North East	634.40
North West	826.85
North Central Coast	496.45
South Central Coast	648.25
Central Highlands	834.33
North East South	880.52
Mekong River Delta	770.50

Table 4.7: Average Per Worker Daily Labor Costs by Region (D'000)

Region	Average Per Worker Daily Labor Costs (D'000)			
	Permanent Male	Permanent Female	Temporary male	Temporary Female
Red River Delta	14.23	12.57	18.15	15.76
North East	14.58	13.15	14.65	12.33
North West	10.83	11.00	11.18	10.35
North Central Coast	13.57	15.00	10.26	10.16
South Central Coast	18.40	14.67	19.88	16.87
Central Highlands	11.68	12.00	20.77	18.26
North East South	28.40	25.24	24.81	20.67
Mekong River Delta	20.94	24.62	24.63	18.14

Table 4.8: Average Annual Labor Costs per Producer by Region and Labor Type

Region	Average Annual Labor Cost (D'000)			
	Permanent male	Permanent female	Temporary male	Temporary female
Red River Delta	13487.46	18402.64	453.18	554.90
North East	9495.31	38782.00	342.18	347.16
North West	4800.00	6480.00	249.18	149.41
North Central Coast	8678.57	32850.00	571.82	363.31
South Central Coast	27216.00	22080.00	443.41	349.86
Central Highlands	6382.79	4320.00	1407.11	955.28
North East South	58219.71	75616.02	1849.17	1220.37
Mekong River Delta	21333.08	27960.00	1240.52	927.65

Table 4.9: Percentage of Producers Employing Livestock Labor by Type

Type of Labor	Percentage of Producers Employing Type of Livestock Labor
Family male	82.92
Family female	89.15
Permanent male	5.56
Permanent female	2.26
Temporary male	1.36
Temporary female	0.59
Inkind male	0.09
Inkind female	0

Table 4.10: Proportion of Producers Only Using Family Labor in Livestock and Agricultural Production

Farm Size	Proportion of Producers Using Only Family Labor (%)	
	Livestock Production	Agricultural Production
Small Farm	96.77	65.68
Medium Farm	88.91	59.05
Large Farm	66.97	44.80
Average	92.22	62.26

Table 4.11: Average Producer Land Area by Region

Region	Total Area(m ²)	Cultivated Area(m ²)	Animal Housing Area(m ²)
Red River Delta	5345.3	3304.8	215.9
North East	10478.2	3114.5	81.0
North West	9053.0	4801.8	60.4
North Central Coast	8417.9	3582.8	37.1
South Central Coast	3471.5	2817.9	73.3
Central Highlands	19081.2	9455.4	60.5
North East South	7362.0	5611.6	629.1
Mekong River Delta	7839.2	6506.3	202.8

Table 4.12: Cultivated Land as an Average Percentage of Total Land, Average Number of Plots per Producer and Land Title Status by Region

Region	Average Cultivated Land Percentage	Average Number of Plots	Average Percentage of Land Owned With Title	Average Percentage Owned Without Title
Red River Delta	77.8	6.0	38.96	56.08
North East	69.9	7.0	47.61	48.65
North West	65.9	8.6	38.75	57.27
North Central Coast	77.4	7.8	89.32	8.51
South Central Coast	77.9	2.8	75.53	19.98
Central Highlands	66.8	2.8	43.30	52.07
North East South	44.2	2.6	43.67	53.42
Mekong River Delta	65.3	1.9	70.32	26.73

Table 4.13: Cultivation Type as an Average Percentage of Total Cultivated Land

Cultivation Type	Average Percentage of Cultivated Land
Single Cropping	10.42
Double Cropping	41.42
Triple Cropping	18.98
Garden	15.78
Perennial Crops	13.13
Total	100.00

Table 4.14: Average Irrigated Area by Region

Region	Average Irrigated Area per Producer(ha)	Average Percentage of Cultivated Land Used For Irrigation
Red River Delta	0.29	79.53
North East	0.22	77.79
North West	0.24	54.23
North Central Coast	0.32	84.09
South Central Coast	0.24	79.91
Central Highlands	0.55	68.43
North East South	0.83	80.93
Mekong River Delta	0.94	87.11

Table 4.15: Usage of Communal Grazing Land by Region

Region	Average Number of Households per Area	Average number of Hectares per Household
Red River Delta	314.7	2.2
North East	52.2	0.9
North West	151.5	3.6
North Central Coast	589.5	0.4
South Central Coast	12.4	2.1
Central Highlands	44.2	15.2
North East South	-	-
Mekong River Delta	7.0	1.4

Table 4.16: Average per Farm Pig Inventory (Head) by Region

Region	1998	1999
Red River Delta	39.52	39.19
North East	13.72	13.13
North West	7.03	7.41
North Central Coast	15.76	13.65
South Central Coast	19.57	20.32
Central Highlands	13.79	21.09
North East South	238.64	338.25
Mekong River Delta	53.43	99.96

Table 4.17: Total per Farm Pig Inventory (Head) by Farm Size

Farm Size	1998	1999
Small farm	11.25	12.69
Medium farm	32.19	36.12
Large farm	344.75	491.43

Table 4.18: 1999 Pig Type Percentages (Average Percent of Producer Inventory)

Pig Type	Total	Local	Crossbred	Exotic
Sow	11.69	25.26	5.03	17.71
Boar	0.37	0.62	0.06	2.71
Piglet	26.58	39.24	15.47	31.60
Gilt	1.54	1.54	1.02	5.00
Immature Boar	0.06	0.02	0.00	0.29
Small Fattener	39.37	23.37	51.94	24.56
Large Fattener	20.51	9.94	26.48	18.13
Total	100.00	100.00	100.00	100.00

Table 4.19: Average Percentage of Producers with Crossbred and Exotic Pigs by Region

Region	Average Percentage of Producers	
	Crossbred or Exotic Pigs Only	Exotic Pigs Only
Red River Delta	55.42	3.53
North East	43.18	0.28
North West	68.38	0.85
North Central Coast	46.30	0.00
South Central Coast	71.10	2.31
Central Highlands	96.47	9.41
North East South	98.16	86.50
Mekong River Delta	98.16	70.51

Table 4.20: Average Percentage of Producers with Crossbred and Exotic Pigs by Farm Size

Farm Size	Proportion of Producers by Farm Size (%)		
	Some Crossbred or Exotic Pigs	Crossbred or Exotic Pigs Only	Exotic Pigs Only
Small farm	68.90	59.39	9.91
Medium farm	89.17	79.49	36.18
Large farm	89.94	79.87	44.65

Table 4.21: Average Reproductive Performance by Sow Type

Animal Type	First Parturition Age (Months)	Parturition Interval (Months)	Number of Parturitions	Litter Size	Lifetime Expected Production of Weaned Piglets
Local Sow	11.45	5.99	12.49	10.51	127.73
Crossbred Sow	11.81	5.86	8.40	10.13	81.27
Exotic Sow	11.78	5.76	7.16	9.86	67.69

Table 4.22: Average Production Performance by Pig Type

Variable	Feed Cost Ratio (D'000/kg weight gain)	Slaughter Age (Months)	Slaughter Weight (Kg.)
Local Pig	7.52	7.43	68.53
Crossbred Pig	7.54	6.42	76.20
Exotic Pig	8.41	5.56	93.64

Table 4.23: Average Pig Survival Rate by Region

Region	Local Pig	Crossbred Pig	Exotic Pig
Red River Delta	100.00	98.76	97.81
North East	100.00	99.11	96.67
North West	100.00	98.78	-
North Central Coast	100.00	99.84	97.50
South Central Coast	98.93	98.65	93.44
Central Highlands	100.00	95.32	95.20
North East South	-	97.47	97.33
Mekong River Delta	-	96.86	98.18
National Average	96.7	98.7	97.6

Table 4.24: Average per Farm Chicken Inventory (Head) by Region

Region	1998	1999
Red River Delta	179.45	179.95
North East	127.74	132.34
North West	142.44	152.33
North Central Coast	95.32	147.86
South Central Coast	187.69	258.59
Central Highlands	59	160.59
North East South	1542.08	1829.67
Mekong River Delta	590.67	697.8

Table 4.25: Chicken Type as a Percentage of Producer's 1999 Chicken Inventory

Variable	All Chickens	Local	Crossbred	Exotic
Layer	24.84	23.88	23.85	27.34
Rooster	2.50	3.26	3.73	1.34
Chicks	30.86	30.46	35.97	29.20
Chickens for Meat	42.36	42.40	36.45	42.12
Total	100.00	100.00	100.00	100.00

Table 4.26: Percentages of Producers with Chicken Types by Region

Region	Local Chickens Only	Crossbred and/or Exotic Chickens Only	Exotic Chickens Only
Red River Delta	53.61	43.73	41.44
North East	77.74	17.88	16.79
North West	91.95	8.05	8.05
North Central Coast	72.07	25.70	17.32
South Central Coast	36.67	63.33	41.11
Central Highlands	27.03	70.27	62.16
North East South	11.67	86.67	73.33
Mekong River Delta	27.27	69.32	54.55

Table 4.27: Average Production Performance by Chicken Type

Type of Chicken	Feed Cost Ratio (D'000/kg)	Slaughter Age (Months)	Slaughter Weight (Kg)
Local	9.65	5.37	1.49
Crossbred	9.14	4.15	1.74
Exotic	8.81	2.91	2.22

Table 4.28: Average Chicken Survival Rate by Region

Region	Local Chickens	Crossbred Chickens	Exotic Chickens
Red River Delta	82.94	88.57	94.20
North East	79.35	87.50	93.80
North West	79.63	100.00	93.77
North Central Coast	90.93	89.71	95.24
South Central Coast	79.27	90.62	94.41
Central Highlands	76.86	73.50	91.29
North East South	80.00	91.30	93.41
Mekong River Delta	84.89	94.47	86.23
National Average	82.8	89.67	93.6

Table 4.29: Average per Farm Duck Inventory (Head) by Region

Region	1998	1999
Red River Delta	75.83	83.33
North East	45.59	83.88
North West	164.08	161.25
North Central Coast	140.54	193.22
South Central Coast	262.5	225.5
Central Highlands	910	1566.8
North East South	70	55
Mekong River Delta	259.47	250.73

Table 4.30: Duck Types as a Percentage of Producer's 1999 Duck Inventory

Variable	Total	Local	Crossbred	Exotic
Layer	51.49	52.75	39.58	55.35
Drake	2.67	2.48	2.07	3.48
Ducklings	14.46	9.97	34.57	13.98
Ducks for Meat	31.38	34.81	23.77	27.20

Table 4.31: Average per Farm Duck Inventory Levels and Percentage of Producers with Duck Types by Region

Region	Average per Farm Duck Inventory (head)	Local Ducks Only (% of producers)	Crossbred and/or Exotic Only (% of producers)	Exotic Only (% of producers)
Red River Delta	83.33	66.67	33.33	16.67
North East	83.8	59.38	40.62	31.25
North West	161.25	75.00	16.67	16.67
North Central Coast	193.22	89.13	8.70	6.52
South Central Coast	225.5	66.67	33.33	16.67
Central Highlands	1566.8	20.00	60.00	20.00
North East South	55	0.00	100.00	100.00
Mekong River Delta	250.73	37.50	62.50	41.67

Table 4.32: Average Duck Production Performance by Type

Duck Type	Feed Cost Ratio (D'000/kg weight gain)	Slaughter Age (months)	Slaughter Weight (kg)
Local	5.11	3.13	1.50
Crossbred	4.15	2.96	1.93
Exotic	6.47	2.90	3.64

Table 4.33: Average Duck Survival Rate by Region

Region	Local Ducks	Crossbred Ducks	Exotic Ducks
Red River Delta	98.00	-	-
North East	92.60	-	97.60
North West	91.38	-	97.50
North Central Coast	94.99	-	100.00
South Central Coast	91.15	75.00	-
Central Highlands	93.00	91.91	-
North East South	-	-	100.00
Mekong River Delta	94.33	92.84	91.35
National Average	93.74	88.56	93.89

Table 4.34: Average per Farm Cattle Inventory (Head) by Region

Region	1998	1999
Red River Delta	4.73	4.83
North East	6.05	6.01
North West	6.53	7.08
North Central Coast	5.88	5.93
South Central Coast	5.46	5.26
Central Highlands	22.1	24.48
North East South	7.20	9.00
Mekong River Delta	2.67	3.00

Table 4.35: Cattle Types as an Average Percentage of Producer's 1999 Cattle Inventory

Variable	All Cattle	Local	Crossbred	Exotic
Cow	44.26	46.23	36.57	45.71
Bull	6.42	4.45	16.46	16.33
Calves	18.26	18.84	14.65	2.04
Young Cattle	20.37	18.29	25.59	33.88
Cattle for Meat	11.07	12.20	6.72	2.04

Table 4.36: Percentage of Producers with Cattle Types by Region

Region	Local Only	Crossbred or Exotic Only	Exotic Only
Red River Delta	65.48	33.33	1.19
North East	95.90	1.64	0.00
North West	84.31	11.76	0.00
North Central Coast	92.38	1.90	0.00
South Central Coast	41.49	48.94	2.13
Central Highlands	70.00	30.00	0.00
North East South	20.00	80.00	60.00
Mekong River Delta	0.00	100.00	0.00

Table 4.37: Average Reproductive Performance by Cattle Type

Cattle Type	Calving Age (months)	Calving Interval (months)	Number of Calvings/ Lifetime
Local	33.89	13.33	7.85
Crossbred	35.89	14.81	7.23
Exotic	34.60	15.80	6.00

Table 4.38: Average Production Performance by Cattle Type

Cattle Type	Feed Cost Ratio (D'000/ kg weight gain)	Slaughter Age (months)	Slaughter Weight (kg)
Local	4.71	29.19	157.27
Crossbred	3.80	27.77	198.30
Exotic*	-	-	-

*: Figures for performance for exotic cattle were only gathered from 2 producers

Table 4.39: Average Cattle Survival Rates by Region

Region	Local Cattle	Crossbred Cattle	Exotic Cattle
Red River Delta	98.75	-	100
North East	100	-	-
North West	100	100	-
North Central Coast	-	100	-
South Central Coast	100	100	100
Central Highlands	97.13	98.40	-
North East South	-	-	-
Mekong River Delta	-	100	-
National Average	98.89	99.54	100

Table 4.40: Average per Farm Buffalo Inventory Size (Head) by Region

Region	Buffalo Inventory
Red River Delta	3.6
North East	2.8
North West	2.6
North Central Coast	2.2
South Central Coast	-
Central Highlands	4.0
North East South	2.0
Mekong River Delta	-

Table 4.41: Buffalo Types as an Average Percentage of Producer's Buffalo Inventory

Variable	1998	1999
Cow	40.29	38.19
Bull	17.59	18.25
Calves	5.92	8.78
Young Buffalo	15.37	14.78
Buffalo for Meat	21.52	20.70

Table 4.42: Average Buffalo Reproductive and Production Performance Compared to Local Cattle

	Calving Age (months)	Calving Interval (months)	Calvings Per Lifetime	Feed Cost Ratio (D'000/kg weight gain)	Slaughter Age (months)	Slaughter Weight (kg)
Buffalo	41.52	18.56	6.23	4.72	29.20	257.63
Local cattle	33.89	13.33	7.85	4.71	29.19	157.27

Table 4.43: Average Buffalo Survival Rate by Region

Region	Survival Rate
Red River Delta	90
North East	99.29
North West	98.89
North Central Coast	-
South Central Coast	-
Central Highlands	100
North East South	-
Mekong River Delta	-

Table 4.44: Average Annual per Producer Pig Sales and Revenue by Region

Region	Pig Sales (Head)	Pig Revenue (D'000)
Red River Delta	163.32	53696.49
North East	35.09	16027.28
North West	15.16	7439.621
North Central Coast	35.24	15697.3
South Central Coast	52.39	25002.16
Central Highlands	30.77	25549.49
North East South	412.26	410355.8
Mekong River Delta	127.85	116742.8

Table 4.45: Average Annual Per Producer Chicken Revenue (D'000) by Region

Region	Chicken Revenue
Red River Delta	26129.31
North East	15264.81
North West	20644.21
North Central Coast	12964.42
South Central Coast	27217.12
Central Highlands	14357.35
North East South	228269.60
Mekong River Delta	22605.28

Table 4.46: Average Annual Per Producer Duck Sales and Revenue by Region

Region	Duck Sales (Head)	Duck Revenue (D'000)
Red River Delta	167.67	2139.33
North East	1791.56	6766.94
North West	320.67	6329.83
North Central Coast	921.17	5906.00
South Central Coast	298.28	6526.82
Central Highlands	2478.75	56479.50
North East South	132.00	6469.50
Mekong River Delta	1571.05	18572.00

Table 4.47: Average Annual Per Producer Cattle Sales and Revenue by Region

Region	Cattle Sales (Head)	Cattle Revenue (D'000)
Red River Delta	2.87	4742.00
North East	2.86	3499.19
North West	3.58	5255.06
North Central Coast	4.32	5064.27
South Central Coast	2.35	4287.38
Central Highlands	8.75	15255.33
North East South	4.00	1280.00
Mekong River Delta	3.00	7100.00

Table 4.48: Average Annual Per Producer Buffalo Revenue by Region (D'000)

Region	Revenue
Red River Delta	1527.50
North East	2312.89
North West	2869.05
North Central Coast	3168.75
South Central Coast	-
Central Highlands	5000.00
North East South	-
Mekong River Delta	-

Table 4.49: Average Annual Per Producer Total Livestock Raising Cost Levels by Region

Region	Average Annual Cost (D'000)
Red River Delta	55892.45
North East	18024.54
North West	23728.21
North Central Coast	19178.34
South Central Coast	23761.44
Central Highlands	15002.28
North East South	240345.2
Mekong River Delta	72751.15

Table 4.50: Total Cost Levels by Farm Size

Farm Size	Costs (D'000)
Small farm	13198.50
Medium farm	62076.52
Large farm	322646.6

Table 4.51: Cost Types as an Average Percentage of per Producer Annual Total Livestock Raising Costs by Farm Size

Farm Size	Labor	Animal Stock	Feed
Small farm	1.57	21.14	77.29
Medium farm	2.17	22.83	75.00
Large farm	3.21	18.63	78.16

Table 4.52: Cost Types as an Average Percentage of per Producer Annual Total Livestock Raising Costs by Region

Region	Labor Cost	Animal Stock Purchase	Feed Purchase
Red River Delta	0.86	25.98	73.16
North East	0.51	21.56	77.93
North West	1.69	26.40	71.90
North Central Coast	1.79	26.85	71.36
South Central Coast	0.43	15.01	84.56
Central Highlands	12.88	26.90	60.22
North East South	2.09	12.39	85.53
Mekong River Delta	1.22	14.45	84.33

Table 4.53: Average per Producer Annual Livestock Raising Cost Levels with Inclusion of Household Labor

Farm Size	Costs without Household Labor (D'000)	Cost including Household Labor (D'000)	Percent Change
Small farm	13198.5	17740.72	34.41
Medium farm	62076.52	68639.79	10.57
Large farm	322646.6	330505.3	2.44

Table 4.54: Cost Types as an Average Percentage of per Producer Annual Total Livestock Raising Costs including Household Labor by Farm Size

Farm size	Labor	Animal Purchase	Feed
Small farm	42.66	11.14	46.20
Medium farm	18.00	18.86	63.14
Large farm	13.33	15.54	71.13

Table 4.55: Cost Types as an Average Percentage of per Producer Annual Total Livestock Raising Costs Including Household Labor by Region

Region	Labor	Animal Purchase	Feed
Red River Delta	25.82	19.59	54.59
North East	42.49	11.05	46.45
North West	52.91	11.38	35.71
North Central Coast	42.40	14.00	43.60
South Central Coast	39.25	8.80	51.94
Central Highlands	46.97	15.62	37.41
North East South	14.91	10.95	74.14
Mekong River Delta	24.16	10.31	65.53

Table 4.56: Average Pig Feed Purchase Prices

Feed Type	Purchase Price (D'000/kg.)
Rice Paddy	1.86
Broken Rice	2.37
Rice Bran	1.83
Maize	1.92
Cassava	1.49
Sweet Potatoes	1.77
Potatoes	0.80
Soyabean Meal	4.34
Fish Meal	4.65
Brewer's Waste	0.91
Milk Meal	11
Cottonseed Cake	7.2
Groundnut Cake	3.11
Coconut Cake	2.00
Dry Fish	4.21
Other Crude Materials	2.21
Chinese Cabbage	1.88
Sweet Potato Leaves	0.5
Azolla	1.26
Banana Stalks	1.10
Water Spinach	0.61
Rice Straw	0.38
Other Fodder	0.54
Complete feed (breeding)	5.1
Complete feed (commercial)	2.98
Concentrate (breeding)	5.99
Concentrate (commercial)	6.68
Other Quality Feed	3.98

Table 4.57: Feed Type as a Percentage of Total per Producer Feed Quantity by Animal Type

Type of Animal	Crude Material	Fodder Crops	Quality Feed
Local Pig	55.5	42	2.5
Improved Pig	60.1	23.1	16.8
Local Chicken	92.2	3.8	4
Improved Chicken	38.9	1.9	59.2
Local Duck	88.2	2.4	9.4
Improved Duck	67.8	8.8	23.4
Local Cattle	17.2	82.8	-
Improved Cattle	27.7	70.3	2

Table 4.58: Average Chicken Feed Purchase Prices

Feed Type	Purchase Price (D'000/kg)
Rice Paddy	1.82
Broken Rice	2.29
Rice Bran	1.81
Maize	1.95
Cassava	1.10
Soybean Meal	4.40
Fish Meal	5.17
Feather Meal	0.50
Brewer's Waste	1.055
Groundnut Cake	3.11
Coconut Cake	2.50
Dry Fish	7.37
Other Crude Materials	2.12
Sweet Potato Leaves	0.25
Azolla	5
Banana Stalks	0.17
Water Spinach	0.41
Other Fodder	0.91
Complete feed (breeding)	4.44
Complete feed (commercial)	4.26
Concentrate (breeding)	5.09
Concentrate (commercial)	4.99
Other Quality Feed	6.33

Table 4.59: Average Duck Feed Purchase Prices

Feed Type	Purchase Price (D'000/kg)
Rice Paddy	1.79
Broken Rice	2.15
Rice Bran	1.55
Maize	1.79
Cassava	0.50
Sweet Potatoes	0.40
Soybean Meal	0.55
Fish Meal	3.00
Brewer's Waste	0.97
Dry Fish	5.17
Other Crude Materials	1.61
Sweet Potato Leaves	0.70
Banana Stalks	0.20
Water Spinach	0.48
Other Fodder	0.08
Complete feed (breeding)	4.27
Complete feed (commercial)	3.48
Concentrate (breeding)	3.83
Concentrate (commercial)	5.03
Other Quality Feed	5.56

Table 4.60: Average Cattle Feed Purchase Prices

Feed Type	Purchase Price (D'000/kg)
Rice Paddy	1.92
Broken Rice	2.78
Rice Bran	1.79
Maize	1.91
Cassava	1.26
Sweet Potatoes	2.00
Soybean Meal	3.82
Molasses	3.87
Fish Meal	4.94
Brewer's Waste	1.46
Cottonseed Cake	2.00
Groundnut Cake	2.90
Other Crude Materials	1.85
Sweet Potato Leaves	0.40
Rice Straw	0.42
Other Fodder	1.33
Complete Feed (commercial)	2.60
Other Fodder	1.84

Table 4.61: Average Buffalo Feed Purchase Prices

Feed Type	Purchase Price (D'000/kg)
Broken Rice	2.55
Rice Bran	1.97
Maize	1.90
Cassava	0.92
Other Crude Materials	2.00
Sweet Potato Leaves	0.74
Rice Straw	0.20
Other Fodder	1.38

Table 4.62: Average Percentage of per Producer Annual Livestock Sales Made to Various Buyers, by Livestock Type

Buyer	Pig Sales	Chicken Sales	Duck Sales	Cattle Sales	Buffalo Sales
Farmers	25.35	25.29	25.36	44.36	68.04
Assemblers	19.68	31.56	29.71	27.44	14.43
Slaughterhouses	44.66	2.19	0.72	18.46	11.34
Wholesalers	8.71	22.43	22.46	7.69	5.15
Retailers	0.49	9.41	15.94	0.26	1.03
Meat Processing Businesses	0.04	0.29	-	-	-
State Owned Enterprises	0.16	-	-	-	-
Province Owned Businesses	0.21	-	-	-	-
District Owned Businesses	0.08	-	-	-	-
Cooperatives	-	-	-	-	-
Other	0.58	8.75	5.80	1.79	-

Table 4.63: Sales Intensities by Buyer Type and Livestock Type

Buyer	Pig Sales	Chicken Sales	Duck Sales	Dairy Cow Sales	Non-Dairy Cattle Sales	Buffalo Sales
Farmers	35.12	33.11	32.97	58.00	11.93	75.46
Assemblers	49.60	65.21	62.59	0	9.77	31.43
Slaughterhouses	75.22	3.02	1.57	25.00	4.78	13.85
Wholesalers	41.29	65.68	61.54	0	4.60	21.05
Retailers	2.65	41.63	45.83	0	0	2.63
Meat Processing Businesses	5.71	52.00	0	0	0	0
State Owned Enterprises	30.00	0	0	0	0	0
Province Owned Businesses	39.67	0	0	0	0	0
District Owned Businesses	10.30	0	0	0	3.33	0
Cooperatives	0	0	0	0	0	0
Other	4.63	39.24	24.31	82.00	5.11	0

Table 4.64: Sales Location as an Average Percentage of Per Producer Annual Sales by Region

Region	Farmgate	Marketplace	Contract	Other
Red River Delta	88.70	9.46	1.65	0.19
North East	82.99	16.02	0.92	0.07
North West	82.24	16.19	0.94	0.63
North Central Coast	72.83	21.60	5.26	0.31
South Central Coast	78.50	17.79	3.24	0.47
Central Highlands	96.67	3.33	0	0
North East South	95.72	3.14	0.17	0.97
Mekong River Delta	84.51	13.48	1.00	1.02

Table 4.65: Sales Locations as an Average Percentage of Per Producer Annual Sales by Product

Product	Farmgate	Marketplace	Contract	Other
Pig	98.78	1.01	0.16	0.05
Chickens	64.28	34.81	0.81	0.11
Chicken Egg	44.40	41.06	12.47	2.07
Ducks	75.03	23.31	1.67	0.00
Duck Egg	41.36	33.18	20.40	5.06
Milk	25.00	0.00	58.33	16.67
Dairy Cow	77.78	0.00	21.11	1.11
Non-Dairy Cattle	98.84	1.16	0.00	0.00
Buffalo	100.00	0.00	0.00	0.00
Manure	96.70	2.87	0.29	0.14
Fish	76.30	23.70	0.00	0.00

Table 4.66: Average Percentage of per Producer Sales Made to Nearest Buyer by Region

Product	Percentage of Sales Made to Nearest Buyer
Pig	89.97
Chickens	87.47
Chicken Egg	88.34
Ducks	85.05
Duck Egg	82.24
Milk	90.00
Dairy Cow	100.00
Non-Dairy Cattle	96.22
Buffalo	100.00
Manure	93.66
Fish	83.66

Table 4.67: Location of Nearest Buyer as an Average Percentage of Total Nearest Buyers by Animal Type

	Pigs	Chickens	Ducks	Cattle	Buffalo
Buyer in District	87.12	87.6	90.00	94.59	100.00
Buyer Outside District	8.42	9.11	7.5	5.41	0
Buyer Outside Province	3.96	1.77	2.5	0	0
Buyer Outside Region	0.5	1.52	0	0	0

Table 4.68: Sources of Breeding Stock Inputs as an Average Percentage of per Producer Breeding Stock Inputs

Input Source	Pig Breeding Stock	Poultry Breeding Stock	Cattle Breeding Stock
Farmers	74.69	23.27	91.52
Traders	13.43	16.32	3.54
Other Private Business	2.29	32.15	0.00
Government Owned Enterprise (Breeding Centers)	7.93	18.61	4.94
Cooperative	0.10	1.41	0.00
MARD	0.10	0.35	0.00
Other	1.45	7.89	0.00

Table 4.69 Proportion of Breeding Stocks obtained from Government Sources (including breeding center system) by Farm Sizes

Farm Size	Pig Breeding Stock (%)	Poultry Breeding Stock (%)
Small Farm	4.3	14.1
Medium Farm	15.4	30.6
Large Farm	18.5	24.4

Table 4.70: Proportion of Farmers Obtaining Breeding Stocks from Government Sources (including breeding center system) by Region

Farm Size	Pig Breeding Stock	Poultry Breeding Stock
Red River Delta	1.4	33.3
North East	0.9	31.3
North West	1.4	6.4
North Central Coast	1.5	16.7
South Central Coast	11.5	6.8
Central Highlands	6.2	3.6
North East South	30.0	14.6
Mekong River Delta	33.1	16.1

Table 4.71: Sources of Meat Stock Inputs as an Average Percentage of per Producer Meat Stock Inputs

Input Source	Pig Meat Production Stock	Poultry Meat Production Stock	Cattle Meat Production Stock
Farmers	67.25	18.09	70.00
Traders	8.99	12.77	0.00
Other Private Business	5.80	47.87	30.00
Government Owned Enterprise	17.97	17.02	0.00
Cooperative	0.00	1.06	0.00
MARD	0.00	0.00	0.00
Other	0.00	3.19	0.00

Table 4.72: Sources of Veterinary Inputs as an Average Percentage of per Producer Veterinary Inputs

Input Source	Veterinary Inputs	Veterinary Services
Farmers	0.00	0.25
Traders	28.81	2.09
Other Private Business	44.19	11.92
Government Owned Enterprise	11.57	5.37
Cooperative	3.19	39.01
MARD	3.59	7.19
Other	8.65	34.17

Table 4.73: Sources of Feed Inputs as an Average Percentage of per Producer Feed Inputs

Input Source	Raw Feed	Complete Feed	Feed Supplements
Farmers	16.82	0.069	1.49
Traders	39.90	42.56	28.11
Other Private Business	39.86	52.36	66.04
Government Owned Enterprise	1.18	1.71	0.92
Cooperative	0.15	0.37	0.00
MARD	0.00	0.00	0.50
Other	2.10	2.92	2.94

Table 4.74: Sources of Equipment as an Average Percentage of per Producer Equipment Inputs

Input Source	Percentage of Equipment Procurement
Farmers	0.00
Traders	37.72
Other Private Business	51.65
Government Owned Enterprise	4.46
Cooperative	1.79
MARD	0.00
Other	4.38

Table 4.75: Average per Producer Percentage of Inputs Purchased from Nearest Supplier

Product	Average Percentage of Inputs Purchased from Nearest Supplier
Breeding Stock – Pigs	86.53
Breeding Stock –Poultry	96.60
Breeding Stock –Cattle	95.43
Meat Production Stock –Pig	96.35
Meat Production Stock –Poultry	96.96
Meat Production Stock –Cattle	100.00
Veterinary Inputs	95.27
Veterinary Services	95.88
Raw Feed	92.13
Complete Feed	97.32
Feed Supplements	98.56
Equipment	83.55

Table 4.76: Various Locations of Nearest Supplier as a Percentage of Nearest Input Suppliers by Input Type

	Outside District	Outside Province	Outside Region
Breeding Stock – Pigs	12.45	3.66	2.3
Breeding Stock –Poultry	36.43	17.47	8.36
Breeding Stock –Cattle	10.84	2.41	1.2
Meat Production Stock –Pig	20.63	11.11	3.17
Meat Production Stock –Poultry	15.22	4.35	0.00
Meat Production Stock –Cattle	0	0	0
Veterinary Inputs	9.68	2.24	1.36
Veterinary Services	2.7	0.28	0.07
Raw Feed	6.85	1.52	1.33
Complete Feed	9.38	2.99	1.67
Feed Supplements	7.93	0.51	0.26
Equipment	14.69	6.64	4.27

Table 4.77: Percentage of Producers Growing Crops by Region and Crop Type

Region	Rice	Maize	Cassava	Sweet Potato	Potato	Groundnuts	Soybeans	Sugarcane
Red River Delta	75.23	29.95	9.89	28.09	5.63	7.21	4.95	2.03
North East	80.57	38.39	11.85	41.94	4.27	6.87	13.27	2.37
North West	79.43	18.44	24.82	38.30	0.00	2.13	0.00	26.95
North Central Coast	86.88	21.63	0.71	15.25	1.77	10.28	0.00	0.00
South Central Coast	86.49	16.60	4.63	4.25	0.00	1.54	3.09	4.63
Central Highlands	48.45	13.66	2.48	1.86	0.00	0.00	0.62	6.21
North East South	15.92	2.49	0.99	3.96	0.00	0.50	0.00	0.00
Mekong River Delta	39.87	0.00	0.00	0.66	0.00	0.00	0.00	1.33

Table 4.78: Average Crop Production Details by Crop Type

Average	Rice	Maize	Sweet Potato	Potato	Groundnuts	Soybeans
Area (ha)	0.66	0.23	0.09	0.06	0.15	0.12
Production (kg/yr)	2840	859.17	1161.07	713.88	264.85	231.41
Income (D'000/yr)	9549.00	1560.18	535.14	944.20	1125.62	985.05

Table 4.79: Average Crop Balance Sheets

Variable	Rice (kg)	Maize (kg.)	Maize (kg.)	Sweet Potato (kg.)	Potato (kg.)	Groundnut (kg.)	Soybean (kg.)	Sugarcane (kg.)
Initial Stock	627.72	1158.32	102.22	13.11	25.51	16.75	210.76	0.00
Production	2840	859.17	847.25	1161.07	713.88	264.85	231.41	11140.99
Purchase	759.29	2516.49	1304.76	48.62	24.49	2.97	1616.56	237.04
Sale	3199.5	2534.22	2216.92	664.84	587.50	231.54	313.65	11439.62
Home Consumption	1309.0	3.54	6.58	39.70	130.39	38.26	13.09	29.75
Feed	1023.82	2962.17	1684.37	668.03	179.59	3.31	1609.63	1.90
End Stock	818.80	883.86	129.88	21.42	45.54	47.88	228.98	339.24

Table 4.80: Sales to Different Buyers as an Average Percentage of per Producer Annual Sales by Crop Type and Buyer Type

Buyer	Rice	Maize	Cassava	Sweet Potato	Potato	Ground Nut	Soybean	Sugarcane	All Crops
Farmer	19.31	27.06	24.64	67.35	24.24	23.81	23.21	4.82	21.66
Assembler	33.57	47.06	46.38	11.22	42.42	53.57	42.86	27.71	34.47
Retailers	3.61	1.18	1.45	7.14	15.15	10.71	10.71	9.64	5.76
Wholesalers	16.61	17.65	7.25	6.12	15.15	7.14	10.71	8.43	14.51
Millers	24.19	2.35	13.04	-	-	-	-	1.20	15.05
Feed Factory	0.18	2.35	1.45	-	-	-	1.79	-	0.53
GOE	0.54	-	-	-	-	-	-	32.53	3.20
Cooperatives	0.36	-	-	-	-	-	-	1.20	0.32
Other	1.62	2.35	5.80	8.16	3.03	4.76	10.71	14.46	4.48

Table 4.81: Average Quantity of per Producer Annual Crop Sales by Buyer and Crop Type (kg)

Buyer	Rice	Maize	Cassava	Sweet Potato	Potato	Groundnut	Soybean	Sugarcane
Farmer	496.28	75.34	90.66	185.47	14.19	9.61	151.54	4637.50
Assembler	1865.05	176.56	188.59	27.32	23.75	43.55	273.64	11959.57
Retailers	522.69	3.70	9.26	106.48	47.78	29.63	115.17	3318.75
Wholesalers	2391.99	309.97	57.72	43.38	27.35	11.79	193.33	5200.00
Millers	3235.23	6.39	251.42	0.00	0.00	0.00	0.00	2000.00
Feed Factory	1748.60	20117.20	670.00	0.00	0.00	0.00	200.00	0.00
GOE	846.67	0.00	0.00	0.00	0.00	0.00	0.00	13005.56
Cooperatives	564.33	0.00	0.00	0.00	0.00	0.00	0.00	2700.00
Other	283.52	7.62	408.24	91.67	3.57	6.19	764.17	10600.00

Table 4.82: Average Crop Sale Prices by Buyer (D'000/kg)

Buyer	Rice	Maize	Cassava	Sweet Potato	Potato	Groundnut	Soybean	Sugarcane
Farmer	1.91	2.12	1.06	0.63	1.19	4.92	4.05	0.51
Assembler	1.99	1.78	0.83	0.75	1.60	4.51	5.54	0.80
Retailers	1.80	4.00	0.25	0.84	1.45	5.33	4.60	1.00
Wholesalers	1.80	1.92	0.54	0.47	1.48	4.25	4.22	0.35
Millers	1.97	1.90	0.94	-	-	-	-	0.23
Feed Factory	1.90	1.90	0.40	-	-	-	3.80	-
GOE	2.32	-	-	-	-	-	-	0.30
Cooperatives	1.90	-	-	-	-	-	-	0.20
Other	2.20	2.50	1.05	0.75	1.50	4.75	4.20	0.54

Table 4.83: Sales Location as an Average Percentage of per Producer Annual Sales by Crop Type

Product	Farmgate	Marketplace	Contract	Other
Rice	83.80	12.84	0.30	3.06
Maize	73.45	24.25	0.00	1.15
Potato	62.50	37.50	0.00	0.00
Sweet Potato	35.66	64.34	0.00	0.00
Cassava	72.46	21.38	1.54	4.62
Sugarcane	65.94	5.19	16.22	12.66
Groundnut	42.17	57.83	0.00	0.00
Soybeans	51.58	44.91	0.00	3.51

Table 4.84: Average Distance to Nearest Market/Customer by Crop Type

Product	Average Market/Customer Distance (kilometers)
Rice	2.73
Maize	2.05
Potato	2.04
Sweet Potato	2.18
Cassava	7.41
Sugarcane	6.37
Groundnut	3.33
Soybeans	1.75

Table 4.85: Average Distance to Nearest Market/Customer by Region

Region	Average Market/Customer Distance (kilometers)
Red River Delta	1.64
North East	2.93
North West	2.84
North Central Coast	2.60
South Central Coast	3.16
Central Highlands	4.77
North East South	7.17
Mekong River Delta	10.06

Table 4.86: Percentage of Producers Selling To Buyers Outside their Region by Crop Type

	Rice	Maize	Cassava	Sweet Potato	Potato	Groundnuts	Soy Beans	Sugarcane
Market Outside District	4.86	5.41	20	12.9	0	9.62	0	6.9
Market Outside Province	1.39	0	12	3.23	0	1.92	0	3.45
Market Outside Region	0.69	0	12	3.23	0	1.92	0	3.45

Table 4.87: Input Sources as an Average Percentage of per Producer Total Input Procurement by Input Type

Input Type	Traders	Other Business	SOE	POE	DOE	Cooperative	Other	Total
Seed	5.14	8.16	3.12	12.97	11.99	35.81	22.83	100.00
Fertilizer	47.22	45.76	0.13	0.73	0.91	3.72	1.53	100.00
Equipment	62.68	31.94	0.29	1.79	1.57	0.49	0.95	100.00

Table 4.88: Average Annual Rice Labor Cost by Labor Type

Variable	Per Producer Labor Cost (D'000/YR)
Plowing	207.20
Harrowing	149.20
Leveling	45.36
Hilling Up	6.25
Seeding	196.08
Manuring	87.48
Fertilizing	81.84
Spraying	83.25
Weeding	184.67
Irrigation	67.68
Harvesting	329.07
Threshing	152.12

Table 4.89: Average Annual Rice Labor Cost by Region

Region	Per Producer Labor cost (D'000/YR)
Red River Delta	1299.32
North East	1363.71
North West	1179.24
North Central Coast	1636.44
South Central Coast	1086.34
Central Highlands	1617.37
North East South	3091.50
Mekong River Delta	3853.24

Table 4.90: Average Annual Maize Labor Cost by Labor Type

Variable	Per Producer Labor Costs (D'000/Year)
Plowing	74.61
Harrowing	39.52
Leveling	7.66
Hilling Up	32.22
Seeding	58.22
Manuring	35.13
Fertilizing	33.39
Spraying	16.53
Weeding	122.02
Irrigation	25.60
Harvesting	77.46
Threshing	81.42

Table 4.91: Average Annual Maize Labor Cost by Region

Region	Per Producer Labor Costs (D'000/Year)
Red River Delta	674.12
North East	397.48
North West	322.42
North Central Coast	462.07
South Central Coast	848.41
Central Highlands	1436.09
North East South	2843.00
Mekong River Delta	-

Table 4.92: Average Annual Cassava Labor Cost by Labor Type

Variable	Per Producer Labor Costs (D'000/Year)
Plowing	73.21
Harrowing	20.93
Leveling	2.82
Hilling Up	39.61
Seeding	52.31
Manuring	28.44
Fertilizing	18.05
Spraying	2.68
Weeding	68.02
Irrigation	0.27
Harvesting	135.19
Threshing	2.26

Table 4.93: Average Annual Cassava Labor Cost by Region

Region	Per Producer Labor Costs (D'000/Year)
Red River Delta	574.60
North East	352.22
North West	384.86
North Central Coast	660.00
South Central Coast	294.08
Central Highlands	923.75
North East South	608.00

Table 4.94: Average Annual Sweet Potato Labor Cost by Labor Type

Variable	Per Producer Labor Costs (D'000/Year)
Plowing	27.67
Harrowing	16.93
Leveling	0.89
Hilling Up	23.72
Seeding	37.04
Manuring	19.02
Fertilizing	13.35
Spraying	0.63
Weeding	32.05
Irrigation	11.58
Harvesting	80.86
Threshing	0.48

Table 4.95: Average Annual Sweet Potato Labor Cost by Region

Region	Per Producer Labor Costs (D'000/Year)
Red River Delta	351.10
North East	218.28
North West	195.17
North Central Coast	216.63
South Central Coast	214.91
Central Highlands	512.50
North East South	526.50
Mekong River Delta	638.00

Table 4.96: Average Annual Potato Labor Cost by Labor Type

Variable	Per Producer Labor Costs (D'000/Year)
Plowing	16.62
Harrowing	13.90
Leveling	2.50
Hilling Up	18.15
Seeding	33.35
Manuring	31.84
Fertilizing	9.26
Spraying	9.91
Weeding	20.50
Irrigation	24.01
Harvesting	30.58
Threshing	3.75

Table 4.97: Average Annual Potato Labor Cost by Region

Region	Per Producer Labor Costs (D'000/Year)
Red River Delta	203.23
North East	247.17
North Central Coast	152.00

Table 4.98: Average Annual Groundnut Labor Cost by Labor Type

Variable	Per Producer Labor Costs (D'000/Year)
Plowing	51.95
Harrowing	35.44
Leveling	6.12
Hilling Up	21.23
Seeding	39.52
Manuring	19.94
Fertilizing	14.81
Spraying	10.01
Weeding	63.74
Irrigation	23.64
Harvesting	64.76
Threshing	35.75

Table 4.99: Average Annual Groundnut Labor Cost by Region

Region	Per Producer Labor Costs (D'000/Year)
Red River Delta	243.06
North East	337.24
North West	201.25
North Central Coast	548.02
South Central Coast	529.25
North East South	2125.00

Table 4.100: Average Annual Soybean Labor Cost by Labor Type

Variable	Per Producer Labor Costs (D'000/Year)
Plowing	42.80
Harrowing	28.28
Leveling	4.11
Hilling Up	32.04
Seeding	41.91
Manuring	20.73
Fertilizing	15.44
Spraying	18.98
Weeding	69.19
Irrigation	9.19
Harvesting	59.43
Threshing	23.76

Table 4.101: Average Annual Soybean Labor Cost by Region

Region	Per Producer Labor Costs (D'000/Year)
Red River Delta	211.43
North East	342.34
South Central Coast	873.50
Central Highlands	1020.00

Table 4.102: Average Annual Sugarcane Labor Cost by Labor Type

Variable	Per Producer Labor Costs (D'000/Year)
Plowing	96.61
Harrowing	37.84
Leveling	22.80
Hilling Up	55.20
Seeding	104.94
Manuring	38.11
Fertilizing	37.12
Spraying	11.71
Weeding	197.49
Irrigation	7.83
Harvesting	150.90
Threshing	16.46

Table 4.103: Average Annual Sugarcane Labor Cost by Region

Region	Per Producer Labor Costs (D'000/Year)
Red River Delta	420.44
North East	637.70
North West	498.47
South Central Coast	891.75
Central Highlands	1850.40
Mekong River Delta	1546.25

Table 4.104: Average Percentage of Producers Using Transportation by Region

Region	Percent
Red River Delta	95.51
North East	97.15
North West	98.58
North Central Coast	98.94
South Central Coast	89.96
Central Highlands	85.71
North East South	93.56
Mekong River Delta	90.03

Table 4.105: Percentage of Producers Who Rent Transportation by Region

Region	Percentage of Producers who Rent Transportation
Red River Delta	12.12
North East	2.69
North West	7.91
North Central Coast	1.08
South Central Coast	18.45
Central Highlands	33.10
North East South	14.14
Mekong River Delta	23.36

Table 4.106: Percentage of Rented Transportation Used For Buying and Selling Outside the Producer's District

	Outside District	Outside Province	Outside Region
Buying	15.47	6.83	2.88
Selling	7.55	2.52	1.44

Table 4.107: Average Characteristics of Transportation Journeys by Transport Type

Transport Type	Transport Distance (km)	Transport Time (hours)	Weight Transported (tons)	Cost of Transport (D'000/ journey)
Truck	73.02	3.32	2.66	301.55
Cart	4.39	0.95	0.67	28.37
Motorcycle	11.92	1.56	0.67	19.83
Bicycle	2.76	0.64	0.2	6.80
Cyclo	2.48	1.12	0.35	14.33
Train	-	-	-	-
Boat	6.92	1.08	2.79	52.00
Other	7.54	1.44	1.26	30.79

Table 4.108: Sources of Information as a Percentage of Total Information Sources

Information Sources	Price/Market	Commercial	Credit
Extension Agents	1.67	8.38	2.22
Press	0.90	5.86	0.57
Letter/Courier	0.05	1.60	0.21
Radio/TV	13.98	74.04	11.69
Intermediaries	7.74	1.10	3.78
Banks	0.09	0.00	64.98
Personal Contacts	38.73	5.45	13.19
Feed Mills	1.00	0.18	0.10
Traders	35.07	0.23	0.72
Feed Mill Associations	0.23	0.00	0.00
Other	0.54	3.11	2.38
Total	100.00	100.00	100.00

Table 4.109: Percentage of Producers Using Storage by Region

Region	Percent
Red River Delta	96.18
North East	91.94
North West	89.36
North Central Coast	97.16
South Central Coast	54.44
Central Highlands	39.13
North East South	54.46
Mekong River Delta	37.54

Table 4.110: Average Storage Capacity by Storage Facility Type

Storage Facility	Average Storage Capacity (m ²)
Open Air	6.10
Closed Shed	10.76
Shed Without Walls	39.54
Concrete Warehouse	85.32
Sealed Warehouse	4.00
Non-Sealed Warehouse	30.00
Chilled Storage	-
Frozen Storage	12.60
House	10.61
Silo	-
Store	17.44
Other	3.55

Table 4.111: Storage Types as a Percentage of Total Storage Types Utilized by Surveyed Producers

Storage Type	Percent
Feed	27.31
Grain Production	61.04
Cassava Chips	7.15
Groundnuts	1.50
Soybeans	3.00

Table 4.112: Storage Facility Use as a Percentage of Total Storage Use by Storage Type

Storage Facility	Feed	Grain	Cassava Chips	Groundnuts	Soybeans
Open Air	0.63	0.14	0.00	0.00	0.00
Closed Shed	1.41	0.21	0.00	0.00	1.43
Shed Without Walls	3.13	1.12	1.81	0.00	2.86
Concrete Warehouse	2.98	0.77	0.60	0.00	1.43
Sealed Warehouse	0.47	0.35	0.00	0.00	0.00
Non-Sealed Warehouse	0.16	0.14	0.00	0.00	0.00
Chilled Storage	-	-	-	-	-
Frozen Storage	0.78	0.56	0.00	0.00	1.43
House	88.40	95.86	97.59	100.00	92.86
Silo					
Store	1.41	0.56	0.00	0.00	0.00
Other	0.63	0.28	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00

Table 4.113: Percentage of Asset Owning Producers by Asset Type

Asset Type	Percentage of Producers Owning Asset Type
Land	78.85
Equipment	49.48
Transport	90.28
Animal Housing	98.46
Buildings	70.85
Other	7.02

Table 4.114: Average Asset Values by Farm Size

Farm Size	Total Asset Value (D million)
Small farm	28.413
Medium farm	53.330
Large farm	278.275

Table 4.115: Average Total per Producer Asset Value by Region

Region	Average per Producer Total Asset Value (D million)
Red River Delta	55.28
North East	31.10
North West	18.22
North Central Coast	24.12
South Central Coast	42.58
Central Highlands	20.66
North East South	205.44
Mekong River Delta	58.64

Table 4.116: Asset Value as an Average Percentage of per Producer Total Asset Value by Region

Region	Transport	Buildings	Titled Property	Durable Goods	Total
Red River Delta	21.14	34.44	41.02	2.40	100.00
North East	18.75	59.87	19.56	1.48	100.00
North West	15.31	28.61	51.40	3.42	100.00
North Central Coast	20.34	52.85	18.66	7.17	100.00
South Central Coast	30.74	21.30	45.15	2.21	100.00
Central Highlands	34.40	19.59	45.24	0.29	100.00
North East South	24.09	8.71	64.71	1.63	100.00
Mekong River Delta	28.93	13.86	54.49	1.80	100.00
National Average	23.58	33.65	39.41	2.58	100.00

Table 4.117: Asset Value as a Proportion (%) of Total Asset Value by Farm Size

Farm Size	Transport	Buildings	Titled Property	Durable Goods	Total
Small farm	22.93	37.38	36.12	2.80	100.00
Medium farm	25.73	26.08	45.48	1.93	100.00
Large farm	23.96	22.49	50.47	2.26	100.00

Table 4.118: Average Depreciation Schedule

Asset Type	Average Purchase Value (D'000)	Average Current Value (D'000)	Average Depreciation (D'000)	Average Asset Age (years)	Average Annual Depreciation (D'000)
Cart	1583.32	1268.52	314.80	5.92	117.13
Trailer	21000.00	16200.00	4800.00	2.40	1811.11
Horse	2025.00	1725.00	300.00	2.50	110.42
Ox	737.62	554.42	183.20	4.76	51.21
Bicycle	657.44	436.35	220.78	4.77	70.68
Cyclo	983.33	716.67	266.67	4.83	77.50
Motorcycle	16216.47	14900.59	1315.89	3.62	469.63
Car	33380.00	18080.00	15300.00	2.60	3550.00
Van/Minivan	67904.77	52914.29	14990.48	4.14	3879.28
Pickup Truck	300000.00	250000.00	50000.00	4.00	12500.00
Truck	135000.00	110000.00	25000.00	8.00	3125.00
Tractor	14572.73	11350.00	3222.73	3.95	1046.35
Ship	1000.00	800.00	200.00	2.00	100.00
Barge	4152.18	3845.00	307.18	3.85	108.50
Barn	2502.94	2015.71	487.23	4.90	73.83
Greenhouse	150.00	100.00	50.00	2.00	25.00
Silo	10000.00	7000.00	3000.00	2.00	1500.00
Pit	2250.00	2250.00	0.00	0.50	0.00
Shed (no walls)	15756.52	12094.58	2805.18	8.07	311.79
Closed Shed	1562.71	1533.09	29.61	8.20	4.35
House	8702.36	8371.92	775.67	7.49	110.64
Cottage	275.00	250.00	25.00	3.00	12.50
Warehouse	6118.31	5562.37	555.94	4.59	197.94
Store	609.78	471.65	138.13	5.53	37.41
Factory/Mill	11333.33	11200.00	133.33	2.67	44.44
Office	843.80	625574.90	77.18	3.67	43.85
Farm	3770.82	3587.97	425.00	4.93	106.97
Refrigerator	3500.00	3166.67	333.33	5.00	179.49
Air Conditioner	52000.00	46500.00	5500.00	7.00	5038.46
Television	4025.00	3000.00	1025.00	2.67	400.00
Dryer	2200.00	2200.00	0.00	1.00	0.00
Milling Machine	7877.18	6271.59	1618.21	4.12	484.13
Threshing Machine	786.64	529.91	256.73	4.40	112.92
Pump	690.90	520.61	173.99	3.81	57.42
Pesticide Sprayer	776.22	660.75	115.47	3.53	38.41
Hatching Machine	16146.09	11274.35	4871.74	2.78	2419.59
Generator	2550.79	2007.30	543.49	4.00	131.27

Table 4.119: Percentage of Producers Utilizing Credit by Region

Region	Percentage of Producers Utilizing Credit
Red River Delta	41.89
North East	29.15
North West	53.57
North Central Coast	18.79
South Central Coast	19.31
Central Highlands	31.68
North East South	41.58
MRD	39.33

Table 4.120: Loan Purpose as a Percentage of Total Loans by Region

Loan Purpose	RRD	NE	NW	NCC	SCC	CH	NES	MRD
Live pig	23.00	15.38	9.09	9.09	15.38	5.45	22.58	15.45
Pig meat	0.47	0.77	1.14	0.00	0.00	0.00	0.00	0.00
Live poultry	8.45	8.46	5.68	7.27	26.92	1.82	5.38	11.38
Poultry meat	0.47	0.00	0.00	0.00	0.00	0.00	1.08	0.00
Live cattle/buffalo	1.88	2.31	7.95	9.09	0.00	3.64	1.08	0.00
Feed/raw materials	50.70	46.15	45.45	45.45	36.54	10.91	66.67	52.85
Fertilizer/seeds	1.41	6.15	6.82	9.09	9.62	43.64	0.00	5.69
Labor	0.94	0.77	2.27	0.00	0.00	3.64	0.00	0.00
Other inputs	0.94	9.23	5.68	5.45	0.00	10.91	0.00	2.44
Marketing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81
Building/facilities	2.82	3.08	9.09	3.64	1.92	0.00	1.08	5.69
Transportation	0.00	0.77	0.00	1.82	0.00	1.82	0.00	0.00
Other	8.92	6.92	6.82	9.09	9.62	18.18	2.15	5.69

Table 4.121: Lender Type as a Proportion of Total Lenders (%) by Farm Size

Lender	Small Farms	Medium Farms	Large Farms
Farmers	0.60	0.50	1.79
Friends and relatives	7.03	10.00	7.14
Traders	0.20	0.50	0.00
Other enterprises	0.00	0.00	0.89
Money lenders	2.81	4.00	8.04
Foreign banks	0.20	0.00	0.00
Commercial banks	2.21	3.50	1.79
Agricultural banks	68.27	68.50	59.82
Other credit institutions	14.66	12.00	16.96
Other	4.02	1.00	3.57

Table 4.122: Lender Type as a Percentage of Total Loans Granted by Region

Lender	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Farmers	1.87	0.00	0.00	0.00	0.00	0.00	0.00	1.63
Friends and relatives	11.21	8.46	9.09	7.27	1.92	7.27	6.45	4.07
Traders	0.47	0.00	0.00	1.82	0.00	0.00	0.00	0.00
Other enterprises	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81
Money lenders	3.27	3.08	2.27	9.09	1.92	9.09	6.45	0.81
Foreign banks	0.00	0.77	0.00	0.00	0.00	0.00	0.00	0.00
Commercial banks	0.00	1.54	0.00	0.00	5.77	0.00	2.15	10.57
Agricultural banks	59.35	69.23	64.77	80.00	71.15	76.36	73.12	64.23
Other credit institutions	21.03	9.23	22.73	1.82	13.46	3.64	10.75	15.45
Other	2.80	7.69	1.14	0.00	5.77	3.64	1.08	2.44

Table 4.123: Average Loan Characteristics by Lender Type

Lender	Average Amount Borrowed (D million)	Average Loan Term (months)	Average Interest rate (% per month)
Farmers	5.83	15.33	2.79
Friends and relatives	9.51	20.64	1.06
Traders	26.50	12.00	2.10
Other enterprises	2000.00	6.00	1.05
Money lenders	21.40	12.19	3.39
Foreign banks	2.00	12.00	1.20
Commercial banks	21.40	9.05	1.19
Agricultural banks	9.01	15.08	1.13
Other credit institutions	6.29	14.26	1.16
Other	22.20	17.69	0.83

Table 4.124: Average Loan Characteristics by Loan Purpose

Loan Purpose	Average Amount Borrowed (D million)	Average Loan Term (months)	Average Interest rate (% per month)
Live pig	11.60	13.70	1.17
Pig meat	1.90	22.00	1.13
Live poultry	9.03	16.44	1.56
Poultry meat	6.00	4.00	0.70
Live cattle/buffalo	10.70	24.09	1.01
Feed/raw materials	9.94	13.45	1.17
Fertilizer/seeds	5.26	16.14	1.11
Labor	11.90	29.67	0.91
Other inputs	6.31	19.70	1.06
Marketing	10.00	6.00	1.50
Building/facilities	16.70	19.83	1.43
Transportation	10.70	28.00	1.23
Other	41.40	16.81	1.40

Table 4.125: Collateral Types as a Percentage of Total Collateral Requirements by Lender

Lender	House	Land	Building	Equipment	Livestock	Social capital	Not required	Other
Farmers	0.00	0.00	0.00	0.00	0.00	50.00	50.00	0.00
Friends and relatives	0.00	1.67	0.00	0.00	0.00	53.33	43.33	1.67
Traders	50.00	0.00	0.00	0.00	0.00	50.00	0.00	0.00
Money lenders	0.00	3.23	0.00	0.00	0.00	64.52	32.26	0.00
Foreign banks	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
Commercial banks	25.00	50.00	0.00	5.00	0.00	20.00	0.00	0.00
Agricultural banks	49.36	27.26	0.37	0.18	0.18	13.44	7.73	1.47
Other credit institutions	37.07	12.07	0.00	0.86	2.59	26.72	18.97	1.72
Other	19.23	3.85	0.00	0.00	0.00	30.77	42.31	3.85
All Lenders	39.95	21.84	0.25	0.37	0.5	21.46	14.14	1.49

Table 4.126: Collateral Types as a Percentage of Total Collateral Requirements by Loan Purpose

Loan Purpose	House	Land	Building	Equipment	Livestock	Social capital	Not required	Other
Live pig	52.27	19.70	0.00	0.00	0.76	8.33	18.18	0.76
Pig meat	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Live poultry	31.94	23.61	0.00	1.39	0.00	29.17	11.11	2.78
Poultry meat	50.00	0.00	0.00	0.00	0.00	50.00	0.00	0.00
Live cattle/buffalo	45.45	18.18	0.00	0.00	4.55	27.27	4.55	0.00
Feed/raw materials	39.32	22.40	0.00	0.26	0.26	24.22	12.24	1.30
Fertilizer/seeds	36.21	34.48	0.00	0.00	0.00	24.14	5.17	0.00
Labor	28.57	0.00	14.29	0.00	0.00	42.86	14.29	0.00
Other inputs	40.00	16.67	3.33	0.00	0.00	16.67	23.33	0.00
Marketing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Building/Facilities	27.59	20.69	0.00	3.45	0.00	24.14	24.14	0.00
Transport	0.00	33.33	0.00	0.00	0.00	0.00	66.67	0.00
Other	33.87	17.74	0.00	0.00	1.61	19.35	22.58	4.84

Table 4.127: Average Percentage of Borrowers with Sufficient Credit by Region

Region	Average Percentage of Borrowers with Sufficient Credit
Red River Delta	39.25
North East	51.22
North West	65.33
North Central Coast	54.72
South Central Coast	58.00
Central Highlands	41.18
North East South	32.14
Mekong River Delta	34.75
Total	44.86

Table 4.128: Average Additional Credit Requirement and Average Additional Monthly Interest Amount by Region

Region	Average Additional Credit Requirement (D'000)	Average Additional Interest Willing to Pay (% per month)
Red River Delta	18666.67	1.19
North East	13450.05	1.11
North West	15074.07	1.00
North Central Coast	9125.00	1.19
South Central Coast	21485.71	1.14
Central Highlands	20300.00	1.46
North East South	86655.17	1.37
Mekong River Delta	40244.23	1.14

Table 4.129: Reasons for Insufficient Credit as a Percentage of Total Reasons by Region

Region	No Collateral	Lack of Connections	Interest too high	Complicated Procedures	Other
Red River Delta	13.51	9.01	18.02	29.73	29.73
North East	20.34	1.69	33.90	22.03	22.03
North West	11.11	0.00	14.81	51.85	22.22
North Central Coast	50.00	4.17	33.33	12.50	0.00
South Central Coast	66.67	9.52	9.52	4.76	9.52
Central Highlands	66.67	0.00	6.67	13.33	13.33
North East South	56.14	0.00	10.53	10.53	22.81
Mekong River Delta	56.76	8.11	12.16	12.16	10.81
Total	37.22	4.96	17.62	20.60	19.60

Table 4.130: Percentage of Producers Selling on Consignment, Receiving Advance Payments and Giving Credit by Region

Region	Percentage of Producers Selling on Consignment	Percentage of Producers Receiving Advance Payments	Percentage of Producers Giving Credit
Red River Delta	58.65	12.13	12.36
North East	36.97	1.66	7.11
North West	63.12	12.77	12.06
North Central Coast	35.82	1.42	4.96
South Central Coast	22.78	20.46	1.93
Central Highlands	11.18	25.47	2.48
North East South	24.26	14.85	1.98
Mekong River Delta	23.59	19.27	1.00
Total	36.33	11.97	5.96

Table 4.131: Purpose of Loan Granted as a Percentage of Total Loans Granted

Purpose of Loan	Percentage of Loans
Non-business	77.69
Very Short term Credit	4.62
Short term Credit	5.38
Medium term Credit	4.62
Long Term Credit	3.85
Other	3.85

Table 4.132: Average Annual per Producer Livestock Raising Profits By Region

Region	Average Annual Profit Level (D'000)	Average Profit as a Percentage of Livestock Income
Red River Delta	37660.05	35.14
North East	33659.41	53.03
North West	18528.67	63.64
North Central Coast	13677.44	64.86
South Central Coast	48966.37	38.70
Central Highlands	17853.44	37.06
North East South	163146.70	18.18
Mekong River Delta	60722.91	26.58

Table 4.133: Estimated Coefficients of Return to Scale Equation

Animal Type	Dependent Variable	Independent Variable	$\hat{\alpha}$	$\hat{\alpha}$
All Animals	Log(Livestock Profit)	Log (Livestock Revenue)	0.165	0.887
Pigs	Log(Livestock Profit)	Log (Livestock Revenue)	0.419	0.864
	Log(Livestock Profit)	Log(Pig Inventory)	7.47	0.664
Poultry	Log(Livestock Profit)	Log (Livestock Revenue)	0.63	0.827
	Log(Livestock Profit)	Log(Poultry Inventory)	5.66	0.67

Table 4.134: Profits By Farm Size

Farm Size	Profit Level (D'000)	Profit Percentage
Small farm	8108.54	44.60
Medium farm	31189.76	34.18
Large farm	346350.40	40.45

Table 4.135: Profitability Ratings as a Percentage all Ratings Given, by Activity

Activity	Good	Fair	Poor
Crop Production	20.98	73.18	5.83
Pig Production	38.01	56.99	5.00
Chicken Production	28.34	61.94	9.71
Duck Production	49.67	47.06	3.27
Egg Production	30.77	58.12	11.11
Cattle Production	41.97	54.82	3.21
Buffalo Production	19.06	71.94	8.99
Aquaculture	26.76	59.12	14.12
Forestry	13.64	50.00	36.36

Table 4.136: Profitability Ratings as a Percentage of all Ratings Given, by Region

	Good	Fair	Poor
Red River Delta	31.83	63.33	4.84
North East	28.71	64.67	6.62
North West	28.29	62.40	9.30
North Central Coast	13.97	73.31	12.73
South Central Coast	38.75	58.04	3.21
Central Highlands	39.87	54.49	5.65
North East South	37.78	53.33	8.89
Mekong River Delta	44.27	50.67	5.11

Table 4.137: Reasons for Profitability Change as a Percentage of All Reasons Given

Reason for Change	Any Change	Rise	Fall
Sale price	56.34	60.00	53.95
Purchase price	2.57	2.24	2.81
Volume of trade	16.01	9.91	20.15
Interest rate	0.76	0.37	1.02
Other operating costs	0.30	0.56	0.13
Competition level	0.45	1.12	0.00
Technology level	3.78	1.31	5.48
Other	19.79	24.49	16.45

Table 4.138: Reasons for Change in Profitability by Activity Type as a Percentage of All Reasons Given

Reason for Change	Cropping	Pigs	Chickens	Ducks	Eggs	Cattle	Buffalo	Aquaculture
Sale price	33.33	72.59	48.13	50.00	62.79	30.38	9.09	71.43
Purchase price	1.79	3.06	2.80	7.14	0.00	1.27	0.00	0.00
Volume of trade	23.30	6.58	16.36	28.57	30.23	45.57	63.64	21.43
Interest rate	0.00	1.07	1.40	0.00	0.00	0.00	0.00	0.00
Other operating costs	0.36	0.46	0.00	0.00	0.00	0.00	0.00	0.00
Competition level	0.00	0.31	1.40	3.57	0.00	0.00	0.00	0.00
Technology level	6.81	3.37	2.80	0.00	2.33	2.53	0.00	0.00
Other	34.41	12.56	27.10	10.71	4.65	20.25	27.27	7.14

Table 4.139: Percentage of Producers Reporting Profitability Changes, by Activity

Activity	No Change	Rise	Fall
Crop Production	83.88	7.26	8.86
Pig Production	61.80	13.22	24.97
Chicken Production	76.04	12.48	11.49
Duck Production	76.47	10.46	13.07
Egg Production	78.81	12.29	8.90
Cattle Production	82.87	4.58	12.55
Buffalo Production	96.04	0.72	3.24
Aquaculture	95.29	1.18	3.53
Forestry	94.32	0.00	5.68

Table 4.140: Percentage of Producers Giving Activity a High Profitability Ranking, by Activity

Activity	Percentage of Producers Giving Activity a High Profitability Ranking
Crop Production	12.13
Pig Production	31.44
Chicken Production	12.09
Duck Production	2.91
Egg Production	2.86
Cattle Production	9.45
Buffalo Production	1.23
Other Livestock	0.41
Other Agriculture	2.09
Non-Agriculture	25.40

Table 4.141: Profitability Rankings by Region

Region	Most Profitable Activity
Red River Delta	Pig Production
North East	Non-Agricultural
North West	Pig Production
North Central Coast	Non-Agricultural
South Central Coast	Pig Production
Central Highlands	Cropping
North East South	Pig Production
Mekong River Delta	Pig Production

Table 4.142: Average Annual Household Consumption Levels by Food Commodity

Commodity	Home Produced Consumption (kg/year)	Quantity Purchases (kg/year)	Purchase Value (D'000/year)
Rice	829.10	575.64	2168.44
Cassava	73.43	483.85	877.69
Sweet Potato	104.56	19.91	39.80
Maize	57.77	23.72	86.47
Fruits	108.68	84.00	383.54
Vegetable	248.48	208.68	357.89
Pork	4.02	89.77	1622.93
Poultry	40.66	26.59	573.76
Beef	1.15	16.88	466.84
Carabeef	0.07	9.14	205.91
Milk	58.42	23.30	290.01
Aquatic Products	58.99	85.81	833.53
Other	86.47	97.86	277.46

Table 4.143: Average per Household Annual Food Cost by Region

Region	Average per Household Annual Food Cost (D'000)
Red River Delta	4332.16
North East	3576.70
North West	3339.88
North Central Coast	1898.90
South Central Coast	4358.63
Central Highlands	6522.48
North East South	8440.99
Mekong River Delta	6416.02

Table 4.144: Average Purchases and Home Production by Region

Region	Average Purchased Percentage	Average Home Produced Percentage
Red River Delta	44.37	55.63
North East	38.97	61.03
North West	35.15	64.85
North Central Coast	23.30	76.70
South Central Coast	42.37	57.63
Central Highlands	67.53	32.47
North East South	86.80	13.20
Mekong River Delta	69.07	30.93

Table 4.145: Average per Household Annual Expense Level by Expense Type

Expense	Average per Household Annual Expense Level (D'000/year)
School	2260.43
Medicine	605.08
Clothing	824.16
Household Repairs	10487.12
Furniture and Appliances	3540.53
Social Events	1721.30
Taxes	312.25
All other	892.22
Total	10557.65

Table 4.146: Average per Household Annual Expenditure Levels by Region (D'000)

Region	Food expenditure (D'000/year)	Other Expenditure (D'000/year)	Total Expenditure (D'000/year)
Red River Delta	4822.762	24019.55	28842.31
North East	4041.584	18907.13	22948.72
North West	4246.83	18320.21	22567.04
North Central Coast	2191.802	12321.33	14513.13
South Central Coast	4478.741	18669.34	23148.08
Central Highlands	7009.915	15748.47	22758.39
North East South	8635.77	44324.54	52960.31
Mekong River Delta	6903.416	20425.34	27328.75

Table 4.147: Average per Household Expenditure of Product Categories as a Percentage of Total per Household Expenditure Levels by Region

Region	Food expenditure (D'000/year)	Other Expenditure (D'000/year)
Red River Delta	16.72	83.28
North East	17.61	82.39
North West	18.82	81.18
North Central Coast	15.10	84.90
South Central Coast	19.35	80.65
Central Highlands	30.80	69.20
North East South	16.31	83.69
Mekong River Delta	25.26	74.74

Table 4.148: Average per Household Expenditure Levels by Farm Size

Farm Size	Food expenditure (D'000/year)	Other Expenditure (D'000/year)	Total Expenditure (D'000/year)
Small farm	4721.633	18422.21	23143.84
Large farm	5219.894	24573.34	29793.23

Table 4.149: Reasons for Not Having Livestock Contract as a Percentage of Total Reasons Given

Reason for no Contract	Percent
Contractor not Available in Area	89.33
High Cost of Finding Contractor	1.66
Business too Small	2.36
Market Prices Higher	0.05
Other	6.61

Table 5.1: Percentage of Surveyed Livestock and Meat Marketers Based in Each Region

Region	Percentage of Surveyed Marketers (%)
Red River Delta	20.69
North East	19.70
North West	6.40
North Central Coast	12.81
South Central Coast	12.56
Central Highlands	5.91
North East South	8.62
Mekong River Delta	13.30
Total	100.00

Table 5.2: Percentage of Marketers Specializing in Livestock Product Types, by Business Type

Specialization	Assembler	Wholesaler	Retailer	All Marketer Types
Pig Marketer	51.11	56.38	71.08	61.33
Chicken Marketer	24.44	18.79	12.05	17.24
Duck Marketer	2.22	1.34	0.00	0.99
Cattle/Buffalo Marketer	18.89	23.49	12.65	17.98
Multi Commodity	3.33	0.00	4.22	2.46
Total	100.00	100.00	100.00	100.00

Table 5.3: Percentage of Surveyed Marketers by Company Type and Region

Region	Private Foreign	Private Registered	Non-registered	Total
Red River Delta	0.00	64.63	35.37	100.00
North East	2.53	50.63	46.84	100.00
North West	0.00	61.54	38.46	100.00
North Central Coast	0.00	34.62	65.38	100.00
South Central Coast	0.00	100.00	0.00	100.00
Central Highlands	0.00	79.17	20.83	100.00
North East South	0.00	85.71	14.29	100.00
Mekong River Delta	0.00	88.89	11.11	100.00

Table 5.4: Percentage of Surveyed Marketers by Company Type and Business Type

Type of business	Private Foreign	Private Registered	Non-registered	Total
Assembler	0.00	34.44	65.56	100.00
Wholesaler	0.68	67.35	31.97	100.00
Retailer	0.60	87.35	12.05	100.00

Table 5.5: Percentage of Marketers by Number of Permanent Workers

Number of Permanent Workers	Percentage of Marketers
None	85.47
1	8.62
2	3.45
3	0.74
4	0.74
5	0.25
6	0.49
8	0.25

Table 5.6: Average Perceived Number of Marketer Competitors by Competitor Level

Direct Competitor Level	Number of Competitors
Market	12
Village	4
Commune	5
District Town	7
Whole District	7
Province Town	8
Whole Province	8
Region	6

Table 5.7: 1998 Average Marketer Sales Revenue by Region (D million)

Region	1998 Average Sales Revenue (D million)
Red River Delta	8836
North East	1680
North West	375
North Central Coast	908
South Central Coast	3260
Central Highlands	13374
North East South	4391
Mekong River Delta	23101

Table 5.8: Average Percentage of Income Derived From Various Sources, by Marketer Type

Type of Marketer	Livestock Sales	Carcasses Sales	Processed Meat Sales	Other	Total
Assembler	86	4	0	10	100.00
Wholesaler	28	62	0	10	100.00
Retailer	9	79	3	10	100.00

Table 5.9: Average Value of Product Procured from Various Sources (Percentage of Average Total Procurement Value), by Type of Business

Business Type	Household Farm	Commercial Farm	Slaughter house	Traders	State Farm	Other	Total
Assembler	74.44	1.87	0.04	23.20	0.45	0.00	100.00
Wholesaler	44.07	5.91	9.20	39.83	0.59	0.39	100.00
Retailer	45.92	1.81	30.84	20.82	0.57	0.05	100.00

Table 5.10: Average Value of Product Procured from Various Sources (Percentage of Average Total Procurement Value), by Product Type

Animal/meat type	Household Farm	Commercial Farm	Slaughter house	Traders	State Farm	Other	Total
Live Local Pig (20-50kg)	81.40	0.00	0.00	18.60	0.00	0.00	100.00
Live Local Pig (50+kg)	68.56	0.00	0.00	31.44	0.00	0.00	100.00
Local Pig Carcass	16.91	0.00	83.09	0.00	0.00	0.00	100.00
Local Pig Other	0.00	0.00	100.00	0.00	0.00	0.00	100.00
Live Improved Pig (20-50kg)	99.77	0.00	0.00	0.00	0.00	0.23	100.00
Live Improved Pig (50+kg)	55.47	6.42	0.60	36.84	0.65	0.03	100.00
Improved Pig Carcass	4.61	0.00	82.47	12.92	0.00	0.00	100.00
Improved Pig Processed Meat	0.00	0.00	0.00	100.00	0.00	0.00	100.00
Improved Piglets	57.69	0.00	0.00	42.31	0.00	0.00	100.00
Improved Pig Other	0.00	0.00	92.05	7.95	0.00	0.00	100.00
Live Local Chicken	61.63	0.00	0.00	36.46	0.00	1.91	100.00
Local Chicken Carcass	0.00	0.00	100.00	0.00	0.00	0.00	100.00
Live Improved Chicken	75.90	12.83	0.00	4.43	6.84	0.00	100.00
Improved Chicken Carcass	0.00	0.00	100.00	0.00	0.00	0.00	100.00
Live Duck	70.14	14.77	0.00	15.09	0.00	0.00	100.00
Live Cattle/Buffalo	62.85	0.00	2.12	34.04	0.00	0.98	100.00
Cattle/Buffalo Carcass	19.07	0.00	80.54	0.39	0.00	0.00	100.00
Cattle/Buffalo Calves	46.22	0.00	0.00	53.78	0.00	0.00	100.00

Table 5.11: Average Percentage of Products Procured From Various Sources, by Region

Region	Household Farm	Commercial Farm	Slaughter house	Traders	State Farm	Other	Total
Red River Delta	62.83	1.43	9.82	25.26	0.66	0.00	100.00
North East	57.43	0.76	13.30	27.57	0.00	0.93	100.00
North West	61.60	0.00	2.34	36.06	0.00	0.00	100.00
North Central Coast	74.42	0.00	6.47	17.87	0.39	0.86	100.00
South Central Coast	52.97	0.00	14.37	32.66	0.00	0.00	100.00
Central Highlands	58.80	0.00	7.36	33.83	0.00	0.00	100.00
North East South	30.12	13.47	1.70	54.71	0.00	0.00	100.00
Mekong River Delta	73.41	0.62	11.19	12.45	2.32	0.00	100.00

Table 5.12: Procurement Province as a Percentage of Total Pig Product Procurement

Province where Pig Product Procurement is Made	Percentage of Total Pig Product Procurement Made in the Province
Ha Noi	4.33
Hai Phong	3.25
Ha Tay	6.50
Hai Duong	0.36
Nam Dinh	0.36
Thai Binh	5.42
Ninh Binh	0.36
Tuyen Quang	0.36
Thai Nguyen	5.05
Phu Tho	6.50
Bac Giang	4.69
Son La	0.72
Hoa Binh	1.81
Thanh Hoa	4.69
Nghe An	3.61
Quang Nam	6.14
Binh Dinh	9.75
Phu Yen	0.36
Dac Lac	5.78
HCMC	5.42
Dong Nai	5.05
Binh Thuan	0.36
An Giang	3.61
Tien Giang	6.50
Vinh Long	1.08
Ben Tre	7.58
Tra Vinh	0.36
Total	100.00

Table 5.13: Average Percentage of Pig Product Procurement Made Outside Marketers Home Province

Marketer's Home Province	Average Percentage of Marketer's Pig Procurement that is Procured From Outside Home Province	Provinces from which Pig Product is Procured
Ha Noi	20.00	Ha Noi, Thai Nguyen
Hai Phong	50.00	Hai Phong, Hai Duong, Thai Binh, Bac Giang, Son La
Ha Tay	0.00	Ha Tay
Thai Binh	8.33	Thai Binh, Nam Dinh
Thai Nguyen	8.33	Thai Nguyen, Tuyen Quang
Phu Tho	0.00	Phu Tho
Bac Giang	0.00	Bac Giang
Hoa Binh	64.29	Hoa Binh, Ha Tay, Phu Tho
Thanh Hoa	15.38	Thanh Hoa, Ha Tay, Ninh Binh
Nghe An	0.00	Nghe An
Quang Nam	0.00	Quang Nam
Binh Dinh	0.00	Binh Dinh
Dac Lac	6.25	Dac Lac, Binh Dinh
Ho Chi Minh City	37.50	Ho Chi Minh City, Dong Nai, Tien Giang, Vinh Long, Ben Tre, Tra Vinh
Dong Nai	27.78	Dong Nai, Binh Tuan
An Giang	9.09	An Giang, Vinh Long
Tien Giang	11.11	Tien Giang, Ben Tre
Ben Tre	0.00	Ben Tre

Table 5.14: Average Distance Traveled to Make Pig Product Procurement, by Procurement Province

Province where Procurement is Made	Average Distance Traveled to make Pig Product Procurement in Province (km)
Ha Noi	6
Hai Phong	10
Ha Tay	21
Hai Duong	50
Nam Dinh	20
Thai Binh	18
Ninh Binh	70
Tuyen Quang	20
Thai Nguyen	19
Phu Tho	22
Bac Giang	156
Son La	60
Hoa Binh	4
Thanh Hoa	136
Nghe An	8
Quang Nam	3
Binh Dinh	67
Phu Yen	540
Dac Lac	41
HCMC	9
Dong Nai	8
Binh Thuan	150
An Giang	5
Tien Giang	14
Vinh Long	173
Ben Tre	13
Tra Vinh	280

Table 5.15: Procurement Province as a Percentage of Total Bovine Product Procurement

Province where Bovine Products are Procured	Percentage of Total Bovine Procurement Made in the Province
Ha Tay	9.30
Cao Bang	2.33
Bac Can	2.33
Lang Son	1.16
Tuyen Quang	2.33
Thai Nguyen	9.30
Phu Tho	10.47
Vinh Phuc	1.16
Bac Giang	9.30
Son La	1.16
Hoa Binh	9.30
Thanh Hoa	9.30
Nghe An	9.30
Quang Nam	9.30
Binh Dinh	2.33
Kon Tum	1.16
Gia Lai	8.14
Dac Lac	2.33
Total	100.00

Table 5.16: Average Percentage of Bovine Product Procurement Made Outside the Marketers Home Province

Marketer's Home Province	Average Percentage of Marketer's Bovine Procurement that is Procured From Outside Home Province (by value)	Provinces from which Bovine Product is Procured
Ha Tay	22.22	Ha Tay, Vin Phuc, Son La
Thai Nguyen	12.50	Thai Nguyen, Tuyen Quang
Phu Tho	0.00	Phu Tho
Bac Giang	46.67	Bac Giang, Cao Bang, Bac Can, Lang Son, Tuyen Quang, Thai Nguyen
Hoa Binh	20.00	Hoa Binh, Ha Tay, Phu Tho
Thanh Hoa	0.00	Thanh Hoa
Nghe An	0.00	Nghe An
Quang Nam	0.00	Quang Nam
Binh Dinh	0.00	Binh Dinh
Gia Lai	22.22	Gia Lai, Kon Tum, Dac Lac
Dac Lac	0.00	Dac Lac

Table 5.17: Average Distance Traveled to Make Bovine Product Procurement by Procurement Province

Province where Bovine Procurement is Made	Average Distance Traveled by Marketers to Procure Bovine Products in That Province (km)
Ha Tay	16
Cao Bang	315
Bac Can	200
Lang Son	120
Tuyen Quang	135
Thai Nguyen	28
Phu Tho	15
Vinh Phuc	80
Bac Giang	14
Son La	170
Hoa Binh	19
Thanh Hoa	32
Nghe An	27
Quang Nam	5
Binh Dinh	10
Kon Tum	45
Gia Lai	14
Dac Lac	54

Table 5.18: Percentage of Total Chicken Product Procurement by Procurement Province

Province where Chicken Products are Procured	Proportion of total Chicken Product Procurement Made From that Province (%)
Ha Noi	8.25
Hai Phong	6.19
Ha Tay	9.28
Hai Duong	3.09
Ha Nam	2.06
Nam Dinh	4.12
Thai Binh	7.22
Tuyen Quang	1.03
Thai Nguyen	8.25
Phu Tho	7.22
Vinh Phuc	1.03
Bac Giang	9.28
Hoa Binh	8.25
Thanh Hoa	7.22
Nghe An	6.19
Dac Lac	1.03
Dong Nai	2.06
Dong Thap	2.06
An Giang	4.12
Tien Giang	1.03
Can Tho	1.03
Total	100.00

Table 5.19: Average Percentage of Chicken Products Procured from Outside the Marketer's Home Province

Marketer's Home Province	Average Percentage of Chicken Products Procured Outside Marketer's Home Province	Provinces Where Chicken Product Procurements are Made
Ha Noi	33.33	Ha Noi, Ha Tay, Nam Dinh, Thai Binh, Bac Giang
Hai Phong	33.33	Hai Phong, Hai Duong
Ha Tay	16.67	Ha Tay, Vinh Phuc
Thai Binh	45.45	Thai Binh, Ha Nam, Nam Dinh
Thai Nguyen	12.50	Thai Nguyen, Tuyen Quang
Phu Tho	0.00	Phu Tho
Bac Giang	20.00	Bac Giang, Ha Tay, Thai Nguyen
Hoa Binh	20.00	Hoa Binh, Ha Tay
Thanh Hoa	0.00	Thanh Hoa
Nghe An	0.00	Nghe An
Dac Lac	0.00	Dac Lac
Dong Nai	0.00	Dong Nai
An Giang	42.86	An Giang, Dong Thap
Tien Giang	0.00	Tien Giang

Table 5.20: Average Distance Traveled to Procure Chicken Products, by Procurement Province

Province where chicken Product Procurement is Made	Average Distance Traveled by Marketers to Procure Chicken Products in that Province (km)
Ha Noi	8
Hai Phong	6
Ha Tay	31
Hai Duong	15
Ha Nam	55
Nam Dinh	41
Thai Binh	26
Tuyen Quang	17
Thai Nguyen	13
Phu Tho	11
Vinh Phuc	75
Bac Giang	13
Hoa Binh	26
Thanh Hoa	17
Nghe An	6
Dac Lac	20
Dong Nai	22
Dong Thap	15
An Giang	7
Tien Giang	7
Can Tho	20

Table 5.21: Percentage of Total Duck Product Procurement by Procurement Province

Province where Duck Products are Procured From	Percentage of Total Duck Product Procurement made from that Province
Hai Phong	11.11
Thai Nguyen	5.56
Lai Chau	5.56
Hoa Binh	5.56
Thanh Hoa	5.56
Nghe An	16.67
Ha Tinh	5.56
Dong Thap	16.67
An Giang	27.78

Table 5.22: Average Percentage of Duck Product Procurement Made Outside Marketer's Home Province

Marketer's Home Province	Average Percentage of Procurement made from outside the Marketer's home Province	Provinces Where Duck Products are Procured
Hai Phong	0.00	Hai Phong
Thai Nguyen	0.00	Thai Nguyen
Hoa Binh	50.00	Hoa Binh, Lai Chau
Thanh Hoa	0.00	Thanh Hoa
Nghe An	25.00	Nghe An, Ha Tinh
An Giang	37.50	An Giang, Dong Thap

Table 5.23: Average Distance Traveled to Make Duck Product Procurement, by Procurement Province

Province where Duck Products are Procured	Average Distance Traveled by Marketers to Procure Duck Products in that Province
Hai Phong	2
Thai Nguyen	8
Lai Chau	3
Hoa Binh	1
Thanh Hoa	60
Nghe An	26
Ha Tinh	50
Dong Thap	16
An Giang	9

Table 5.24: Average Value of Sales of Product to Different Buyers as a Percentage of Average Total Sales Value, by Type of Business

Marketer	Customers	Wholesalers	Slaughter houses	Retailers	Meat Processors	Other	Total
Assembler	2.53	37.20	54.69	4.89	0.36	0.33	100.00
Wholesaler	2.73	33.67	17.57	45.56	0.14	0.33	100.00
Retailer	89.20	0.14	0.35	9.47	0.28	0.56	100.00

Table 5.25: Average Value of Sales of Product to Different Buyers as a Percentage of Average Total Sales Value, by Product Type

Animal/meat type	Customers	Wholesalers	Slaughterhouses	Retailers	Meat Processors	Other	Total
Live Local Pig (20-50kg)	4.32	5.28	86.40	0.00	4.00	0.00	100.00
Live Local Pig (50+kg)	0.00	51.60	48.40	0.00	0.00	0.00	100.00
Local Pig Carcass	10.45	19.99	0.00	69.44	0.00	0.12	100.00
Local Pig Other	15.77	23.29	0.00	60.94	0.00	0.00	100.00
Live Improved Pig (20-50kg)	11.75	45.93	23.48	16.53	2.31	0.00	100.00
Live Improved Pig (50+kg)	0.12	26.49	72.68	0.68	0.00	0.03	100.00
Improved Pig Carcass	21.73	34.60	0.00	43.61	0.00	0.06	100.00
Improved Pig Processed Meat	99.76	0.00	0.00	0.00	0.00	0.24	100.00
Improved Piglets	9.81	35.39	51.22	0.00	2.39	1.20	100.00
Improved Pig Other	15.41	37.91	0.00	46.68	0.00	0.00	100.00
Live Local Chicken	19.53	18.90	2.75	55.32	0.00	3.49	100.00
Local Chicken Carcass	45.26	49.55	0.00	5.19	0.00	0.00	100.00
Live Improved Chicken	11.32	33.13	2.40	52.03	0.00	1.12	100.00
Improved Chicken Carcass	44.01	8.16	0.00	47.83	0.00	0.00	100.00
Improved Chicken Eggs	17.22	50.51	3.89	23.25	4.27	0.85	100.00
Live Duck	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Duck Carcass	3.84	35.81	56.46	2.57	0.00	1.32	100.00
Live Cattle/Buffalo	16.38	28.53	6.96	47.74	0.00	0.39	100.00
Cattle/Buffalo Carcass	47.70	0.00	0.00	52.30	0.00	0.00	100.00
Cattle/Buffalo Processed Meat	18.13	27.34	29.80	19.20	0.00	5.53	100.00
Cattle/Buffalo Calves	0.00	0.00	0.00	100.00	0.00	0.00	100.00

Table 5.26: Sales Province as a Percentage of Total Pig Product Sales

Province where Pig Products are Sold	Percentage of Total Pig Product Sales made in that Province
Ha Noi	7.41
Hai Phong	4.81
Ha Tay	5.19
Thai Binh	4.81
Lang Son	0.74
Thai Nguyen	4.07
Phu Tho	4.07
Bac Giang	2.96
Hoa Binh	4.44
Thanh Hoa	2.59
Nghe An	3.70
Quang Tri	0.37
Thua Thien- Hue	0.37
Da Nang	1.48
Quang Nam	5.19
Binh Dinh	7.04
Dac Lac	5.56
HCMC	11.11
Tay Ninh	0.37
Binh Duong	0.37
Dong Nai	5.19
Long An	0.37
Dong Thap	0.37
An Giang	5.19
Tien Giang	5.19
Ben Tre	5.93
Kien Giang	0.37
Can Tho	0.37
Ca Mau	0.37

Table 5.27: Average Percentage of Pig Product Sales made to Provinces Other Than the Marketer's Home Province

Marketer's Home Province	Average Percentage of Marketer's Pig Products Sales made to Provinces Other than the Marketer's Home Province	Provinces Where Pig Product Sales are Made
Ha Noi	0.0	Ha Noi
Hai Phong	0.0	Hai Phong
Ha Tay	42.9	Ha Tay, Ha Noi, Thai Binh, Ho Chi Minh City
Thai Binh	20.0	Thai Binh, Hai Phong, Binh Duong, Dong Thap
Thai Nguyen	0.0	Thai Nguyen
Phu Tho	8.3	Phu Tho, Hai Phong
Bac Giang	42.9	Bac Giang, Lang Son, Kien Giang, Can Tho, Ca Mau
Hoa Binh	0.0	Hoa Binh
Thanh Hoa	46.2	Thanh Hoa, Ha Noi, Quang Tri, Hue, Da Nang
Nghe An	0.0	Nghe An
Quang Nam	17.6	Quang Nam, Da Nang
Binh Dinh	17.4	Binh Dinh, Ho Chi Minh City
Dac Lac	0.0	Dac Lac
HCMC	0.0	HCMC
Dong Nai	17.6	Dong Nai, Ho Chi Minh City
An Giang	0.0	An Giang
Tien Giang	17.6	Tien Giang, Ho Chi Minh City
Ben Tre	20.0	Ben Tre, Ho Chi Minh City, An Giang

Table 5.28: Average Distance Traveled to Make Pig Product Sales, by Sales Province

Province where Pig Products are Sold	Average Distance Traveled by Marketers to Make Sales (km)
Ha Noi	43
Hai Phong	25
Ha Tay	16
Thai Binh	15
Lang Son	98
Thai Nguyen	4
Phu Tho	13
Bac Giang	7
Hoa Binh	1
Thanh Hoa	4
Nghe An	3
Quang Tri	400
Thua Thien- Hue	500
Da Nang	177
Quang Nam	2
Binh Dinh	1
Dac Lac	1
HCMC	169
Tay Ninh	1800
Binh Duong	2000
Dong Nai	4
Long An	40
Dong Thap	2200
An Giang	14
Tien Giang	2
Ben Tre	1
Kien Giang	2100
Can Tho	2000
Ca Mau	2100

Table 5.29: Sales Province as a Percentage of Total Bovine Product Sales

Province where Bovine Products are Sold	Percentage of Total Sales Made in That Province (%)
Ha Noi	14.13
Ha Tay	15.22
Thai Nguyen	6.52
Phu Tho	7.61
Vinh Phuc	2.17
Bac Giang	6.52
Hoa Binh	7.61
Thanh Hoa	3.26
Nghe An	7.61
Da Nang	1.09
Quang Nam	9.78
Binh Dinh	2.17
Gia Lai	5.43
Dac Lac	1.09
HCMC	7.61
Binh Duong	1.09
Dong Nai	1.09
Total	100.00

Table 5.30: Average Percentage of Bovine Product Sales Made Outside the Marketer's Home Province

Marketer's Home Province	Percentage of Bovine Products Sold in Provinces other than the Marketer's Home Province	Provinces Where Bovine Product Sales are Made
Ha Tay	41.67	Ha Tay, Ha Noi
Thai Nguyen	14.29	Thai Nguyen, Ha Tay
Phu Tho	41.67	Phu Tho, Ha Tay, Vinh Phuc
Bac Giang	45.45	Bac Giang, Ha Noi, Binh Duong
Hoa Binh	30.00	Hoa Binh, Ha Tay
Thanh Hoa	66.67	Thanh Hoa, Ha Noi, Ho Chi Minh City
Nghe An	36.36	Nghe An, Ha Noi, Da Nang, Ho Chi Minh City
Quang Nam	0.00	Quang Nam
Binh Dinh	0.00	Binh Dinh
Gia Lai	37.50	Gia Lai, Ho Chi Minh City, Dong Nai
Dac Lac	0.00	Dac Lac

Table 5.31: Average Distance Traveled to Make Bovine Product Sales, by Sales Province

Province Where Bovine Product is Sold	Average Distance Traveled by Marketers to Make Bovine Product Sales in that Province (km)
Ha Noi	118
Ha Tay	30
Thai Nguyen	4
Phu Tho	13
Vinh Phuc	38
Bac Giang	3
Hoa Binh	3
Thanh Hoa	5
Nghe An	8
Da Nang	500
Quang Nam	2
Binh Dinh	1
Gia Lai	2
Dac Lac	7
HCMC	1293
Binh Duong	1750
Dong Nai	820

Table 5.32: Percentage of Total Chicken Product Sales by Sales Province

Province where Chicken Product is Sold	Percentage of Total Chicken Product Sales Made in That Province
Ha Noi	18.07
Hai Phong	10.84
Ha Tay	10.84
Thai Binh	2.41
Lang Son	2.41
Thai Nguyen	10.84
Phu Tho	6.02
Bac Giang	3.61
Quang Ninh	3.61
Hoa Binh	6.02
Thanh Hoa	8.43
Nghe An	7.23
Dac Lac	1.20
Dong Nai	2.41
An Giang	4.82
Tien Giang	1.20
Average	100.00

Table 5.33: Average Percentage of Chicken Products Sold Outside the Marketer's Home Province

Marketer's Province	Home	Average Percentage of Chicken Product Sales Made to Provinces Other Than the Marketer's Home Province	Provinces Where Chicken Product Sales are Made
Ha Noi		11.11	Ha Noi, Thai Nguyen
Hai Phong		0.00	Hai Phong
Ha Tay		25.00	Ha Tay, Ha Noi
Thai Binh		50.00	Thai Binh, Hai Phong
Thai Nguyen		11.11	Thai Nguyen, Ha Noi
Phu Tho		44.44	Phu Tho, Ha Noi, Ha Tay
Bac Giang		66.67	Bac Giang, Ha Noi, Lang Son, Quang Ninh
Hoa Binh		16.67	Hoa Binh, Ha Noi
Thanh Hoa		12.50	Thanh Hoa, Ha Noi
Nghe An		0.00	Nghe An
Dac Lac		0.00	Dac Lac
Dong Nai		0.00	Dong Nai
An Giang		0.00	An Giang
Tien Giang		0.00	Tien Giang
Average		21.69	-

Table 5.34: Average Distance Traveled to Sell Chicken Products, by Sale Province

Province where Chicken Product is Sold	Average Distance Traveled by Marketers to Make Chicken Product Sales in That Province (km)
Ha Noi	38
Hai Phong	25
Ha Tay	20
Thai Binh	8
Lang Son	120
Thai Nguyen	16
Phu Tho	16
Bac Giang	6
Quang Ninh	140
Hoa Binh	1
Thanh Hoa	11
Nghe An	26
Dac Lac	2
Dong Nai	10
An Giang	2
Tien Giang	12

Table 5.35: Percentage of Total Duck Product Sales by Sales Province

Province Where Duck Products are Sold	Percentage of Total Sales Accounted for by Sales to That Province
Ha Noi	7.14
Hai Phong	14.29
Thai Nguyen	7.14
Hoa Binh	14.29
Thanh Hoa	7.14
Nghe An	21.43
An Giang	28.57
Total	100.00

Table 5.36: Average Distance Traveled to Sell Duck Products, by Sales Province

Province where Duck Products are Sold	Average Distance Traveled by Marketers to Make Sales of Duck Products in That Province (km)
Ha Noi	170
Hai Phong	16
Thai Nguyen	1
Hoa Binh	2
Thanh Hoa	6
Nghe An	4
An Giang	4

Table 5.37: Marketer's Average Annual Labor Cost by Province (D'000)

Region	Average Annual Labor Cost
Red River Delta	2481.905
North East	1094.5
North West	595.3846
North Central Coast	837.5
South Central Coast	1243.137
Central Highlands	2884
North East South	7264.286
Mekong River Delta	5852.778

Table 5.38: Average Annual Non Labor Costs by Cost Type (D'000)

Operating Cost Type	Average Annual Non Labor Cost (D'000)
Own trans	6153
Rented trans	29149
Truck loading fee	7780
Water use	696
Electricity and fuel	1726
Repairs and Maintenance	1190
Bag costs	1278
Quality control testing	2549
Fumigation	410
Storage rent	9729
Equip rent	7380
Other rent	7474
Health and Veterinary Inspections	5856
Communication	1776
Management	924
Marketing	1391
Taxes and duties	7675
Credit	1578
Depreciation	1279

Table 5.39: Average Annual Costs by Region and Marketer Type (D'000)

Region	Cost Type	Assembler	Wholesaler	Retailer
Red River Delta	Labor Cost	5932.727	1914.359	143.4783
	Non Labor Cost	19027.52	22944.77	5874.696
	Total Cost	24960.25	24859.13	6018.174
North East	Labor Cost	1592.381	1745.806	0
	Non Labor Cost	26161.52	40011.68	6136
	Total Cost	27753.9	41757.48	6136
North West	Labor Cost	0	1022.143	167.1429
	Non Labor Cost	5175.4	9956.81	6869.857
	Total Cost	5175.4	10978.95	7037
North Central Coast	Labor Cost	767.8571	1426.087	0
	Non Labor Cost	59117.86	44741.3	3114.4
	Total Cost	59885.71	46167.39	3114.4
South Central Coast	Labor Cost	7840	666.6667	72
	Non Labor Cost	146933.7	11683.33	9195.497
	Total Cost	154773.7	12350	9267.497
Central Highlands	Labor Cost	1933.333	6316	1546.667
	Non Labor Cost	36055.63	29239.92	9214.223
	Total Cost	37988.96	35555.92	10760.89
North East South	Labor Cost	9000	18000	1065.789
	Non Labor Cost	75609.84	239122.5	13920.98
	Total Cost	84609.84	257122.5	14986.77
Mekong River Delta	Labor Cost	21000	8365	1316
	Non Labor Cost	108054.7	67173.13	14521.43
	Total Cost	129054.7	75538.13	15837.43

Table 5.40: Average Marketer Costs and Margin Levels by Region (D'000)

Region	Procurement Value	Total Cost	Sale Value	Margin	Margin as Percentage of Sale Value
Red River Delta	951,997	19,727	1,018,025	46,301	4.55
North East	515,125	25,614	596,418	55,355	9.28
North West	323,506	8,802	335,747	3,439	1.02
North Central Coast	897,353	37,442	966,899	32,105	3.32
South Central Coast	801,862	29,783	866,106	34,461	3.98
Central Highlands	858,073	27,170	953,276	68,033	7.14
North East South	4,111,246	96,104	4,324,408	117,058	2.71
Mekong River Delta	1,732,365	48,317	1,823,569	42,886	2.35
National Average	1,172,602	35,788	1,256,124	48,916	3.89

Table 5.41: Average Marketer Costs and Margin Levels by Marketer Type (D'000)

Business Type	Procurement Value	Total Cost	Sale Value	Margin	Margin as Percentage of Sale Value
Assembler	1,798,494	52,262	1,931,675	80,919	4.19
Wholesaler	1,696,765	51,566	1,807,308	58,630	3.24
Retailer	361,348	9,562	393,836	22,926	5.82

Table 5.42: Average Margins by Region and Marketer Type (D'000)

Region	Assembler	Wholesaler	Retailer
Red River Delta	109,964 (6.44)*	25,930 (2.51)	19,949 (5.95)
North East	102,141 (13.10)	22,050(2.75)	55,949 (23.28)
North West	17,077 (5.78)	-	660 (0.27)
North Central Coast	41,856 (2.83)	39,970 (3.44)	10,945 (5.84)
South Central Coast	112,586 (3.02)	15,284 (2.06)	23,767 (7.31)
Central Highlands	24,834 (2.61)	204,553 (11.20)	20,218 (5.42)
North East South	93,512 (1.49)	300,122 (2.91)	28,144 (5.12)
Mekong River Delta	79,085 (1.87)	98,796 (3.44)	2,100 (0.30)

* - figures in parentheses represent the level of margin as a percentage of total sale value

Table 5.43: Average Margins by Specialization and Marketer Type (D'000)

Business Type	Pig Marketer	Chicken Marketer	Duck Marketer	Cattle/Buffalo Marketer	Multi Product
Assemblers	117,548 (3.91)	23,652 (3.95)	22,305 (5.69)	73,792 (6.25)	18,703 (3.65)
Wholesalers	86,897 (3.36)	10,491 (2.00)	22,630 (3.94)	31,360 (3.01)	-
Retailers	26,099 (5.96)	16,299 (5.36)	11,057 (4.12)	23,975 (8.53)	-

* - figures in parentheses represent the level of margin as a percentage of total sales value

Table 5.44: Average Marketer Margins by Region and Specialization (D'000)

Region	Pig Marketer	Chicken Marketer	Duck Marketer	Cattle/Buffalo Marketer	Multi-Product Marketer
Red River Delta	61301.26 (4.62)	22388.76 (3.9)	-	43643.14 (5.95)	18418.91 (3.25)
North East	96680.78 (16.65)	8420.454 (2.12)	-	43001.46 (5.21)	8278 (3.13)
North West	18629.22 (4.00)	4964.25 (2.93)	-	-	2200 (1.57)
North Central Coast	35880.43 (3.32)	10973.36 (2.5)	22305 (5.69)	43542.13 (3.24)	26992.61 (10.39)
South Central Coast	41952.03 (4.35)	-	-	3747.003 (0.81)	-
Central Highlands	64609.96 (7.16)	27937.5 (3.52)	-	77812.02 (7.4)	-
North East South	122955.9 (2.7)	19737.5 (3.5)	-	-	-
Mekong River Delta	42824.91 (2.14)	68688.75 (6.41)	22630 (3.94)	-	40145 (9.23)

* - figures in parentheses represent the level of margin as a percentage of total sales value

Table 5.45 Parameter Estimates for Economies of Scale Regression

Marketer Type	$\hat{\alpha}$	$\hat{\beta}$
Assembler	-1.192	0.844
Wholesaler	-1.77	0.89
Retailer	-4.03	1.09

Table 5.46: Selected Characteristics of Examples of Inter Provincial Pig Transport Reported by Assemblers

Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Ha Tay	Ha Tay	Ha Noi	80	5	35	Improved Pig (50kg+)
Ha Tay	Ha Tay	HCMC	100	10	1700	Improved Pig (50kg+)
Ha Tay	Ha Tay	Thai Binh	60	2	150	Improved Pig (20-50kg)
Thai Nguyen	Tuyen Quang	Thai Nguyen	100	20	15	Improved Pig (50kg+)
Bac Giang	Bac Giang	Ha Tay	6	5	70	Improved Piglet
Bac Giang	Bac Giang	Can Tho	10	5	2000	Improved Piglet
Bac Giang	Bac Giang	Kien Giang	20	5	2100	Improved Piglet
Bac Giang	Bac Giang	Ca Mau	10	5	2100	Improved Piglet
Bac Giang	Bac Giang	Lang Son	100	15	95	Improved Pig (50kg+)
Hoa Binh	Phu Tho	Hoa Binh	100	50	0	Improved Pig (50kg+)
Hoa Binh	Ha Tay	Hoa Binh	100	60	1	Improved Pig (50kg+)
Hoa Binh	Phu Tho	Hoa Binh	100	70	0	Improved Pig (50kg+)
Thanh Hoa	Ha Tay	Ha Noi	100	140	160	Improved Pig (50kg+)
Thanh Hoa	Thanh Hoa	Ha Noi	100	10	160	Improved Pig (50kg+)
Thanh Hoa	Ninh Binh	Ha Noi	100	70	160	Improved Pig (50kg+)
Thanh Hoa	Thanh Hoa	Quang Tri	100	20	400	Improved Piglet
Thanh Hoa	Thanh Hoa	Ha Noi	100	8	160	Improved Pig (50kg+)
Quang Nam	Quang Nam	Da Nang	100	10	36	Improved Pig (50kg+)
Quang Nam	Quang Nam	Da Nang	100	3	36	Improved Pig (50kg+)
Quang Nam	Quang Nam	Da Nang	100	8	36	Improved Pig (50kg+)
Binh Dinh	Binh Dinh	Ho Chi Minh City	100	80	700	Live Local Pig (50+kg)
Binh Dinh	Binh Dinh	Ho Chi Minh City	100	5	700	Improved Pig (50kg+)
Binh Dinh	Binh Dinh	Ho Chi Minh City	100	15	700	Live Local Pig (50+kg)
Binh Dinh	Binh Dinh	Ho Chi Minh City	100	5	700	Improved Pig (50kg+)
Dong Nai	Binh Dinh	Dong Nai	100	600	10	Improved Pig (50kg+)
Dong Nai	Dac Lac	Dong Nai	100	510	10	Improved Pig (50kg+)
Dong Nai	Binh Dinh	Dong Nai	100	600	4	Improved Pig (50kg+)
Dong Nai	Phu Yen	Dong Nai	100	540	7	Live Local Pig (50kg+)
Dong Nai	Binh Thuan	Dong Nai	100	150	7	Live Local Pig (50kg+)
Dong Nai	Dong Nai	Ho Chi Minh City	100	10	50	Improved Pig (50kg+)
Tien Giang	Tien Giang	Long An	100	30	40	Live Local Pig (50kg+)
Tien Giang	Tien Giang	Ho Chi Minh City	100	4	80	Improved Pig (50kg+)
Tien Giang	Tien Giang	Ho Chi Minh City	78	6	85	Improved Pig (50kg+)
Ben Tre	Ben Tre	An Giang	100	5	84	Improved Pig (50kg+)
Ben Tre	Ben Tre	An Giang	100	10	90	Improved Pig Carcass

Table 5.47: Selected Characteristics of Examples of Inter Provincial Pig Transport Reported by Wholesalers

Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Ha Noi	Thai Nguyen	Ha Noi	100	40	40	Improved Pig (50kg+)
Ha Noi	Thai Nguyen	Ha Noi	100	40	40	Improved Pig (50kg+)
Ha Noi	Thai Nguyen	Ha Noi	100	40	40	Improved Pig (50kg+)
Hai Phong	Bac Giang	Hai Phong	100	120	2	Improved Pig Other Meat
Hai Phong	Thai Binh	Hai Phong	100	60	2	Improved Pig Other Meat
Hai Phong	Thai Binh	Hai Phong	100	0	1	Improved Pig Other Meat
Hai Phong	Thanh Hoa	Hai Phong	100	240	2	Improved Pig Carcass
Hai Phong	Hai Duong	Hai Phong	100	50	2	-
Hai Phong	Thai Binh	Hai Phong	100	75	5	Improved Pig Carcass
Hai Phong	Son La	Hai Phong	100	60	5	Improved Pig Other Meat
Hai Phong	Son La	Hai Phong	100	60	4	Improved Pig Other Meat
Hai Phong	Thai Binh	Hai Phong	100	75	4	Improved Pig Carcass
Ha Tay	Ha Tay	Ha Noi	90	10	12	Improved Pig Carcass
Ha Tay	Ha Tay	Ha Noi	70	2	25	Improved Pig Carcass
Ha Tay	Ha Tay	Ha Noi	80	4	23	Improved Pig Carcass
Ha Tay	Ha Tay	Ha Noi	20	2	30	Improved Pig Carcass
Ha Tay	Ha Tay	Ha Noi	60	5	35	Improved Pig Carcass
Ha Tay	Ha Tay	Ha Noi	100	0	35	Improved Pig Carcass
Thai Binh	Nam Dinh	Thai Binh	100	20	1	Improved Pig Other Meat
Phu Tho	Phu Tho	Hai Phong	100	11	220	Improved Pig (50kg+)
Bac Giang	Bac Giang	Lang Son	100	10	100	Local Pig (>50kg)
Hoa Binh	Phu Tho	Hoa Binh	100	60	0	Improved Pig Other Meat
Hoa Binh	Phu Tho	Hoa Binh	100	60	0	Improved Pig Carcass
Hoa Binh	Phu Tho	Hoa Binh	100	40	0	Improved Pig Other Meat
Hoa Binh	Ha Tay	Hoa Binh	100	40	0	Improved Pig Carcass
Hoa Binh	Ha Tay	Hoa Binh	100	60	0	Improved Pig Other Meat
Hoa Binh	Phu Tho	Hoa Binh	100	40	0	Improved Pig Other Meat
Thanh Hoa	Thanh Hoa	Ha Noi	17	20	160	Improved Pig (50kg+)
Thanh Hoa	Thanh Hoa	Da Nang	50	20	600	Improved Pig (50kg+)
Thanh Hoa	Thanh Hoa	Thua Thien- Hue	33	20	500	Improved Pig (50kg+)
Ho Chi Minh City	Vinh Long	Ho Chi Minh City	100	200	4	Improved Pig Carcass
Ho Chi Minh City	Tien Giang	Ho Chi Minh City	100	60	4	Local Pig Carcass
Ho Chi Minh City	Thanh Hoa	Ho Chi Minh City	100	1400	4	Improved Pig Other Meat
Ho Chi Minh City	Vinh Long	Ho Chi Minh City	100	200	4	Improved Pig Other Meat
Ho Chi Minh City	Bac Giang	Ho Chi Minh City	100	1800	4	Improved Pig Carcass
Ho Chi Minh City	Tra Vinh	Ho Chi Minh City	100	280	4	Improved Pig Other Meat
Ho Chi Minh City	Tien Giang	Ho Chi Minh City	100	70	5	Improved Pig Other Meat
Ho Chi Minh City	Ben Tre	Ho Chi Minh City	100	100	5	Local Pig Other Meat
Ho Chi Minh City	Dong Nai	Ho Chi Minh City	100	60	6	Improved Pig Carcass
Dong Nai	Dong Nai	Ho Chi Minh City	75	10	50	Improved Pig (20-50kg)
Tien Giang	Ben Tre	Tien Giang	100	30	1	Local Pig Carcass
Tien Giang	Ben Tre	Tien Giang	100	30	1	Local Pig Other Meat
Ben Tre	Ben Tre	Ho Chi Minh City	88	15	80	Improved Pig Carcass
Ben Tre	Ben Tre	Ho Chi Minh City	92	12	80	Improved Pig Other Meat

Table 5.48: Selected Characteristics of Examples of Inter Provincial Pig Transport Reported by Retailers

Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Dong Nai	Dong Nai	HCMC	22	2	50	Improved Pig Other Meat
An Giang	Vinh Long	An Giang	100	120	2	Improved Pig Carcass

Table 5.49: Selected Characteristics of Examples of Inter Provincial Cattle/Buffalo Transport Reported by Assemblers

Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Ha Tay	Son La	Ha Noi	40	170	35	Live Cattle/Buffalo
Ha Tay	Ha Tay	Ha Noi	40	40	35	Live Cattle/Buffalo
Ha Tay	Vinh Phuc	Ha Tay	60	80	20	Live Cattle/Buffalo
Thai Nguyen	Tuyen Quang	Ha Tay	100	20	160	Live Cattle/Buffalo
Thai Nguyen	Thai Nguyen	Ha Tay	100	10	160	Live Cattle/Buffalo
Phu Tho	Phu Tho	Vinh Phuc	30	30	40	Live Cattle/Buffalo
Phu Tho	Phu Tho	Ha Tay	30	30	25	Live Cattle/Buffalo
Phu Tho	Phu Tho	Vinh Phuc	10	30	35	Calves
Phu Tho	Phu Tho	Ha Tay	60	25	30	Live Cattle/Buffalo
Bac Giang	Lang Son	Ha Noi	70	120	60	Live Cattle/Buffalo
Bac Giang	Bac Giang	Ha Noi	70	30	60	-
Bac Giang	Thai Nguyen	Bac Giang	30	180	2	-
Bac Giang	Cao Bang	Bac Giang	100	330	1	Live Cattle/Buffalo
Bac Giang	Bac Can	Bac Giang	100	220	1	Live Cattle/Buffalo
Thanh Hoa	Thanh Hoa	HCMC	100	40	1600	Live Cattle/Buffalo
Thanh Hoa	Thanh Hoa	HCMC	100	30	1600	Live Cattle/Buffalo
Gia Lai	Kon Tum	HCMC	100	45	600	Carcass
Gia Lai	Gia Lai	HCMC	100	14	600	-
Gia Lai	Dac Lac	Dong Nai	100	7	820	Live Cattle/Buffalo

Table 5.50: Selected Characteristics of Examples of Inter Provincial Cattle/Buffalo Transport Reported by Wholesalers

Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Ha Tay	Ha Tay	Ha Noi	60	15	45	Cattle/Buffalo Carcass
Ha Tay	Ha Tay	Ha Noi	70	18	45	Cattle/Buffalo Carcass
Ha Tay	Ha Tay	Ha Noi	70	15	50	Cattle/Buffalo Carcass
Ha Tay	Ha Tay	Ha Noi	90	5	50	Cattle/Buffalo Carcass
Phu Tho	Phu Tho	Ha Tay	100	2	70	Cattle/Buffalo Carcass
Bac Giang	Bac Giang	Ha Noi	80	25	70	Cattle/Buffalo Carcass
Bac Giang	Tuyen Quang	Binh Duong	100	250	1750	Live Cattle/Buffalo
Bac Giang	Bac Can	Binh Duong	100	180	1750	Live cattle
Bac Giang	Cao Bang	Binh Duong	100	300	1750	Live cattle
Bac Giang	Bac Giang	Ha Noi	100	0	40	Cattle/Buffalo Carcass
Bac Giang	Bac Giang	Ha Noi	100	15	40	Cattle/Buffalo Carcass
Hoa Binh	Phu Tho	Hoa Binh	100	30	0	Calves
Hoa Binh	Ha Tay	Ha Tay	89	5	7	Calves
Hoa Binh	Hoa Binh	Ha Tay	68	15	10	Live Cattle/Buffalo
Hoa Binh	Hoa Binh	Ha Tay	100	20	45	Live Cattle/Buffalo
Thanh Hoa	Thanh Hoa	HCMC	90	50	1650	Live Cattle/Buffalo
Thanh Hoa	Thanh Hoa	HCMC	40	50	1600	Live Cattle/Buffalo
Thanh Hoa	Thanh Hoa	Ha Noi	60	50	200	Live Cattle/Buffalo
Thanh Hoa	Thanh Hoa	Ha Noi	100	45	200	Live cattle
Nghe An	Nghe An	HCMC	100	60	1400	Live cattle
Nghe An	Nghe An	Ha Noi	50	30	350	Live Cattle/Buffalo
Nghe An	Nghe An	Da Nang	50	10	500	Live Cattle/Buffalo
Nghe An	Nghe An	Ha Noi	30	10	350	Live Cattle/Buffalo

Table 5.51: Selected Characteristics of Examples of Inter Provincial Chicken Transport Reported by Assemblers

Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Ha Noi	Ha Tay	Ha Noi	100	30	10	Live Local Chicken
Ha Noi	Nam Dinh	Ha Noi	100	90	1	Live Exotic Chicken
Ha Noi	Thai Binh	Ha Noi	100	110	1	Live Exotic Chicken
Hai Phong	Hai Duong	Hai Phong	100	10	16	-
Hai Phong	Hai Duong	Hai Phong	100	15	16	-
Ha Tay	Vinh Phuc	Ha Noi	40	75	15	Live Local Chicken
Thai Binh	Ha Nam	Thai Binh	100	60	0	Live Exotic Chicken
Thai Binh	Nam Dinh	Thai Binh	100	15	15	Live Exotic Chicken
Thai Binh	Ha Nam	Thai Binh	100	50	15	Live Exotic Chicken
Thai Nguyen	Tuyen Quang	Ha Noi	50	17	90	Live Local Chicken
Phu Tho	Phu Tho	Ha Noi	10	10	100	Live Local Chicken
Phu Tho	Phu Tho	Ha Tay	90	10	25	Live Local Chicken
Bac Giang	Bac Giang	Quang Ninh	100	3	100	Live Local Chicken
Bac Giang	Bac Giang	Lang Son	100	10	120	Live Local Chicken
Thanh Hoa	Thanh Hoa	Ha Noi	50	25	170	Live Local Chicken

Table 5.52: Selected Characteristics of Examples of Inter Provincial Chicken Transport Reported by Wholesalers

Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Ha Noi	Bac Giang	Ha Noi	100	30	3	Live Local Chicken
Ha Noi	Ha Noi	Thai Nguyen	100	10	50	Live Exotic Chicken
Thai Binh	Thai Binh	Hai Phong	100	7	60	Live Local Chicken
Thai Binh	Thai Binh	Hai Phong	100	5	60	Live Local Chicken
Phu Tho	Phu Tho	Ha Tay	90	17	62	Live Local Chicken
Phu Tho	Phu Tho	Ha Tay	100	10	60	Live Local Chicken
Bac Giang	Bac Giang	Ha Noi	30	12	60	Live Local Chicken
Bac Giang	Bac Giang	Lang Son	70	12	120	Live Local Chicken
Bac Giang	Ha Tay	Quang Ninh	100	80	170	Live Local Chicken
Bac Giang	Bac Giang	Quang Ninh	100	15	170	Live Exotic Chicken
Bac Giang	Bac Giang	Quang Ninh	100	25	150	Live Local Chicken
Bac Giang	Thai Nguyen	Quang Ninh	100	50	150	Live Local Chicken
Hoa Binh	Hoa Binh	Ha Noi	100	0	35	Live Local Chicken

Table 5.53: Selected Characteristics of Examples of Inter Provincial Chicken Transport Reported by Retailers

Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Ha Tay	Ha Tay	Ha Noi	50	13	35	Local Chicken Carcass
Hoa Binh	Ha Tay	Hoa Binh	100	50	2	Exotic Chicken Carcass
Hoa Binh	Ha Tay	Hoa Binh	100	50	1	Local Chicken Carcass
An Giang	Dong Thap	An Giang	100	15	4	Live Local Chicken
An Giang	Dong Thap	An Giang	100	15	5	Live Exotic Chicken
An Giang	Can Tho	An Giang	100	20	5	Live Exotic Chicken

Table 5.54: Selected Characteristics of Examples of Inter Provincial Duck Transport Reported by Marketers

Marketer Type	Home Province	Procurement Province	Sale Province	Percentage of Annual Sales Accounted For By This Route	Distance Traveled to Procure Product (km)	Distance Traveled to Make Sale (km)	Sale Product
Assembler	Thanh Hoa	Thanh Hoa	Ha Noi	40	60	170	Live Duck
Assembler	Nghe An	Ha Tinh	Nghe An	100	50	4	Live Duck
Wholesaler	An Giang	Dong Thap	An Giang	100	20	10	Live Duck
Retailer	Hoa Binh	Lai Chau	Hoa Binh	100	3	1	Not specified
Retailer	An Giang	Dong Thap	An Giang	100	15	4	Not specified

Table 5.55: Purpose of Loans as a Percentage of Total Loans Utilized, by Region

Purpose of loan	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Live Pig	38.71	57.89	0.00	20.00	12.50	33.33	100.00	0.00
Pig Meat	22.58	10.53	0.00	20.00	25.00	0.00	0.00	37.50
Live Poultry	29.03	10.53	25.00	20.00	0.00	0.00	0.00	37.50
Live Cattle and Buffalo	0.00	21.05	37.50	40.00	18.75	50.00	0.00	0.00
Feed/Raw Material	0.00	0.00	12.50	0.00	0.00	0.00	0.00	0.00
Labor	6.45	0.00	12.50	0.00	0.00	0.00	0.00	0.00
Marketing	0.00	0.00	0.00	0.00	6.25	0.00	0.00	12.50
Transport	3.23	0.00	12.50	0.00	6.25	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	31.25	16.67	0.00	12.50
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 5.56: Purpose of Loans as a Percentage of Total Loans Utilized, by Marketer Type

Purpose of loan	Assembler	Wholesale	Retailer
Live Pig	40.00	35.14	23.53
Pig Meat	0.00	18.92	29.41
Live Poultry	24.00	8.11	23.53
Live Cattle and Buffalo	20.00	27.03	0.00
Feed/Raw Material	0.00	2.70	0.00
Labor	0.00	5.41	2.94
Marketing	4.00	0.00	2.94
Transport	8.00	0.00	2.94
Other	4.00	2.70	14.71
Total	100.00	100.00	100.00

Table 5.57: Source of Loans as a Percentage of Total Loans Utilized, by Region

Source of loan	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Family and Friends	29.03	10.53	0.00	40.00	18.75	16.67	0.00	25.00
Money Lender	6.45	10.53	12.50	0.00	43.75	33.33	0.00	0.00
Foreign Bank	0.00	5.26	0.00	0.00	0.00	0.00	0.00	0.00
Commercial Bank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00
Agricultural Bank	48.39	68.42	62.50	60.00	37.50	33.33	100.00	25.00
Other Credit Institution	16.13	5.26	25.00	0.00	0.00	16.67	0.00	25.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 5.58: Source of Loans as a Percentage of Total Loans Utilized, by Marketer Type

Source of loan	Assembler	Wholesale	Retailer
Family and Friends	20.00	24.32	14.71
Money Lender	12.00	5.41	26.47
Foreign Bank	0.00	0.00	2.94
Commercial Bank	0.00	0.00	5.88
Agricultural Bank	60.00	59.46	35.29
Other Credit Institution	8.00	10.81	14.71
Total	100.00	100.00	100.00

Table 5.59: Average Characteristics of Loans Made To Marketers, by Loan Source

Source of loan	Amount Borrowed (€)	Loan Period (Months)	Interest Rate (% per Month)
Family and Friends	13,552,632	18	1.43
Money Lender	8,321,428	6	3.37
Foreign Bank	10,000,000	36	1.70
Commercial Bank	3,500,000	10	1.15
Agricultural Bank	11,408,163	17	1.16
Other Credit Institution	3,909,091	11	1.35

Table 5.60: Average Characteristics of Loans Made to Marketers, by Purpose of Loan

Purpose of loan	Amount Borrowed (€)	Loan Period (Months)	Interest Rate (% per month)
Live Pig	13,017,857	19	1.23
Pig Meat	5,500,000	13	1.64

Live Poultry	4,250,000	9	1.87
Live Cattle and Buffalo	15,200,000	17	1.24
Feed/Raw Material	6,000,000	12	1.20
Labor	3,333,333	16	1.40
Marketing	32,000,000	4	1.27
Transport	13,333,333	28	1.13
Other	5,285,714	14	3.13

Table 5.61: Average Characteristics of Loans Made to Marketers, by Marketer Type

Business Type	Amount Borrowed (D)	Loan Period (months)	Interest Rate (% per month)
Assembler	18,690,476	15	1.25
Wholesaler	10,000,000	18	1.26
Retailer	4,715,054	13	1.92

Table 5.62: Various Collateral Requirements as a Percentage of Total Loans Granted to Marketers, by Source of Loan

Source of loan	House	Land	Building	Social Capital	None	Other	Total
Family and Friends	0.00	0.00	0.00	42.11	52.63	5.26	100.00
Money Lender	7.14	0.00	0.00	21.43	71.43	0.00	100.00
Foreign Bank	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Commercial Bank	50.00	0.00	0.00	0.00	0.00	50.00	100.00
Agricultural Bank	79.59	10.20	4.08	4.08	2.04	0.00	100.00
Other Credit Institution	36.36	18.18	0.00	18.18	27.27	0.00	100.00
All Loan Sources	47.92	7.29	2.08	15.62	25.00	2.08	100.00

Table 5.63: Percentage of Borrowers Indicating That They Obtained Sufficient Funds After Borrowing, by Region

Region	Percentage of Borrowers Who Indicated That They Received Sufficient Credit
Red River Delta	46.43
North East	44.44
North West	100.00
North Central Coast	40.00
South Central Coast	76.92
Central Highlands	80.00
North East South	33.33
Mekong River Delta	37.50
National	55.68

Table 5.64: Types of Loans Made as a Percentage of Total Loans Granted by Marketers

Type of Loan	Percentage of Loans Granted
Non Business Purposes	76.67
Very Short Term Credit	16.67
Medium Term Credit	6.67
Total	100.00

Table 5.65: Percentages of Marketers using Transport, by Region

Region	Percentage of Marketers Using Transport
Red River Delta	98.81
North East	100.00
North West	92.31
North Central Coast	98.08
South Central Coast	100.00
Central Highlands	91.67
North East South	91.43
Mekong River Delta	98.15
National	97.53

Table 5.66: Transportation Means as a Percentage of all Transport Vehicles Utilized by Marketers

Means of transport	Percentage of all Transport Vehicles
Truck	12.12
Cart	4.04
Motorcycle	60.10
Bicycle	12.88
Cyclo	5.30
Boat/Ship	2.02
Other	3.54
Total	100.00

Table 5.67: Percentage of Marketers Indicating That They Rented Transport During Previous Year, by Marketer Type

Business Type	Percentage of Marketers Renting Transport
Assembler	48.31
Wholesaler	40.69
Retailer	21.12

Table 5.68: Transportation Rental Types as a Percentage of all Rental Transport, by Marketer Type

Means of Rented Transportation	Assembler	Wholesale	Retailer	All Marketer Types
Truck	57.35	44.05	2.86	40.96
Cart	4.41	7.14	25.71	9.57
Motorcycle	7.35	3.57	11.43	6.91
Bicycle	0.00	0.00	2.86	0.53
Cyclo	2.94	8.33	42.86	12.77
Train	2.94	0.00	0.00	1.06
Boat/Ship	5.88	7.14	2.86	5.85
Other	19.12	29.76	11.43	22.34
Total	100.00	100.00	100.00	100.00

Table 5.69: Average Transport Characteristics, by Transport Type

Type	Transport Distance (km)	Shipping Time (hours)	Shipped Weight (tons)	Shipping Cost (D'000/ shipment)
Truck	295.09	8	2.97	951.17
Cart	7.42	1	0.55	22.67
Motorcycle	15.87	1	0.45	26.58
Bicycle	6.00	0	0.08	8.00
Cyclo	2.62	1	0.18	11.79
Train	110.00	2	0.20	47.50
Boat/Ship	28.00	3	0.73	80.00
Other	25.81	2	0.40	31.93

Table 5.70: Transport Restriction Incidence by Marketer Type

Marketer Type	Percentage of Marketers Experiencing Transport Restriction
Assembler	46.67
Wholesaler	34.90
Retailer	9.04

Table 5.71: Types of Transport Restriction by Region as Percentage of all Reported Restrictions

Region	Police conduct	Inter District barriers	Inter Provincial Barriers	Tolls	Health Inspections	Other	Total
Red River Delta	90.00	2.50	0.00	2.50	0.00	5.00	100.00
North East	83.78	5.41	0.00	10.81	0.00	0.00	100.00
North West	0.00	14.29	14.29	28.57	0.00	42.86	100.00
North Central Coast	50.00	10.00	20.00	0.00	0.00	20.00	100.00
South Central Coast	0.00	33.33	66.67	0.00	0.00	0.00	100.00
Central Highlands	75.00	0.00	0.00	25.00	0.00	0.00	100.00
North East South	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Mekong River Delta	33.33	0.00	16.67	33.33	16.67	0.00	100.00

Table 5.72: Percentage of Marketers Giving Various Profitability Ratings to Their Own Business, by Region

Region	Very Good	Good	Fair	Poor	Total
Red River Delta	0.00	36.90	55.95	7.14	100.00
North East	2.53	22.78	58.23	16.46	100.00
North West	0.00	11.54	65.38	23.08	100.00
North Central Coast	0.00	17.31	71.15	11.54	100.00
South Central Coast	0.00	26.00	70.00	4.00	100.00
Central Highlands	0.00	16.67	70.83	12.50	100.00
North East South	0.00	12.12	87.88	0.00	100.00
Mekong River Delta	0.00	16.67	77.78	5.56	100.00

Table 5.73: Reason for Profitability Change by Business Type as a Percentage of Total Profitability Change Factors

Business	Sale Price	Purchase Price	Trade Volume	Interest Rate	Labor Cost	Other Operating Costs	Competition Level	Other	Total
Assembler	6.90	13.79	44.83	0.00	3.45	0.00	20.69	10.34	100.00
Wholesaler	17.74	4.84	67.74	1.61	0.00	1.61	3.23	3.23	100.00
Retailer	14.29	7.14	58.57	2.86	0.00	0.00	8.57	8.57	100.00

Table 5.74: Percentage of Marketers Reporting Various Profitability Changes, by Region

Region	Constant	Rise	Fall	Total
Red River Delta	63.10	30.95	5.95	100.00
North East	55.70	37.97	6.33	100.00
North West	46.15	50.00	3.85	100.00
North Central Coast	71.15	23.08	5.77	100.00
South Central Coast	74.00	20.00	6.00	100.00
Central Highlands	54.17	37.50	8.33	100.00
North East South	51.52	39.39	9.09	100.00
Mekong River Delta	50.00	44.44	5.56	100.00

Table 5.75: Percentage of Marketers Reporting Various Profitability Changes, by Marketer Type

Business	Constant	Rise	Fall	Total
Assembler	66.29	32.58	1.12	100.00
Wholesaler	58.39	32.89	8.72	100.00
Retailer	57.32	35.98	6.71	100.00

Table 5.76: Average Value of Asset Types as a Percentage of Total Asset Value, by Region

Region	Transport	Buildings	Titled Property	Durable Goods	Total
Red River Delta	63.72	13.04	22.33	0.91	100.00
North East	49.05	32.75	17.73	0.47	100.00
North West	68.17	5.78	18.36	7.69	100.00
North Central Coast	84.47	7.37	8.16	0.00	100.00
South Central Coast	72.92	16.97	9.94	0.18	100.00
Central Highlands	59.18	8.17	32.41	0.24	100.00
North East South	70.77	18.27	10.94	0.02	100.00
Mekong River Delta	73.57	17.61	7.07	1.75	100.00

Table 5.77: Average Value of Assets as a Percentage of Total Asset Value, by Marketer Type

Business Type	Transport	Buildings	Titled Property	Durable Goods	Total
Assembler	66.18	17.93	15.43	0.47	100.00
Wholesaler	65.83	16.29	16.94	0.93	100.00
Retailer	66.03	17.17	15.34	1.45	100.00

Table 5.78: National Average Reported Pork Sale Prices by Quarter (D'000/kg)

Meat product	3/98	4/98	1/99	2/99	3/99	Tet 1999
Whole carcass	15.54	17.42	16.22	15.81	15.73	16.79
Head	9.03	9.14	9.53	9.13	9.03	9.79
Neck	12.69	13.10	13.50	13.05	12.80	13.89
Shoulder	18.25	18.66	19.30	19.62	18.47	20.45
Buttock	20.48	20.84	21.49	20.75	20.51	22.97
Legs	20.47	20.79	21.38	20.73	20.57	22.66
Feet/hocks	11.72	12.03	12.38	12.01	11.92	12.84
Loin	24.72	25.07	25.66	24.96	24.78	27.04
Heart	27.65	27.53	27.75	27.15	27.53	28.88
Liver	16.54	16.79	17.44	17.09	17.03	17.62
Kidney	24.01	23.89	24.17	23.26	23.50	24.44
Stomach	15.47	15.66	16.07	15.56	15.56	15.90
Lung	7.87	8.10	8.19	7.93	7.88	8.07
Small intestine	10.89	11.08	11.31	11.06	11.04	11.13
Large intestine	6.64	6.79	7.02	6.84	6.79	6.89
Tongue	18.54	19.23	19.90	19.24	19.25	20.27
Tail	11.32	11.74	12.42	11.96	12.01	12.44
Blood	3.61	3.78	4.01	3.81	3.80	3.99
Lean meat	23.80	24.14	24.76	24.04	24.08	26.55
Fat	9.30	9.62	9.68	9.25	9.18	9.25
Skin	4.12	4.23	4.49	4.31	4.29	4.54

Table 5.79: National Average Reported Chicken Sale Prices by Quarter (D'000/kg)

Product	3/98	4/98	1/99	2/99	3/99	Tet 1999
Local Live Chicken	19.16	20.02	24.66	18.76	19.38	23.92
Improved Live Chicken	15.99	16.18	16.12	16.15	16.26	17.35
Breast	21.36	21.54	21.75	21.14	20.82	23.11
Wings	19.77	19.70	19.97	19.70	19.33	21.13
Legs	22.43	22.82	22.61	22.25	22.00	24.18
Feet	16.91	16.56	16.88	16.69	16.62	16.78
Offals/Blood	4.74	4.55	4.49	4.53	4.50	4.47
Local carcass	25.92	26.15	26.08	25.81	25.85	29.00
Improved Carcass	19.73	19.53	19.40	19.03	19.20	21.27

Table 5.80: National Average Reported Duck Sale Prices by Quarter (D'000/kg)

Product	3/98	4/98	1/99	2/99	3/99	Tet 1999
Local Live Duck	12.35	8.44	7.19	12.33	12.25	9.83
Improved Live Duck	9.67	11.00	12.67	11.67	11.83	13.00
Feet	12.00	12.00	12.00	12.00	12.00	12.00
Offals/Blood	7.17	7.17	7.17	7.17	7.17	7.17
Local carcass	19.33	20.67	19.33	19.33	20.67	20.67
Improved Carcass	26.00	26.00	26.00	25.00	26.00	26.00

Table 5.81: National Average Reported Beef Sale Prices by Quarter (D'000/kg)

Meat product	3/98	4/98	1/99	2/99	3/99	Tet 1999
Whole carcass	23.75	23.87	24.18	23.78	23.51	25.53
Head	5.40	5.30	5.08	5.17	5.67	5.67
Neck	21.05	21.14	21.55	21.14	21.36	22.36
Shoulder	21.09	21.38	21.72	21.33	21.39	24.42
Buttock	28.06	28.25	26.84	28.03	28.03	31.05
Legs	26.71	27.06	27.08	26.81	26.86	29.81
Feet/hocks	4.00	4.25	4.40	4.40	4.40	5.00
Loin	27.85	28.04	28.82	28.46	28.54	29.89
Heart	11.88	12.25	13.40	13.00	13.00	14.00
Liver	8.75	9.12	10.40	10.20	10.40	10.80
Kidney	8.25	8.62	9.80	9.80	10.00	10.80
Stomach	7.75	8.12	8.00	8.10	8.00	8.00
Lung	6.00	6.25	5.80	5.80	5.80	6.00
Small intestine	5.75	6.00	6.20	6.20	6.20	6.20
Large intestine	5.75	6.00	6.20	6.20	6.20	6.20
Tongue	11.80	11.00	12.33	12.00	12.00	12.17
Tail	3.50	3.50	4.20	3.80	3.80	4.20
Blood	3.25	3.00	3.30	3.40	3.50	3.40
Lean meat	19.05	19.09	20.71	20.54	20.92	21.38
Fat	2.00	2.25	2.33	2.50	2.67	2.67
Skin	5.44	5.44	5.50	5.50	5.50	5.50

Table 5.82: National Average Reported Buffalo Meat Sale Prices By Quarter (D'000/kg)

Meat product	3/98	4/98	1/99	2/99	3/99	Tet 1999
Whole carcass	14.75	15.25	15.80	15.00	16.10	18.00
Head	9.30	9.30	7.37	6.67	7.00	7.20
Neck	15.50	15.90	16.20	15.80	15.95	16.70
Shoulder	17.10	17.45	17.64	17.27	17.41	18.09
Buttock	21.50	22.30	22.41	21.68	21.64	22.86
Legs	20.78	21.39	21.65	21.00	21.05	22.05
Feet/hocks	11.00	11.75	9.33	8.83	9.00	8.83
Loin	20.89	21.44	22.55	22.10	22.10	23.10
Heart	10.00	10.00	11.17	10.67	11.00	11.33
Liver	7.00	7.00	8.17	8.33	8.33	8.33
Kidney	3.50	3.50	5.83	6.00	6.00	6.00
Stomach	4.00	4.00	4.33	4.33	4.33	4.67
Lung	3.50	3.50	3.33	3.00	3.33	3.33
Small intestine	1.90	1.90	2.60	2.50	2.60	2.60
Large intestine	1.00	1.00	1.83	1.83	1.83	2.00
Tongue	4.00	4.00	7.00	6.83	6.83	7.33
Tail	4.00	4.00	4.33	4.00	4.33	4.67
Blood	0.65	0.65	1.43	1.43	1.43	1.43
Lean meat	11.67	12.00	13.90	13.75	13.70	14.05
Fat	2.50	2.50			2.50	3.00
Skin	3.20	3.20	3.85	3.75	3.85	4.10

Table 5.83: Average Pig Procurement Prices by Region (D'000/ton)

Region	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Live Local Pig (20-50kg)	-	-	-	-	11350	8500	11750	11000
Live Local Pig (50+kg)	-	9500	-	-	10450	11000	12875	13666.67
Local Pig Carcass	11000	-	-	-	15000	7012.75	16000	16250
Local Pig Other	-	-	-	-	-	-	-	9000
Live Improved Pig (20-50kg)	9950	-	-	10500	9400	-	13750	11000
Live Improved Pig (50+kg)	9525	9307.895	9442.5	9315.625	10671.05	11220	14356.05	14964.17
Improved Pig Carcass	12722.22	11558.36	12000	12416.67	16396.25	15500	19869.23	20308.33
Improved Piglets	11316.67	-	-	11000	-	-	-	-
Improved Pig Other	9500	13500	-	13900	8500	9000	24000	9944.444

Table 5.84: Average Poultry Procurement Prices by Region (฿/ kilogram)

Region	Liveweight Chicken	Chicken Carcass	Liveweight Duck
Red River Delta	19029.41	-	10000
North East	18241.9	-	17500
North West	19857.14	-	12000
North Central Coast	16458.33	25500	7790.45
South Central Coast	-	-	-
Central Highlands	-	-	-
North East South	-	-	-
Mekong River Delta	18270	-	11200

Table 5.85: Average Bovine Procurement Prices by Region (฿/ kilogram)

Region	Cattle/Buffalo Liveweight	Cattle/Buffalo Carcass	Calves
Red River Delta	9625	20000	-
North East	6261.5	18000	5666.667
North West	8261.429	20000	9167
North Central Coast	7202.545	20120	-
South Central Coast	8900	25700	10000
Central Highlands	8968.571	22500	-
North East South	-	-	-
Mekong River Delta	-	-	-

Table 5.86: Average Local Pig Sale Prices by Region (฿/ kilogram)

Region	Pig Liveweight (20kg-50kg)	Pig Liveweight (>50kg)	Pig Carcass	Pig Meat Other
Red River Delta	-	-	12250	-
North East	-	10000	-	-
North West	-	-	-	-
North Central Coast	-	-	-	-
South Central Coast	14000	12400	15333.33	9000
Central Highlands	-	11500	15442.86	9250
North East South	-	11900	17833.33	10166.67
Mekong River Delta	12000	13700	19650	10181.82

Table 5.87: Average Improved Pig Sale Prices by Region (฿/ kilogram)

Region	Improved Pig (20-50kg)	Improved Pig (>50kg)	Pig	Improved Carcass	Improved Piglets	Other improved Pig meat
Red River Delta	11333.33	10021.43	-	13585.15	11875	9583.333
North East	-	9525	-	13439.77	11400	14500
North West	-	9566.667	-	11908.75	-	9571.429
North Central Coast	13000	10050	-	13033.33	12000	14800
South Central Coast	-	12083.33	-	17980.91	-	10361.11
Central Highlands	-	8566.667	-	16272.73	-	9833.333
North East South	14500	14516.67	-	21085.71	-	10466.67
Mekong River Delta	12000	15600	-	20996.36	-	10882.44

Table 5.88: Average Poultry Sale Prices by Region (฿/ kilogram)

Region	Live Local Chicken	Chicken Carcass	Live Ducks	Duck Carcasses
Red River Delta	20031.17	26100	10939.29	-
North East	19781.25	25400	-	26000
North West	20800	27000	-	18000
North Central Coast	17625	26000	11787.5	-
South Central Coast	-	-	-	-
Central Highlands	-	-	-	-
North East South	14000	-	-	-
Mekong River Delta	20600	-	13000	-

Table 5.89: Average Bovine Sale Prices by Region (Đ/ kilogram)

Region	Live Cattle/ Buffalo	Cattle/ Buffalo Carcasses	Calves
Red River Delta	10250	22000	-
North East	7359.125	19120	7333
North West	8436.85	18231.4	16302
North Central Coast	7885.4	21083.33	-
South Central Coast	-	25840	10500
Central Highlands	12000	26195	-
North East South	-	-	-
Mekong River Delta	-	-	-

Figure 5.1: Slaughter Cattle Marketing Channels (Numbers represent percentage of sales through channel)

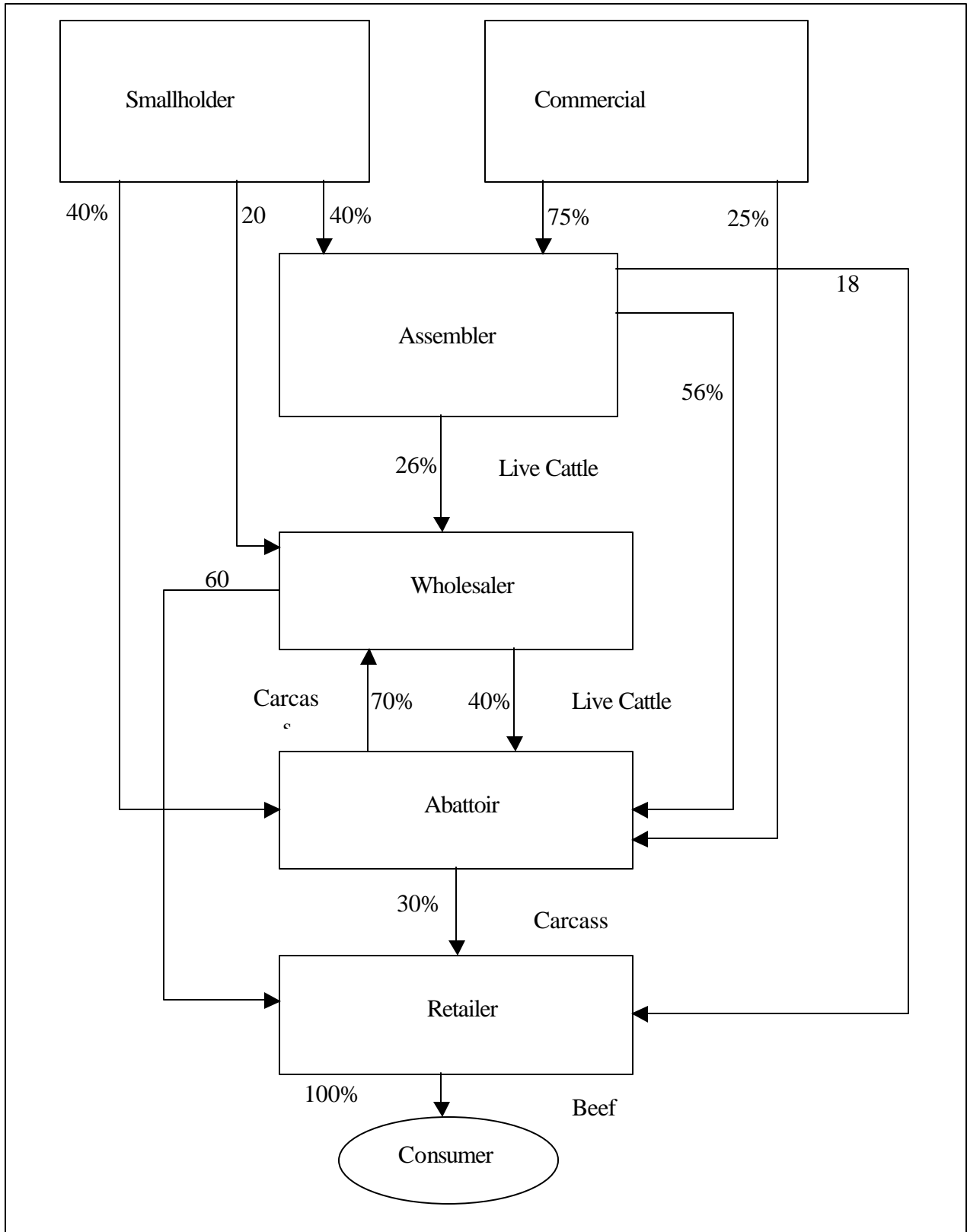


Figure 5.2: Slaughter Chicken Marketing Channels (Numbers represent percentage of sales through channel)

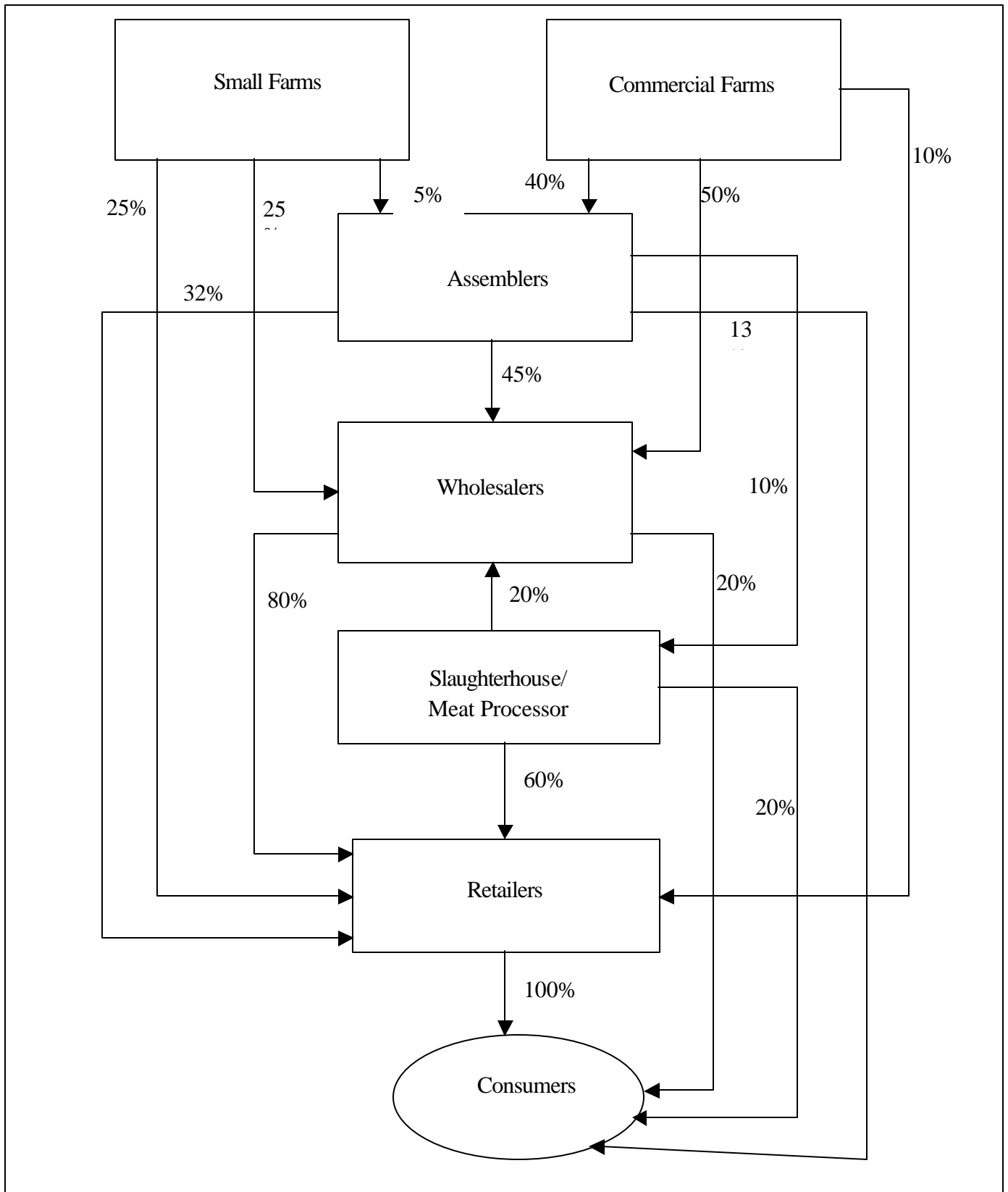
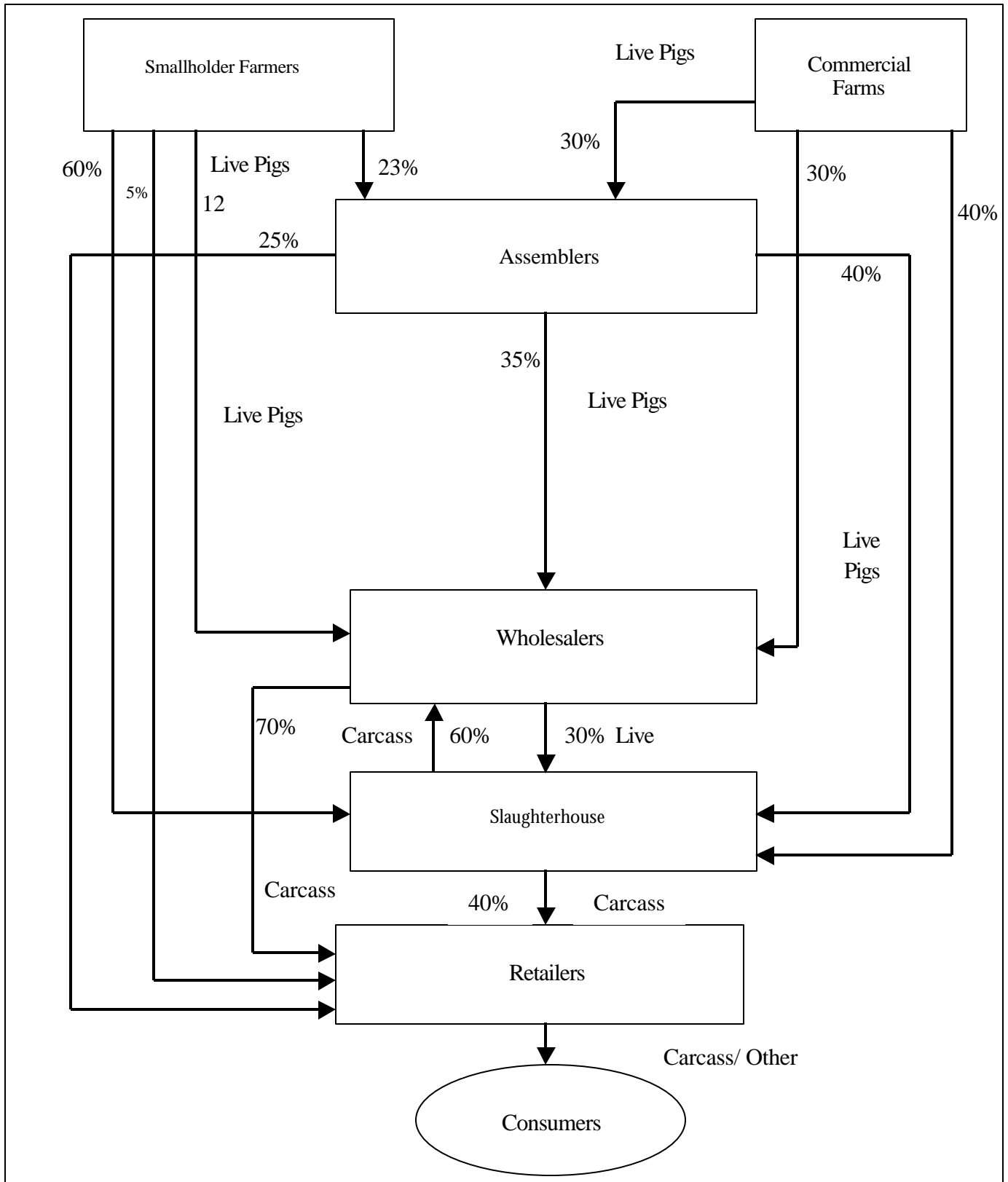
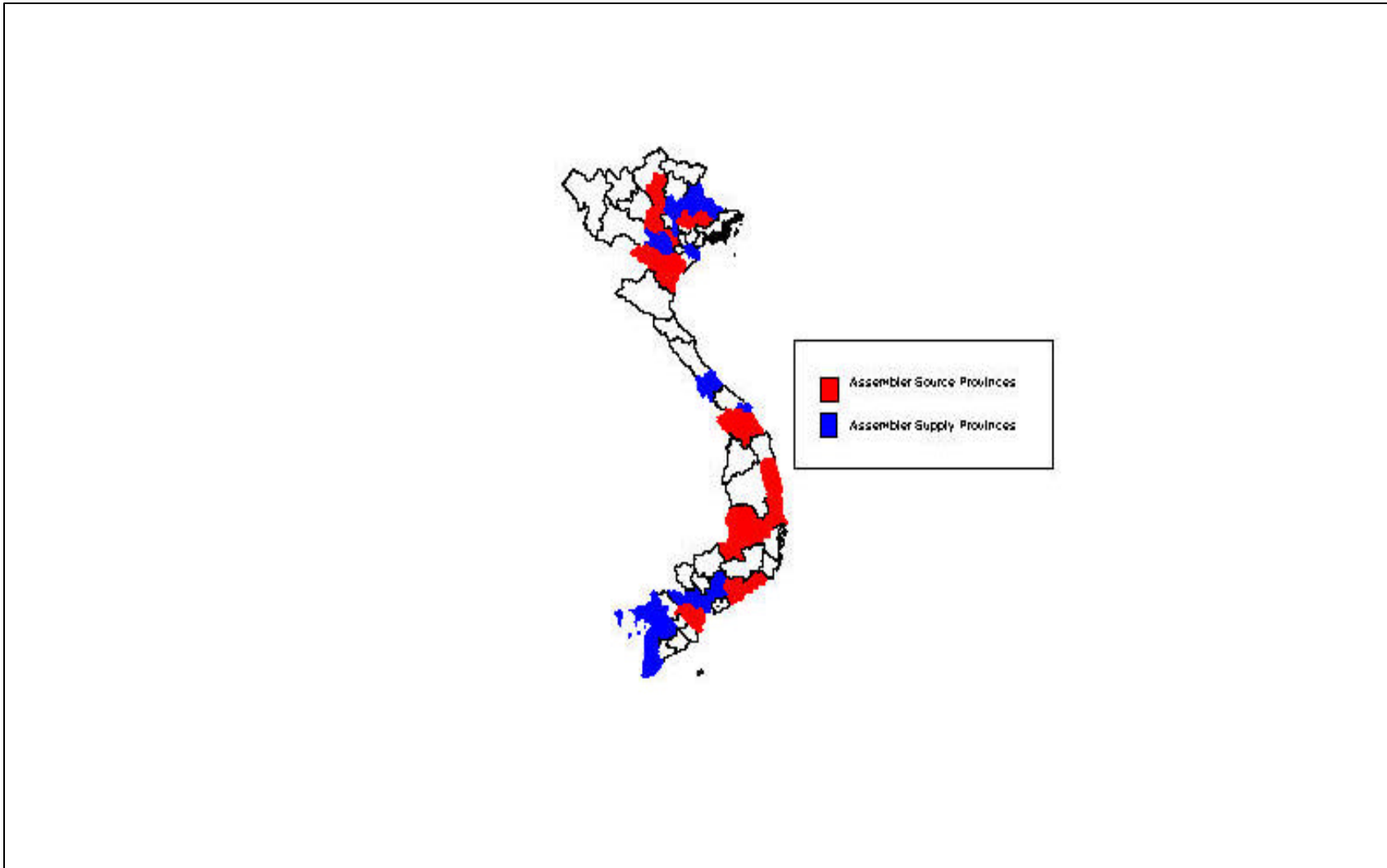
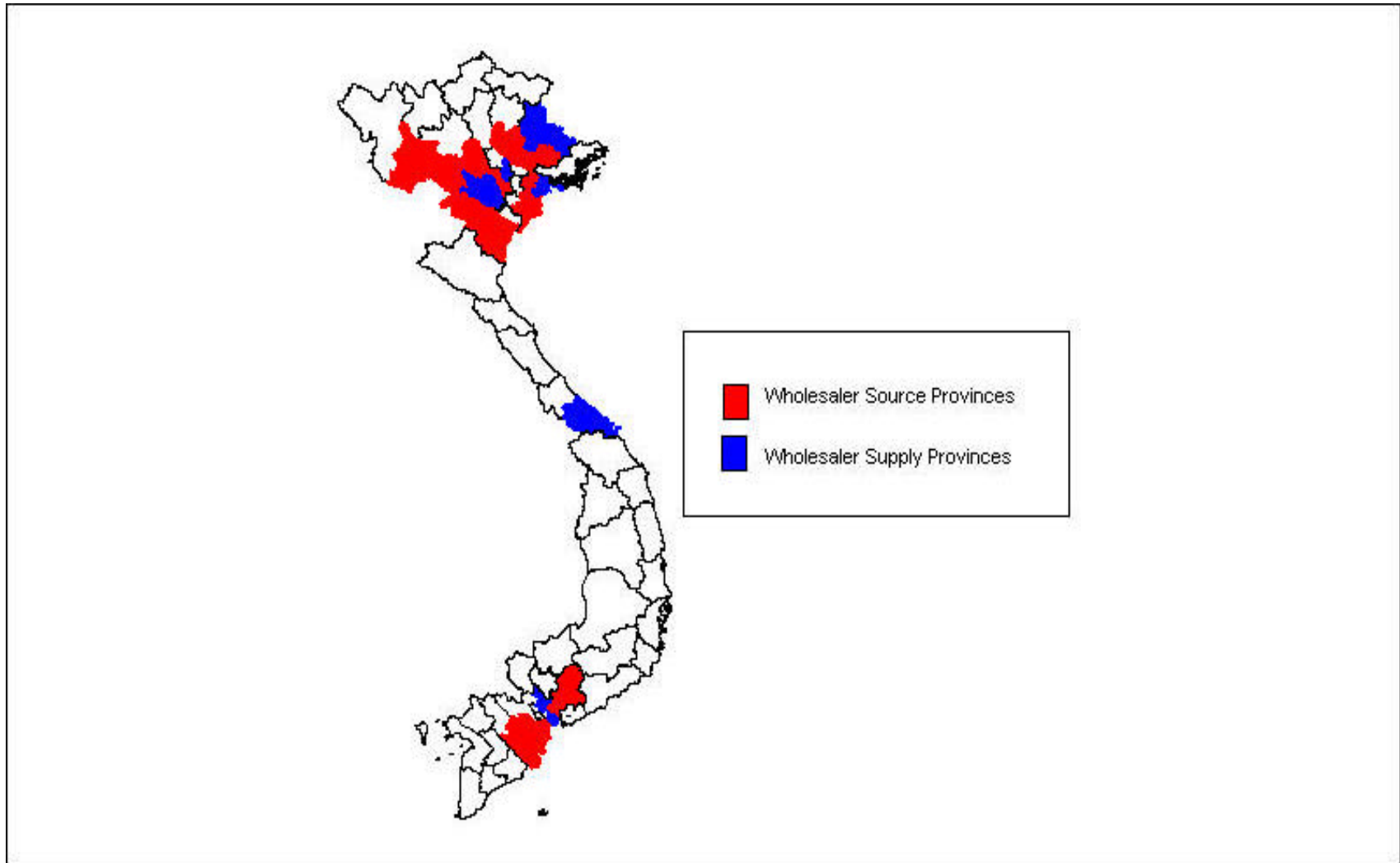


Figure 5.3: Slaughter Pig Marketing Channels (Numbers represent percentage of sales through channel)

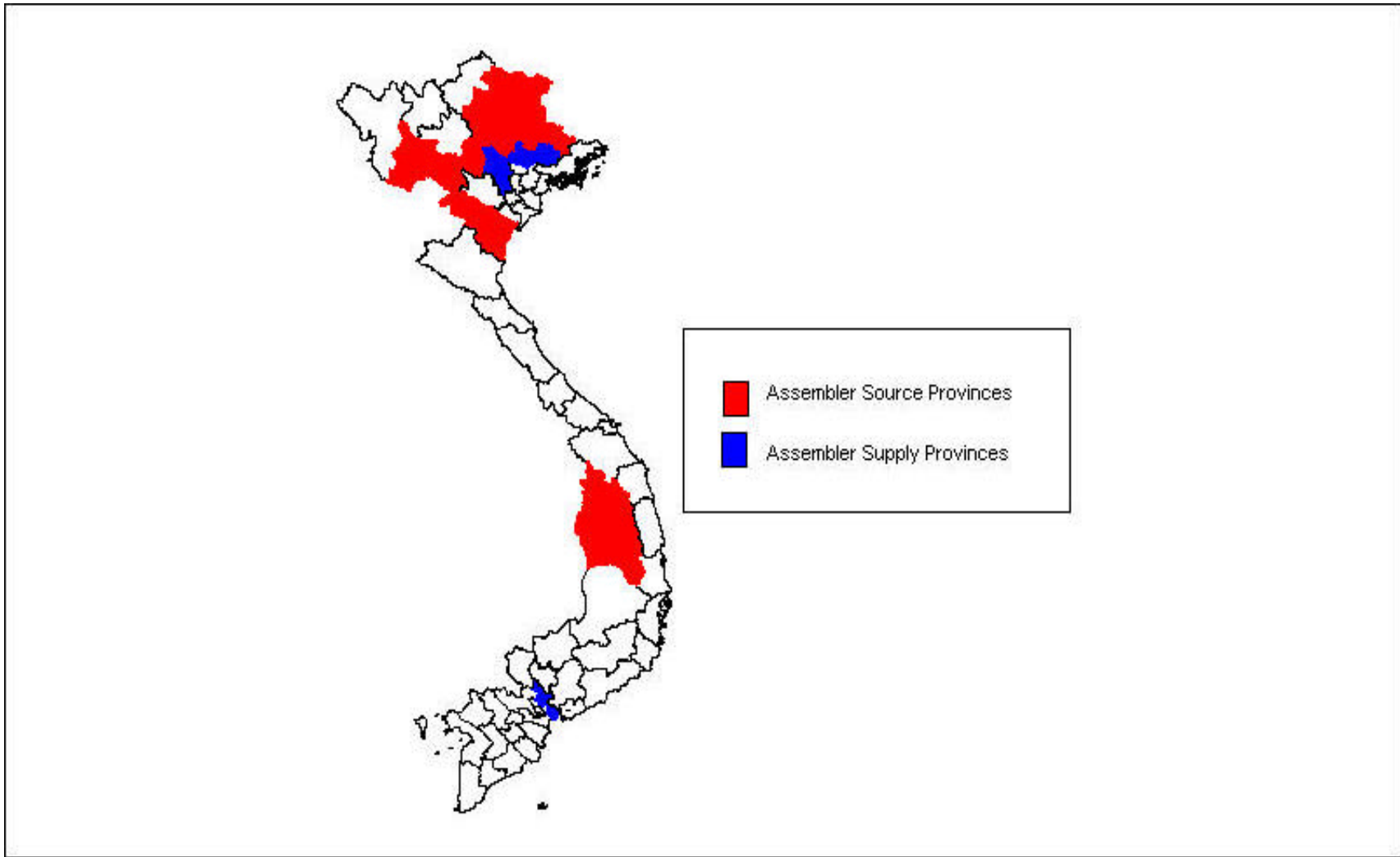




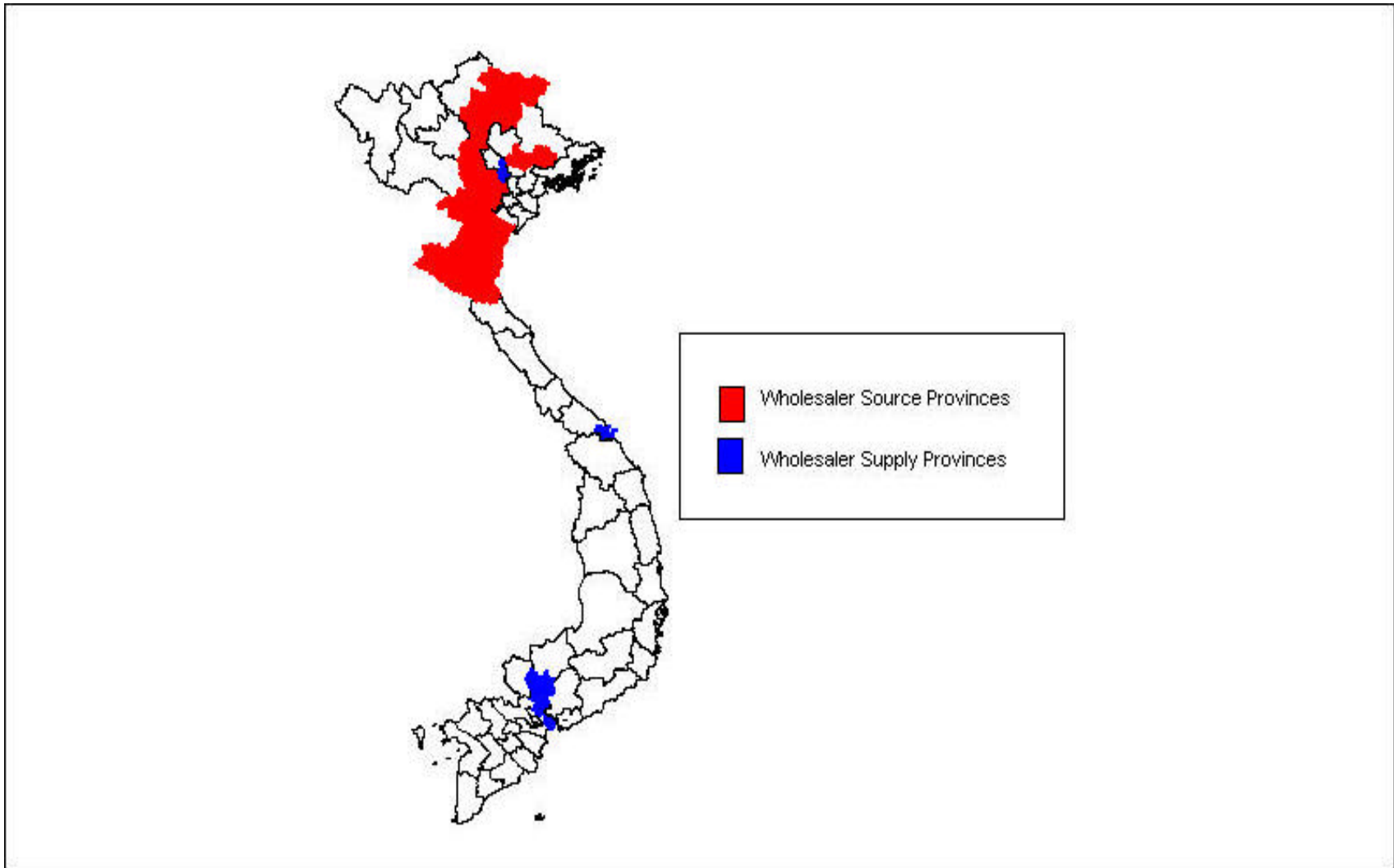
Map 5.1: Pig Product Transport by Assemblers



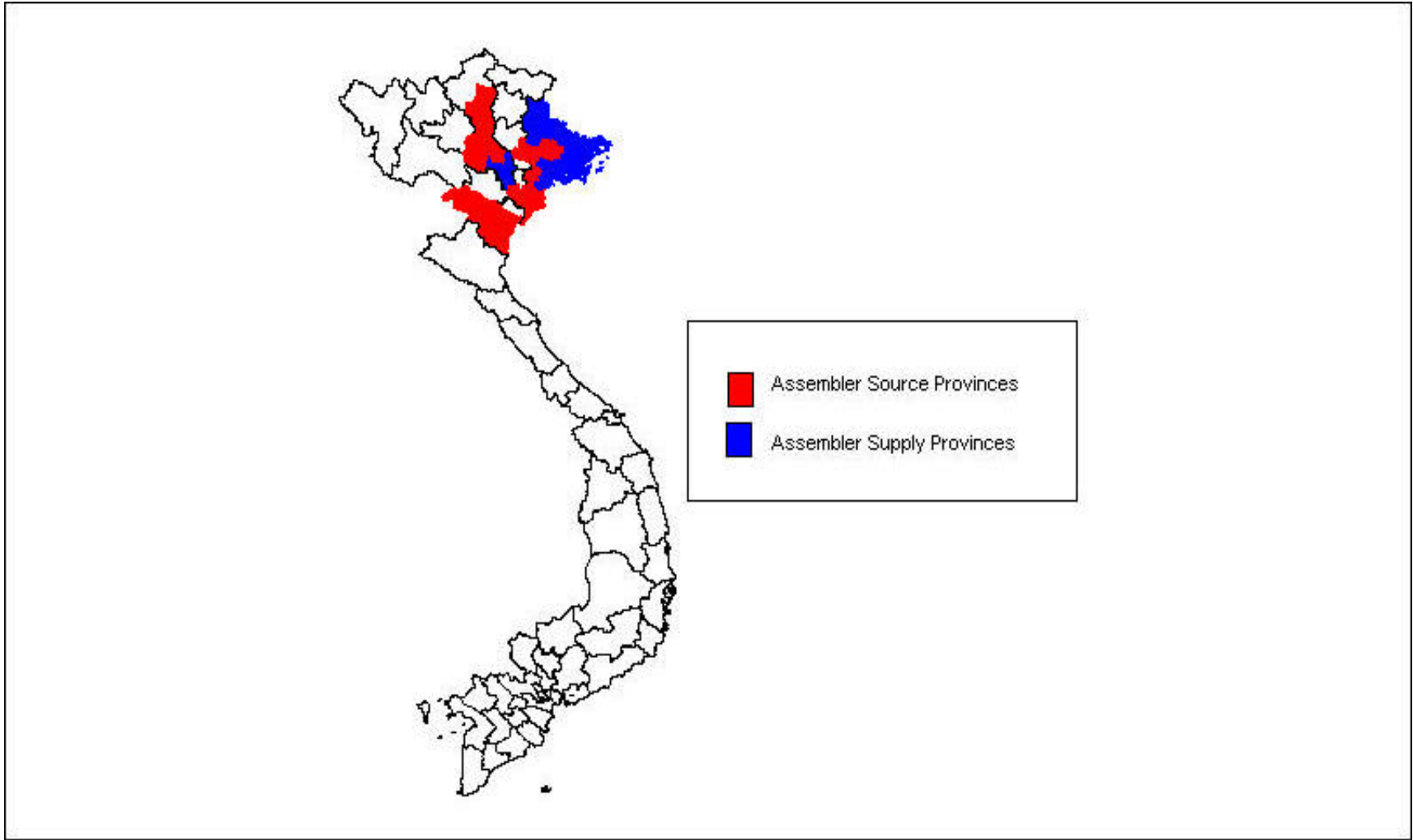
Map 5.2: Pig Product Transport by Wholesalers



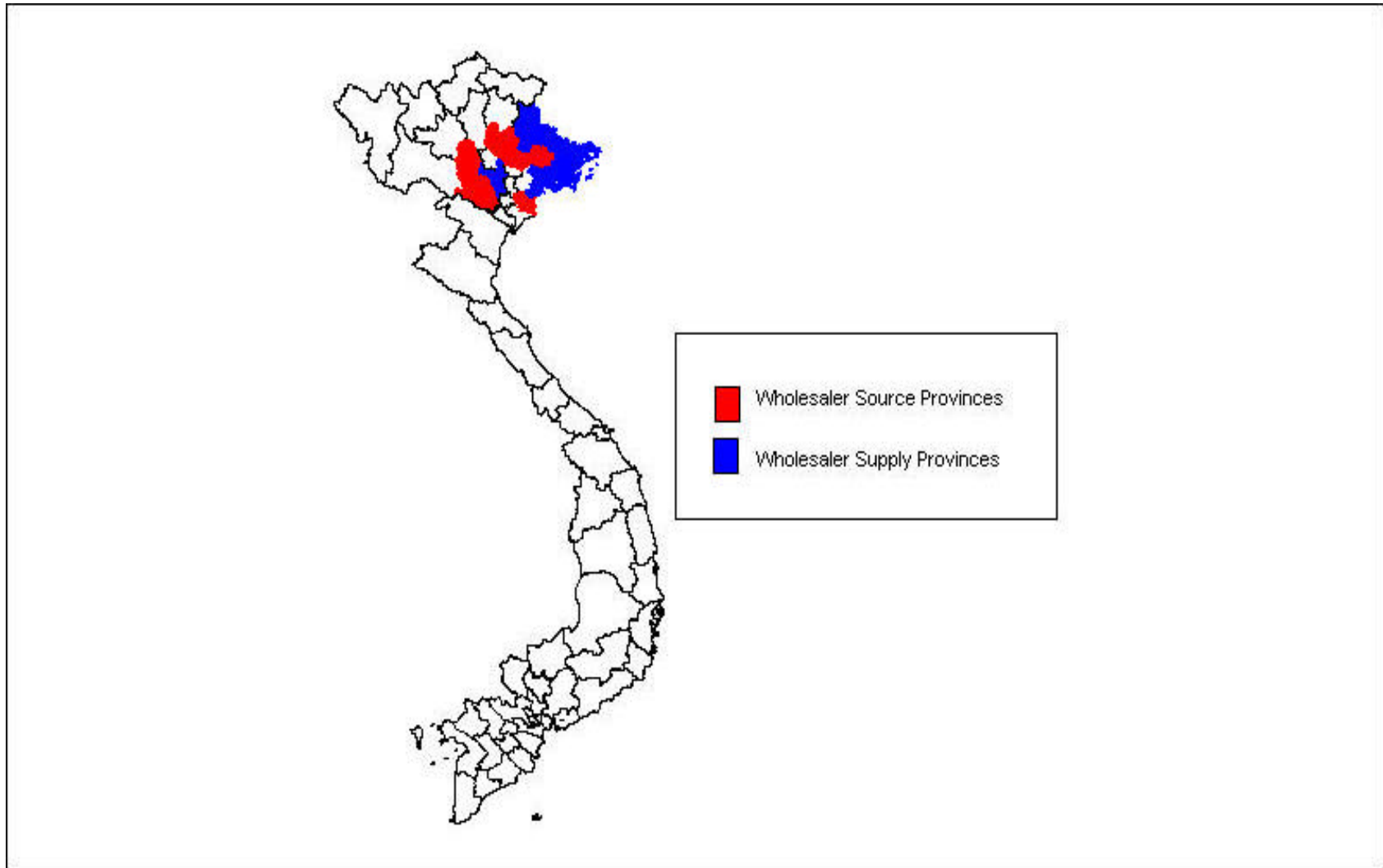
Map 5.3: Cattle Product Transport by Assemblers



Map 5.4: Cattle Product Transport by Wholesalers



Map 5.5: Chicken Product Transport by Assemblers



Map 5.6: Chicken Product Transport by Wholesalers

Table 6.1.1-Change in level of competition by business type (%)

	Type of business			
	Abattoir		Processor	
	1997	1999	1997	1999
5 or less	40.5	36.6	67.1	51.4
6 to 10	26.5	19.5	20.0	30.0
11 to 20	26.5	25.2	8.6	11.4
More than 20	6.6	18.7	4.3	7.1

Table 6.1.2-Percentage of income from different sources for abattoirs and processors

Income Source	Region			Scale		
	North	Center	South	Small	Large	Overall
Abattoir						
Animal sales	1.7	0.8	0.0	1.4	0.0	1.0
Carcass sales	84.7	85.5	90.8	85.1	89.7	86.3
Processed product sales	0.0	0.0	0.0	0.0	0.0	0.0
Slaughtering services	0.9	0.0	3.6	0.6	2.8	1.2
Other	12.7	13.7	5.6	12.9	7.4	11.5
Processors						
Animal sales	0.0	2.3	0.0	0.0	2.8	0.7
Carcass sales	6.4	0.0	0.0	2.6	3.9	2.9
Processed product sales	80.5	64.8	85.4	79.6	68.6	76.8
Slaughtering services	0.0	0.9	0.2	0.1	1.1	0.3
Other	13.2	32.0	14.4	17.8	23.6	19.2

Table 6.2.1-Abattoir labor force characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
Family						
% employing	96.4	100	100	100	93.5	98.4
# of workers	2.1	2.4	2.1	2.2	2.1	2.2
Days worked	317.9	271.3	288.1	293	303.4	295.5
Permanent Skilled						
% employing	29.1	17.1	33.3	18.5	48.4	26
# of workers	3.2	0.2	0.6	0.2	5.8	1.6
Days worked	249.4	263.6	348.9	244.4	321.4	280.5
Wage	16	33.3	28.6	23.4	23.3	23.4
Permanent Unskilled						
% employing	1.8	26.8	48.1	9.8	51.6	20.3
# or workers	0.1	0.4	2	0.1	2.1	0.6
Days worked	360	350.9	291.7	335.6	312	320.5
Wage	15	15	24.2	15.8	22	19.8
Temporary						
% employing	14.5	12.2	3.7	12	9.7	11.4
# of workers	0.9	0.2	0	0.2	1.3	0.5
Days worked	125	60	90	76.9	181.3	99.3
Wage	19.2	14	60	21.4	16.3	20.3
Overall						
# of workers	6.3	3.2	4.7	2.8	11.2	4.9
Days worked	293.1	264.9	293.3	278.9	297.9	283.7
Wage	17.1	20.5	27.8	21.3	22.7	21.9

Table 6.2.2-Processor labor force characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
# of workers	4.3	11.6	4.5	3.2	16.7	6.6
Days worked	259.7	205.6	228	241.1	219.4	235.7
Wage	14.1	18.7	53.2	24.7	37.7	30.7

Table 6.2.3-Employee level of education by business characteristics (%)

	Region			Scale		
	North	Central	South	Small	Large	Overall
Abattoirs						
> High school	1.0	0.0	0.0	0.0	1.6	0.5
Certificate	2.9	8.0	2.5	2.0	10.1	4.3
High school	47.7	52.2	63.1	50.2	59.5	53.2
< High school	48.4	45.0	37.8	50.8	30.3	44.5
Processors						
> High school	0.6	4.3	0.0	0.6	5.2	1.5
Certificate	6.9	4.8	2.3	4.0	9.0	5.0
High school	50.9	31.9	60.8	43.7	57.3	47.2
< High school	41.7	69.5	37.3	54.5	36.3	50.3

Table 6.3.1-Value and composition of purchases by abattoir characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
Pig						
Quantity (000 mt)	934.4	98.5	413	73.8	168.6	529.1
Value (mD)	2143	978	4376	689	6574	2435
Slaughterhouses (%)	0	0	0.1	0	0	0
Household farms (%)	83.6	91	71.7	92.4	58.8	82.4
Commercial farms (%)	0	0	7.9	0	7.6	2.2
Traders (%)	16.4	9	20.1	7.6	33.4	15.3
Other (%)	0	0	0.2	0	0.2	0.1
Poultry						
Quantity (000 mt)	27.1	14.9		22.5		22.5
Value (mD)	414	283		370		370
Household farms (%)	86.7	100		91.1		91.1
Commercial farms (%)	0	0		0		0
Slaughterhouses (%)	0	0		0		0
Traders (%)	13.3	0		8.9		8.9
Other (%)	0	0		0		0
Cattle/Buffalo						
Quantity (000 mt)	95.1	121.2		92.9	372.5	141.5
Value (mD)	755	991		749	2799	1105
Household farms (%)	62.5	58.9		62.5	37.2	58.1
Commercial farms (%)	0	3.7		1.6	2.5	1.8
Slaughterhouses (%)	0	0		0	0	0
Traders (%)	37.5	36.5		35.9	57.9	39.7
Other (%)	0	0.9		0	2.5	0.4

Table 6.3.2-Value and composition of purchases by pig processors

	Region			Scale		
	North	Central	South	Small	Large	Overall
Quantity (000 mt)	10.8	44.7	18.8	7.5	70.6	22.6
Value (mD)	220	1616	516	150	2448	697
Household farms	9.4	11.6	11.8	8.3	17.5	10.5
Commercial farms	0	1.2	0	0	1.5	0.4
Slaughterhouses	87.3	57.6	16.7	74.9	33	64.9
Traders	3.3	23.8	63.2	14.7	40.7	20.9
Other	0	5.8	8.3	2.1	7.3	3.3

Table 6.3.3: Purchase areas and distances by pig abattoir characteristics

Purchase area	Region			Scale		
	North	Central	South	Small	Large	Overall
within Province						
% sales	83.3	100	85.6	94.8	74.6	88.8
average distance (km)	7.3	6.9	10.1	6.9	10.9	8
within Region						
% sales	10.3	0	12.1	3.5	18.1	7.9
average distance (km)	52.1		123	41.9	101.6	81.7
outside Region						
% sales	6.4	0	2.3	1.6	7.3	3.3
average distance (km)	187.5		1550	10	572.5	460

Table 6.3.4-Purchase areas and distances by pig processor characteristics

Purchase area	Region			Scale		
	North	Central	South	Small	Large	Overall
within Province						
% sales	99.8	96.2	100	99.9	95	98.8
average distance (km)	1.5	7.4	6.5	1.8	12.9	4.5
within Region						
% sales	0.2	1	0	0.1	1.2	0.4
average distance (km)	10	150		10	150	80
outside Region						
% sales	0	2.9	0	0	3.8	0.9
average distance (km)		275			275	275

Table 6.3.5-Purchase areas and distance by business characteristics

Purchase area	Abattoir	Processor
within Province		
% sales	96.2	100
average distance (km)	10.8	50
within Region		
% sales	3.8	0
average distance (km)		

Table 6.3.6-Purchase areas and distances by cattle and buffalo abattoir characteristics

Purchase area	Region			Scale		
	North	Central	South	Small	Large	Overall
within Province						
% sales	86.4	96.9	0	91.7	72	88.2
average distance (km)	17.7	25.8		18	42.5	21.6
within Region						
% sales	13.6	3.1	0	8.3	8	8.2
average distance (km)	44.6	110		44.6	110	63.3
	0	0	100	0	20	3.6
outside Region						
% sales			1466.7		1466.7	1466.7
average distance (km)						

Table 6.3.7-Purchase areas and distances by cattle and buffalo processor characteristics

Purchase area	Region			Scale		
	North	Central	South	Small	Large	Overall
within Province						
% sales	95.7	84.0	100.0	96.8	88.6	91.5
average distance (km)	1.2	45.4	2.0	2.2	32.5	21.5
within Region						
% sales	4.3	0.0	0.0	3.2	0.0	1.2
average distance (km)	10.0			10.0		10.0
outside Region						
% sales	0.0	16.0	0.0	0.0	11.4	7.3
average distance (km)		750.0			750.0	750.0

Table 6.4.1-Value and composition of sales by abattoir characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
Pig						
Value (m D)	2389	1127	5402	815	7758	2875
% Customers	39.9	23.6	30.6	40.5	13.2	32.4
% Wholesalers	20.2	25.3	22.1	21.9	23.2	22.3
% Retailers	34.7	51	46.9	36.8	57.9	43
% Other	5.2	0.1	0.4	0.8	5.8	2.3
Poultry						
Value (m D)	455	305		405		405
% Customers	62.6	0		41.7		41.7
% Wholesalers	0	0		0		0
% Retailers	37.4	100		58.3		58.3
% Other	0	0		0		0
Ruminants						
Value (m D)	885	1170	6770	858	3267	1277
% Customers	30.6	8.7	0	22.8	0	18.8
% Wholesalers	21.6	33.5	0	24	37.6	26.3
% Retailers	47.8	51.5	100	51.2	55.1	51.9
% Other	0	6.3	0	2.1	7.3	3

Table 6.4.2-Value and composition of sales by pig processor characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
Value (m D)	280	2003	678	192	3062	875
% Customers	83.2	47.7	42	74.3	33.8	64.6
% Wholesalers	1.3	7	5.6	4.8	0.6	3.8
% Retailers	12.1	35.2	49.7	20	46.2	26.2
% Other	3.4	10.1	2.7	0.9	19.4	5.3

Table 6.4.3-Purchase areas and distances by pig abattoir characteristics

	Region			Scale			
	North	Central	South	Small	Large	Overall	
within Province							
% sales		83.8	100	82.5	93.8	74.8	88.2
average distance (km)		3.4	1.7	3	2.3	4	2.7
within Region							
% sales		12.6	0	17.5	6.2	19.9	10.3
average distance (km)		34.6		43.2	14.4	52.6	37.9
outside Region							
% sales		0	0	0	0	0	0
average distance (km)							

Table 6.4.4-Purchase areas and distances by pig processor characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
within Province						
% sales	100	60	100	100	66.7	88.2
average distance (km)	1.7	10.3	8	2.5	9	4.3
within Region						
% sales	0	0	0	0	0	0
average distance (km)						
outside Region						
% sales	0	35	0	0	29.2	10.3
average distance (km)		1525			1525	1525

Table 6.4.5-Average quantity and sale prices of processed meat products by processor characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
Gio						
Quantity (kg)	1276.5	3.7	918.5	841.9	677.6	812.3
Sale price (D 000 / kg)	24.0	29.3	27.1	26.4	25.0	26.1
Cha						
Quantity (kg)	2.9	2.2	1045.8	2.2	1222.8	168.6
Sale price (D 000 / kg)	24.2	27.0	30.6	25.5	30.2	26.1
Nem						
Quantity (kg)	7.0	3.3	3650.0	4.0	3650.5	667.0
Sale price (D 000 / kg)	25.5	31.5	27.5	28.5	35.0	29.7
Roasted pork						
Quantity (kg)	6.0	1.9	30.4	6.0	25.7	19.1
Sale price (D 000 / kg)	25.0	27.0	32.9	25.0	30.0	27.0

Table 6.4.6-Characteristics of consignment sales by region, scale and business type

	Region			Scale		
	North	Central	South	Small	Large	Overall
Abattoirs						
Consignment sales (%)	96.4	78	92.6	91.3	83.9	89.4
Percentage of sales (%)	42.3	56.6	65	46.7	67.6	51.6
Consignment period (days)	20.4	15.8	7.8	16.8	14.2	16.2
Processors						
Consignment sales (%)	93.9	59.1	52.9	79.6	55.6	73.6
Percentage of sales (%)	31.4	33.5	40.6	32.5	37.5	33.5
Consignment period (days)	19	9.3	13.7	16.3	13.3	15.7

Table 6.5.1: Average pig product prices from Q3, 98 to Q2, 99 by abattoir characteristics

Meat product	Region			Scale		Overall
	North	Central	South	Small	Large	
Whole carcass	13.4	15.3	19.8	14.7	18.4	15.9
Head	7.0	7.6	10.3	7.8	9.9	8.3
Neck	8.0	10.3	13.9	9.0	16.1	9.6
Shoulder	15.0	15.5	23.0	16.1	23.8	17.0
Buttock	18.2	19.5	23.2	18.9	24.3	19.5
Legs	13.1	17.8	25.0	16.0	25.2	17.2
Feet/hocks	6.1	8.8	12.9	8.0	13.1	8.8
Loin	22.6	22.2	29.9	23.4	29.1	24.1
Heart	35.4	29.8	27.6	32.4	28.1	31.8
Liver	11.1	14.3	23.3	14.4	22.7	15.4
Kidney	32.7	21.2	26.0	28.7	20.2	27.9
Stomach	15.8	17.3	14.2	15.8	15.0	15.7
Lung	6.8	6.5	8.2	7.1	7.5	7.2
Small intestine	6.8	10.6	13.0	9.3	11.9	9.7
Large intestine	5.8	6.7	7.3	6.3	7.4	6.5
Tongue	18.5	16.8	19.5	18.3	18.3	18.3
Tail	5.0	6.0	19.2	7.4	22.8	8.5
Blood	4.1	2.4	4.7	3.3	5.7	3.9
Lean meat	17.2	22.7	30.0	21.0	27.2	21.8
Fat	9.4	9.1	9.1	9.2	9.1	9.2
Skin	2.3	2.9	5.6	3.2	5.1	3.4
Belly	8.2	12.7	10.8	10.5	9.1	9.7
Rib		21.5		21.5		21.5
Offals	8.9	8.5	9.8	8.7	9.5	9.1

Table 6.5.2-Average prices, growth rate and instability measure of pig products over the period from Q3, 98 to Q3, 99 by abattoir characteristics

	Mean	Growth rate	Minimum	Maximum	Index of Instability
Whole carcass	15.77	0.25	15.51	16.10	1.52
Head	8.21	0.26	8.08	8.30	1.14
Neck	9.58	0.68	9.24	9.83	2.34
Shoulder	16.67	1.17	16.01	17.17	2.22
Buttock	19.18	0.68	18.58	19.66	2.03
Legs	16.68	1.67	15.74	17.22	3.01
Hocks	8.59	1.92	8.09	8.82	2.01
Loin	23.73	0.35	23.12	24.21	1.87
Heart	32.25	-0.51	31.61	32.80	1.58
Liver	15.54	4.52	14.40	17.55	3.55
Kidney	27.99	-0.59	26.50	31.78	8.83
Stomach	15.63	0.08	15.58	15.68	0.33
Lung	7.12	1.95	6.79	7.73	4.59
Small intestine	9.57	1.39	9.21	9.80	1.63
Large intestine	6.47	1.12	6.30	6.63	1.75
Tongue	18.29	0.39	18.18	18.49	0.36
Tail	8.10	5.27	6.85	8.70	6.25
Blood	3.96	-0.68	3.88	4.01	1.16
Lean meat	21.29	1.30	20.27	21.96	2.69
Fat	9.25	0.48	9.17	9.42	0.97
Skin	3.25	5.51	2.83	3.49	3.49
Offals	9.02	-0.37	8.82	9.14	1.52

Table 6.6.1-Percentage of urban households owning refrigerators by household characteristics

	Hanoi	HCMC
Overall	42	57
City	69	67
Suburbs	15	45
Poorer	39	5
Average	34	57
Wealthier	62	87

Table 6.7.1-Characteristics of transport used by abattoirs

	Region			Scale		
	North	Central	South	Small	Large	Overall
Use transportation	100	100	100	100	100	100
Truck	10.9	17.1	33.3	4.3	58.1	17.9
Refrigerated truck	0	0	3.7	0	3.2	0.8
Motorbike	87.3	80.5	40.7	88	35.5	74.8
Tuktuk	1.8	2.4	18.5	1.1	19.4	5.7
Cart	0	7.3	37	7.6	19.4	10.6
Cyclo	5.5	7.3	3.7	5.4	6.5	5.7

Table 6.7.2-Characteristics of transport used by processors

	Region			Scale		
	North	Central	South	Small	Large	Overall
Use transportation	93.9	95.5	70.6	92.6	77.8	88.9
Truck	0	9.5	16.7	0	28.6	6.2
Refrigerated truck	3.2	9.5	0	0	21.4	4.7
Motorbike	71	85.7	58.3	82	42.9	73.4
Tuktuk	0	0	0	0	0	0
Cart	0	0	16.7	0	14.3	3.1
Cyclo	0	4.8	0	0	7.1	1.6

Table 6.7.3-Ownership of primary means of transport by abattoir characteristics

Transport	Region			Scale		
	North	Central	South	Small	Large	Overall
Truck						
% own	17.5	0	50	0	26.4	23.1
% rent	82.5	100	50	100	73.6	76.9
MotorBike						
% own	98.3	96.1	100	97.4	100	97.7
% rent	1.7	3.9	0	2.6	0	2.4
Cart						
% own		100	40	50	50	50
% rent		0	66.7	50	66.7	57.1
Cyclo						
% own	0			0		0
% rent	100			100		100

Table 6.7.4-Ownership of primary means of transport by processor characteristics

Transport	Region			Scale		
	North	Central	South	Small	Large	Overall
Truck						
% own			0		0	0
% rent			100		100	100
MotorBike						
% own	98.6	100	100	99.3	100	99.3
% rent	1.4	0	0	0.7	0	0.7
Cart						
% own			0		0	0
% rent			100		100	100
Cyclo						
% own			50		50	50
% rent			50		50	50

Table 6.9.1-Current asset value by abattoir characteristics

	Region			Scale		Overall
	North	Central	South	Small	Large	
Transport	24.8	11.4	14.1	13.3	33.1	18.1
Building	27.4	1.8	49.3	8.5	68.5	23
Land	12.6	19.6	36.5	12.3	43.1	19.8
Equipment	0.2	0.1	0.4	0.1	0.5	0.2
Durable	0.9	0	0.5	0	2.1	0.5
Other	11.7	0	1.3	0	23.1	5.6
Total	77.6	32.9	102.1	34.2	170.4	67.2

Table 6.9.2: Current asset value by processor characteristics

	Region			Scale		Overall
	North	Central	South	Small	Large	
Transport	15.2	47.9	4.2	12	65.9	23.1
Building	9.4	136.4	132.5	16.8	270.6	69.2
Land	28.5	28	113.9	17.4	142.7	43.3
Equipment	1.4	1.7	0	0.2	5.3	1.2
Durable	0.3	3	0	0.3	4.2	1.1
Other	0.1	0	0	0.1	0	0.1
Total	54.9	217	250.6	46.8	488.7	138.1

Table 6.10.1-Characteristics of loans by source of loan

Source of Loan	Abattoir			Processor		
	Value (m D)	Period (months)	Interest Rate (%)	Value (m D)	Period (months)	Interest Rate (%)
Informal	10.0	12	1.6	7.3	12	0.3
Agricultural Bank	12.4	17	1.2	4.6	16	1.1
Other formal	3450.0	15	1.1	233.7	6	1.1
Other	20.0	8	1.4	1.0	12	0.8
Overall	316.9	15	1.3	42.8	13	1.0

Table 6.10.2-Loan characteristics by scale and business characteristics

Purpose of Loan	Abattoir			Processors		
	Small	Large	Overall	Small	Large	Overall
Animals and meat						
Value (m D)	11.3	1265.4	335.0	4.0	350.0	44.7
Period (months)	17	10	15	13	8	12
Monthly rate (%)	1.2	1.5	1.3	1.0	1.1	1.0
Other						
Value (m D)	45.0	300.0	130.0	10.0	10.0	
Period (months)	8	6	7	24	24	
Monthly rate (%)	1.3	1.2	1.3	0.0	0.0	
Overall						
Value (m D)	14.0	1158.1	316.9	4.0	236.7	42.8
Period (months)	17	10	15	13	13	13
Monthly rate (%)	1.2	1.5	1.3	1.7	0.7	1.0

Table 6.10.3-Characteristics of advanced payment by region, scale and business characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
Abattoirs						
Advanced payment (%)	9.1	17.1	11.1	9.8	19.4	12.2
Percentage of sales (%)	15.0	59.6	30.0	39.1	38.3	38.8
Advance payment period (days)	7	11	1	12	2	9
Processors						
Advanced payment (%)	21.2	13.6	5.9	18.5	5.6	15.3
Percentage of sales (%)	17.9	68.0	20.0	31.9	30.0	31.7
Advance payment period (days)	4	2	3	10	4	

Table 6.11.1-Average and percent total operating costs by cost category and abattoir characteristics

Cost category	Region			Scale		
	North	Central	South	Small	Large	Overall
Transport (m D)	45.9	6.6	23.7	5.1	95.5	27.9
(%)	37.2	35.5	23.9	35.0	29.8	33.7
Marketing (m D)	4.0	1.2	4.8	0.7	10.6	3.2
(%)	4.8	4.7	3.2	4.6	3.8	4.4
Rental costs (m D)	0.1	0.1	7.9	0.2	6.4	1.8
(%)	0.4	1.0	9.0	1.2	6.4	2.5
Fumigation (m D)	0.1	0.1	0.8	0.1	0.7	0.2
(%)	0.4	0.4	0.9	0.4	0.8	0.5
Utilities (m D)	12.1	2.1	4.6	2.3	21.4	7.1
(%)	15.1	10.2	6.7	13.3	6.8	11.6
Bag costs (m D)	5.8	0.1	1.1	0.3	10.4	2.9
(%)	4.1	1.0	1.5	2.6	2.2	2.5
Maintenance (m D)	2.6	0.4	1.3	0.5	4.6	1.6
(%)	4.5	2.5	0.9	3.8	0.7	3.0
Health & Veterinay (m D)	0.5	1.5	11.0	0.7	10.3	3.1
(%)	3.2	8.7	5.5	5.5	5.7	5.5
Quality control (m D)	8.0	1.2	4.1	0.7	17.4	4.9
(%)	1.3	3.9	5.8	2.5	5.2	3.2
Hired labor (m D)	14.2	2.5	19.7	1.9	40.0	11.5
(%)	6.3	9.1	15.0	7.4	14.3	9.1
Management (m D)	8.0	0.1	0.0	0.0	14.3	3.6
(%)	0.3	0.6	0.0	0.0	1.2	0.3
Credit (m D)	2.2	0.4	0.6	0.5	3.5	1.2
(%)	2.8	1.8	1.1	2.3	1.3	2.1
Taxes (m D)	3.1	4.0	35.3	3.0	32.6	10.4
(%)	15.5	16.5	21.8	17.1	17.5	17.2
Depreciation (m D)	10.5	0.6	2.2	0.5	19.9	5.4
(%)	2.9	3.2	2.4	3.1	2.4	2.9
Other (m D)	2.7	0.2	2.7	0.2	7.0	1.9
(%)	1.1	1.1	2.3	1.2	1.7	1.3
Total (m D)	119.6	21.0	119.7	16.8	294.5	86.8

Table 6.11.2-Average and percent total operating costs by cost category and processor characteristics

Cost category	Region			Scale		
	North	Central	South	Small	Large	Overall
Transport (m D)	2.0	65.6	2.4	1.5	81.5	21.5
(%)	15.8	20.6	4.4	15.8	10.7	14.6
Marketing (m D)	0.8	2.9	1.5	0.7	4.3	1.6
(%)	4.7	5.4	3.0	5.0	3.3	4.5
Rental costs (m D)	9.2	0.0	1.5	0.0	18.1	4.6
(%)	2.5	0.2	1.1	0.6	4.0	1.4
Fumigation (m D)	0.1	0.7	0.2	0.0	1.1	0.3
(%)	0.7	0.2	0.3	0.4	0.6	0.4
Utilities (m D)	7.5	25.2	8.7	2.7	44.8	13.2
(%)	28.1	23.8	19.4	25.7	21.8	24.7
Bag costs (m D)	3.0	5.7	2.8	2.4	7.9	3.8
(%)	18.3	14.0	8.2	15.5	11.9	14.6
Maintenance (m D)	0.5	11.5	0.9	0.2	15.3	4.0
(%)	3.1	1.6	1.2	2.2	2.0	2.2
Health & Veterinay (m D)	0.2	0.3	2.7	0.0	3.1	0.8
(%)	0.5	0.0	2.9	0.3	2.9	0.9
Quality control (m D)	0.2	0.5	0.3	0.1	1.1	0.3
(%)	1.8	0.0	1.0	1.2	0.6	1.1
Hired labor (m D)	0.5	11.7	13.7	2.1	21.7	7.0
(%)	2.7	13.0	16.7	6.8	16.1	9.1
Management (m D)	0.4	5.2	0.0	0.0	7.1	1.8
(%)	0.1	0.3	0.0	0.0	0.5	0.1
Credit (m D)	0.3	3.0	0.3	0.2	3.9	1.1
(%)	3.1	0.2	0.8	2.1	0.3	1.7
Taxes (m D)	1.5	18.3	17.8	2.7	33.7	10.5
(%)	14.7	14.9	39.4	20.5	20.9	20.6
Depreciation (m D)	0.2	24.0	0.8	0.3	29.4	7.6
(%)	2.8	5.0	1.4	2.9	3.9	3.1
Other (m D)	0.1	6.1	0.2	0.1	7.4	2.0
(%)	1.2	0.8	0.3	0.9	0.6	0.8
Total (m D)	26.4	180.5	53.6	13.1	280.2	79.9

Table 6.12.1-Profitability by abattoir characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
Total revenue (mD)	1929	1078	5564	791	7348	2444
Sales (mD)	1877	1078	5452	784	7178	2396
Raw materials (mD)	1677	931	4444	670	6087	2036
Operating costs (mD)	120	21	120	17	294	87
Profit (mD)	133	126	1000	104	966	321
Profit share (%)	12.5	11.4	15.6	12.9	12.4	12.8
Profit - labor ratio	0.1	0.1	0.8	0.1	0.7	0.3

Table 6.12.2-Profitability by processor characteristics

	Region			Scale		
	North	Central	South	Small	Large	Overall
Total revenue (mD)	277	1968	609	201	2886	872
Sales (mD)	277	1761	608	200	2633	809
Raw materials (mD)	218	1418	475	158	2107	646
Operating costs (mD)	26	181	54	13	280	80
Profit (mD)	32	370	80	29	499	147
Profit share (%)	12.3	16.7	13.7	13.2	16.3	14
Profit- labor ratio	0	0.1	0.1	0	0.2	0.1

Table 6.12.3-Average daily processing capacities by scale of operation

	Scale		
	Small	Large	Overall
Abattoir	0.5	4.2	1.4
Processor	0.2	1.0	0.4

Table 7.1.1-Distribution of feed mills by capacity

Capacity of feed mill	Number of mills	Share in total
< 5 000 MT	47.00	44.80
5 000-10 000 MT	18.00	17.10
10 000 - 20 000 MT	15.00	14.30
20 000 - 50 000 MT	15.00	14.30
> 50 000 MT	10.00	9.50
Total	105.00	100.00

Table 7.1.2-Utilization by type of animal feed, 1988-98

Year	Total consumption (1000 mt)	Concentrate (1000 mt)	Commercial feed (1000 mt)	Share of commercial feed in total	Share of commercial in concentrate
1988	22249.80	5073.20	56.00	0.25	1.10
1989	22859.10	5278.00	52.00	0.23	0.98
1990	22542.90	5245.10	59.00	0.26	1.12
1991	23106.90	5712.20	66.00	0.28	1.16
1992	23051.20	5457.60	65.00	0.28	1.19
1993	24156.20	5876.80	94.00	0.39	1.60
1994	24864.10	6225.50	154.00	0.62	2.47
1995	25667.70	6563.80	884.00	3.44	13.47
1996	26458.60	6915.60	1470.00	5.55	21.26
1997	27050.20	7233.40	1851.00	6.85	25.58
1998	27614.00	7543.30	2030.00	7.35	26.90

Table 7.1.3-Distribution of feed mill sample by ownership and GVP category

Ownership category	Mill Size			Overall
	Small	Medium	Large	
GOE	14.29	8.57	0.00	22.86
Private	40.00	17.14	8.57	65.71
Foreign	2.86	0.00	8.57	11.43
Total	57.14	25.71	17.14	100.00

Table 7.2.1-Labor use by type of labor and processor characteristics

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Family							
Use labor (%)	0.00	73.90	0.00	57.90	54.50	0.00	48.60
Average number of labor	0.00	2.30	0.00	1.50	2.20	0.00	1.50
Average number of work days/year		310.50		283.50	360.00		310.50
Average price of labor							
Permanent Skilled							
Use labor (%)	100.00	43.50	100.00	57.90	54.50	100.00	62.90
Average number of labor	34.90	12.50	219.80	8.20	20.50	213.00	41.30
Average number of work days/year	315.90	313.50	319.00	319.90	323.20	296.00	315.40
Average price of labor	27.60	27.80	59.20	26.20	33.20	49.60	33.40
Permanent Unskilled							
Use labor (%)	62.50	65.20	100.00	68.40	63.60	80.00	68.60
Average number of labor	14.10	20.30	134.20	11.60	24.90	124.40	31.90
Average number of work days/year	281.50	310.10	319.00	284.90	330.20	330.10	305.70
Average price of labor	25.40	21.70	30.50	20.70	25.90	31.20	24.00
Temporary							
Use labor (%)	25.00	39.10	25.00	42.10	27.30	20.00	34.30
Average number of labor	4.60	6.00	3.80	5.60	6.40	3.00	5.50
Average number of work days/year	60.00	73.00	200.00	77.60	52.00	200.00	81.40
Average price of labor	22.50	22.10	25.00	19.20	30.00	25.00	22.40
Overall							
Average number of labor	53.60	41.00	357.80	26.80	53.90	340.40	80.10
Average number of work days/year	291.90	257.20	318.40	248.70	302.20	294.80	272.10
Average price of labor	25.60	23.80	42.40	21.90	28.50	38.10	26.40

Table 7.2.2-Distribution of worker education by processor characteristics

Educational level	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Post-graduate	0.50	0.10	0.30	0.00	0.60	0.20	0.20
Graduate	23.10	5.60	27.70	11.30	7.80	24.70	12.10
Diploma	0.90	0.70	0.20	1.10	0.10	0.10	0.70
Certificate	12.80	8.30	12.60	9.00	10.10	12.80	9.90
High School	42.10	34.40	41.90	30.90	45.40	41.80	37.00
Other	20.60	50.90	17.40	47.70	36.00	20.40	40.10

Table 7.2.3-Labor use by type and gender of labor and processor characteristics

Type of labor	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Male Family							
Use labor (%)	0.00	73.90	0.00	57.90	54.50	0.00	48.60
Average number of labor		1.80		1.50	2.30		1.80
Average number of work days/year		310.50		283.50	360.00		310.50
Average price of labor							
Female Family							
Use labor (%)	0.00	56.50	0.00	42.10	45.50	0.00	37.10
Average number of labor		1.70		1.50	2.00		1.70
Average number of work days/year		308.30		276.00	360.00		308.30
Average price of labor							
Male Permanent Skilled							
Use labor (%)	100.00	43.50	100.00	57.90	54.50	100.00	62.90
Average number of labor	21.60	23.90	182.50	9.70	24.70	177.40	51.90
Average number of work days/year	316.20	313.50	319.00	319.90	323.70	296.00	315.50
Average price of labor	27.90	28.10	66.80	26.90	33.20	55.20	35.00
Female Permement Skilled							
Use labor (%)	100.00	30.40	100.00	47.40	45.50	100.00	54.30
Average number of labor	13.20	6.90	37.20	5.30	15.40	35.60	15.90
Average number of work days/year	314.80	300.00	319.00	316.00	314.00	296.00	310.20
Average price of labor	27.30	26.50	51.60	25.60	31.90	44.00	32.10
Male Permanent Unskilled							
Use labor (%)	62.50	65.20	100.00	68.40	63.60	80.00	68.60
Average number of labor	16.00	28.70	97.20	14.10	35.90	116.50	37.50
Average number of work days/year	282.00	310.50	319.00	285.30	330.60	330.00	306.00
Average price of labor	25.40	22.60	31.30	21.20	26.60	32.50	24.60
Female Permanent Unskilled							
Use labor (%)	50.00	34.80	75.00	31.60	45.50	80.00	42.90
Average number of labor	8.20	4.40	49.30	6.20	4.60	39.00	14.40
Average number of work days/year	275.00	316.50	321.30	263.30	338.40	331.00	306.40
Average price of labor	23.50	20.10	31.40	18.40	23.80	29.80	23.20
Male Temporary							
Use labor (%)	25.00	39.10	25.00	42.10	27.30	20.00	34.30
Average number of labor	12.50	15.40	3.00	11.80	23.30	3.00	13.90
Average number of work days/year	60.00	73.00	200.00	77.60	52.00	200.00	81.40
Average price of labor	22.50	22.10	25.00	19.20	30.00	25.00	22.40
Female Temporary							
Use labor (%)	12.50	0.00	25.00	5.30	0.00	20.00	5.70
Average number of labor	12.00		12.00	12.00		12.00	12.00
Average number of work days/year	30.00		200.00	30.00		200.00	115.00
Average price of labor	10.00		25.00	10.00		25.00	17.50

Table 7.4.1-Percentage of feed mills using local and imported sources of raw materials by input category

Input	% use	% use local	% use imported
Rice	14.30	14.30	0.00
Maize	100.00	100.00	11.40
Cassava	77.10	77.10	0.00
Groundnut	8.60	5.70	2.90
Soyabean	68.60	65.70	5.70
Rice Bran	97.10	97.10	0.00
Maize Bran	11.40	5.70	5.70
White Bran	62.90	60.00	8.60
Groundnut Cake	20.00	17.10	2.90
Soyabean Cake	82.90	77.10	14.30
Cotten seed Cake	8.60	8.60	0.00
Other Oilseed Cake	51.40	51.40	2.90
Feather Meal	2.90	2.90	0.00
Fish Meal	68.60	68.60	11.40
Meat Meal	17.10	11.40	11.40
Bone Meal	71.40	68.60	2.90
Vegetable Oil	28.60	28.60	2.90
Mineral Premix	88.60	82.90	8.60
Vitamine Premix	82.90	74.30	8.60
Lysine	80.00	71.40	8.60
Methiomine	65.70	60.00	8.60
DCP	55.60	50.00	13.90
Dry Fish	54.30	51.40	2.90
Other	43.90	41.50	7.30

Table 7.4.2-Quantity of feed inputs procured for local and imported sources by input and processor categories

Input	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Rice							
Quantity (ton)	12.00	4.00	4934.00	52.00	9.00	3678.00	570.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	100.00
% Purchase	100.00	100.00	100.00	100.00	100.00	100.00	100.00
% Import	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maize							
Quantity (ton)	2269.00	1771.00	42611.00	654.00	2846.00	37119.00	6552.00
% Own production	0.00	1.60	0.00	2.00	0.00	0.00	1.10
% Purchase	98.90	98.40	79.20	97.60	99.20	85.00	96.30
% Import	1.10	0.00	20.80	0.40	0.80	15.00	2.60
Cassava							
Quantity (ton)	289.00	1836.00	4759.00	364.00	2524.00	2.60	5778.00
% Own production	0.00	3.50	0.00	5.30	0.00	0.00	1816.00
% Purchase	100.00	96.50	100.00	94.70	100.00	100.00	97.40
% Import	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Groundnut							
Quantity (ton)	0.00	11.00	4.00	14.00	0.00	3.00	8.00
% Own production		0.00	0.00	0.00	0.00	0.00	0.00
% Purchase		100.00	0.00	100.00	100.00	0.00	66.70
% Import		0.00	100.00	0.00	0.00	100.00	33.30
Soyabean							
Quantity (ton)	187.00	191.00	3428.00	78.00	383.00	27840.00	560.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	56.00	100.00	100.00	64.80	92.70
% Import	0.00	0.00	44.00	0.00	0.00	35.20	7.30
Rice Bran							
Quantity (ton)	1438.00	3501.00	15409.00	793.00	4147.00	18595.00	4390.00
% Own production	14.30	0.00	0.00	5.60	0.00	0.00	2.90
% Purchase	85.70	100.00	100.00	94.40	100.00	100.00	97.10
% Import	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maize Bran							
Quantity (ton)	0.00	87.00	643.00	0.00	90.00	715.00	130.00
% Own production		0.00	0.00		0.00	0.00	0.00
% Purchase		100.00	0.00		100.00	33.30	50.00
% Import		0.00	100.00		0.00	66.70	50.00
White Bran							
Quantity (ton)	305.00	723.00	3219.00	91.00	1101.00	3624.00	913.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	80.00	100.00	73.20	99.20	87.50	80.00	90.60
% Import	20.00	0.00	26.80	0.80	12.50	20.00	9.40
Groundnut Cake							
Quantity (ton)	25.00	40.00	1288.00	15.00	38.00	1110.00	179.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	0.00	100.00	100.00	50.00	85.70

% Import	0.00	0.00	100.00	0.00	0.00	50.00	14.30
Soyabean Cake							
Quantity (ton)	518.00	581.00	18729.00	230.00	776.00	15903.00	2641.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	85.70	100.00	28.20	98.60	88.90	46.80	86.60
% Import	14.30	0.00	71.80	1.40	11.10	53.20	13.40
Cottonseed Cake							
Quantity (ton)	0.00	63.00	0.00	0.00	96.00	80.00	41.00
% Own production	0.00	0.00			0.00	0.00	0.00
% Purchase	100.00	100.00			100.00	100.00	100.00
% Import	0.00	0.00			0.00	0.00	0.00
Other Oilseed Cake							
Quantity (ton)	33.00	299.00	0.00	123.00	345.00	200.00	204.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	0.00	100.00	100.00	50.00	94.40
% Import	0.00	0.00	100.00	0.00	0.00	50.00	5.60
Feather Meal							
Quantity (ton)	1.00	0.00	0.00	0.00	1.00	0.00	0.00
% Own production	0.00				0.00		0.00
% Purchase	100.00				100.00		100.00
% Import	0.00				0.00		0.00
Fish Meal							
Quantity (ton)	122.00	209.00	2937.00	100.00	268.00	2532.00	500.00
% Own production	0.00	0.00	7.50	0.00	0.00	6.00	1.30
% Purchase	100.00	100.00	61.00	97.20	100.00	75.50	93.50
% Import	0.00	0.00	31.40	2.80	0.00	18.50	5.20
Meat Meal							
Quantity (ton)	2.00	20.00	1517.00	0.00	30.00		1241.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	187.00
% Purchase	0.00	100.00	0.00		50.00	25.00	33.30
% Import	100.00	0.00	100.00		50.00	75.00	66.70
Bone Meal							
Quantity (ton)	57.00	125.00	280.00	27.00	165.00	424.00	127.00
% Own production	28.60	0.00	0.00	16.70	0.00	0.00	8.00
% Purchase	71.40	100.00	0.00	83.30	100.00	50.00	88.00
% Import	0.00	0.00	100.00	0.00	0.00	50.00	4.00
Vegetable Oils							
Quantity (ton)	12.00	61.00	1275.00	6.00	1.00	1298.00	189.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	100.00	100.00	100.00	100.00	100.00
% Import	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mineral Premix							
Quantity (ton)	19.00	23.00	221.00	10.00	36.00	195.00	45.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	40.40	97.90	100.00	50.00	92.30
% Import	0.00	0.00	59.60	2.10	0.00	50.00	7.70
Vitamine Premix							

Quantity (ton)	7.00	11.00	121.00	5.00	11.00	114.00	23.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	41.70	98.10	100.00	50.00	91.70
% Import	0.00	0.00	58.30	1.90	0.00	50.00	8.30
Lysine							
Quantity (ton)	10.00	11.00	293.00	5.00	18.00	243.00	43.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	44.20	98.40	100.00	50.00	91.70
% Import	0.00	0.00	55.80	1.60	0.00	50.00	8.30
Methiomine							
Quantity (ton)	4.00	4.00	86.00	2.00	6.00	71.00	13.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	37.50	95.00	100.00	60.00	89.10
% Import	0.00	0.00	62.50	5.00	0.00	40.00	10.90
DCP							
Quantity (ton)	5.00	14.00	1583.00	4.00	26.00	1264.00	186.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	80.00	100.00	17.20	95.80	87.50	25.50	78.40
% Import	20.00	0.00	82.80	4.20	12.50	74.50	21.60
Dry Fish							
Quantity (ton)	182.00	566.00	14.00	166.00	689.00	761.00	415.00
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	0.00	100.00	100.00	50.00	94.70
% Import	0.00	0.00	100.00	0.00	0.00	50.00	5.30
Other							
% Own production	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Purchase	100.00	100.00	25.00	100.00	100.00	25.00	83.30
% Import	0.00	0.00	75.00	0.00	0.00	75.00	16.70

Table 7.4.3-Overall value and percentage of Overall value of feed input purchases by input and processor categories

Input	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Rice							
Overall Value	22.00	7.00	10239.00	94.00	15.00	7868.00	1180.00
Percentage	0.30	0.00	6.20	1.00	0.00	1.60	0.80
Maize							
Overall Value	4022.00	3171.00	74593.00	1220.00	4873.00	65343.00	11528.00
Percentage	31.50	16.30	30.40	20.60	20.30	26.80	21.40
Cassava							
Overall Value	350.00	2082.00	5871.00	415.00	2912.00	6853.00	2119.00
Percentage	2.50	8.90	4.30	5.90	10.00	3.70	6.90
Groundnut							
Overall Value	0.00	31.00	34.00	37.00	1.00	28.00	24.00
Percentage	0.00	0.30	0.00	0.40	0.00	0.00	0.20
Soyabean							
Overall Value	612.00	650.00	12044.00	281.00	1268.00	9748.00	1944.00
Percentage	7.00	3.50	4.20	5.20	3.90	2.70	4.40
Rice Bran							
Overall Value	1913.00	5250.00	22002.00	1271.00	6222.00	26293.00	6402.00
Percentage	11.40	24.80	6.60	18.60	23.40	15.20	19.60
Maize Bran							
Overall Value	0.00	130.00	3674.00	0.00	162.00	3179.00	505.00
Percentage	0.00	0.20	0.90	0.00	0.30	1.00	0.20
White Bran							
Overall Value	459.00	1140.00	4664.00	143.00	1760.00	5294.00	1387.00
Percentage	2.60	4.10	1.90	2.80	4.80	3.00	3.50
Groundnut Cake							
Overall Value	75.00	114.00	2781.00	45.00	115.00	2449.00	410.00
Percentage	1.70	0.70	0.50	1.40	0.20	0.70	0.90
Soyabean Cake							
Overall Value	1691.00	1893.00	61967.00	755.00	2545.00	52520.00	8712.00
Percentage	14.60	8.50	18.60	10.70	8.80	17.30	11.10
Cottonseed Cake							
Overall Value	0.00	141.00	0.00	0.00	258.00	80.00	92.00
Percentage	0.00	0.30	0.00	0.00	0.50	0.10	0.20
Other Oil seed Cake							
Overall Value	70.00	602.00	14.00	280.00	645.00	411.00	413.00
Percentage	0.30	4.00	0.00	3.60	2.10	0.50	2.70
Feather Meal							
Overall Value	4.00	0.00	0.00	0.00	3.00	0.00	1.00
Percentage	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fish Meal							
Overall Value	851.00	1126.00	20389.00	578.00	1387.00	17604.00	3265.00
Percentage	11.50	7.90	7.20	10.30	7.30	5.30	8.60
Meat Meal							
Overall Value	7.00	88.00	6201.00	0.00	134.00	5081.00	768.00

Percentage	0.00	0.20	1.30	0.00	0.30	1.20	0.30
Bone Meal							
Overall Value	147.00	166.00	1392.00	64.00	253.00	1314.00	302.00
Percentage	1.00	0.90	1.20	0.80	1.20	1.20	1.00
Vegetable Oil							
Overall Value	101.00	369.00	8587.00	50.00	4.00	8534.00	1247.00
Percentage	0.90	0.50	2.00	0.50	0.00	3.40	0.70
Mineral Premix							
Overall Value	299.00	405.00	14505.00	164.00	649.00	11894.00	1992.00
Percentage	3.00	2.20	3.10	2.60	2.20	2.70	2.50
Vitamine Premix							
Overall Value	137.00	369.00	9057.00	118.00	276.00	8107.00	1309.00
Percentage	2.70	1.60	2.60	2.40	1.00	2.70	2.00
Lysine							
Overall Value	184.00	267.00	5172.00	103.00	453.00	4275.00	809.00
Percentage	1.30	1.60	1.60	1.70	1.60	1.10	1.60
Methiomine							
Overall Value	95.00	106.00	2902.00	52.00	211.00	2301.00	423.00
Percentage	1.10	0.60	1.50	0.90	0.70	0.80	0.80
DCP							
Overall Value	42.00	82.00	7238.00	21.00	160.00	5779.00	867.00
Percentage	0.20	0.50	1.90	0.40	0.50	1.40	0.60
Dry Fish							
Overall Value	766.00	2360.00	124.00	641.00	2918.00	3323.00	1740.00
Percentage	5.90	11.40	0.10	10.00	8.90	4.50	8.80
Other							
Overall Value	56.00	272.00	13565.00	20.00	451.00	11627.00	2159.00
Percentage	0.30	1.00	2.70	0.20	1.50	2.30	1.10

Table 7.4.4-Domestic procurement and import prices for selec commodities by processor characteristics

Input	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Rice							
Procured Price	1800.0	1700.0	1840.0	1800.0	1700.0	1860.0	1804.0
Import Price							
Maize							
Procured Price	1849.0	1822.0	1815.0	1880.0	1745.0	1812.0	1828.0
Import Price	1600.0		1761.0	1680.0	1600.0	1802.0	1721.0
Cassava							
Procured Price	1175.0	1158.0	1219.0	1154.0	1180.0	1177.0	1167.0
Import Price							
Soyabean							
Procured Price	3471.0	3671.0	3305.0	3867.0	3418.0	2954.0	3571.0
Import Price			3775.0			3775.0	3775.0
Rice Bran							
Procured Price	1492.0	1639.0	1496.0	1676.0	1505.0	1517.0	1595.0
Import Price							
White Bran							
Procured Price	1688.0	1596.0	1398.0	1617.0	1629.0	1436.0	1585.0
Import Price	1320.0		1335.0	1120.0	1320.0	1550.0	1330.0
Soyabean Cake							
Procured Price	3523.0	3222.0	2950.0	3280.0	3330.0	3067.0	3271.0
Import Price	2950.0		3272.0	2800.0	2950.0	3429.0	3207.0
Fish Meal							
Procured Price	6806.0	6048.0	6344.0	6352.0	5997.0	6535.0	6287.0
Import Price			6956.0	6300.0		7174.0	6956.0
Vegetable Oil							
Procured Price	8800.0	7667.0	8307.0	9417.0	4700.0	7307.0	8312.0
Import Price							
Mineral Premix							
Procured Price	15071.0	17128.0	7030.0	16223.0	16172.0	12280.0	15935.0
Import Price			39267.0	3300.0		57250.0	39267.0
Vitamine Premix							
Procured Price	28417.0	25842.0	56336.0	25654.0	24962.0	68836.0	28673.0
Import Price			43767.0	3300.0		64000.0	43767.0
Lysine							
Procured Price	22812.0	26206.0	21623.0	23986.0	26889.0	22415.0	24809.0
Import Price			13772.0	3300.0		19008.0	13772.0
Methiomine							
Procured Price	34450.0	33982.0	41541.0	35080.0	36512.0	29861.0	34880.0
Import Price			22907.0	3600.0		32560.0	22907.0
DCP							
Procured Price	7750.0	5882.0	4750.0	5512.0	7229.0	5250.0	6188.0
Import Price	4700.0		4217.0	3300.0	4700.0	4522.0	4313.0

Table 7.4.5-Source of inputs by input and processor characteristics

Input Category	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Grains							
Percentage from Farmers	25.90	32.30	22.10	34.40	34.70	0.40	29.70
Percentage from Traders	60.10	66.00	53.30	61.70	61.40	72.90	63.20
Percentage Processing Businesses	5.50	1.50	24.50	0.30	4.00	25.50	5.00
Percentage GOEs	8.50	0.30	0.00	3.60	0.00	1.20	2.10
Percentage Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brans							
Percentage from Farmers	3.60	5.70	0.00	7.20	2.30	0.00	4.60
Percentage from Traders	56.00	55.50	75.00	53.50	55.50	79.10	57.90
Percentage Processing Businesses	17.10	36.40	12.50	33.90	31.30	10.90	29.70
Percentage GOEs	23.30	2.40	12.50	5.50	10.90	10.00	7.90
Percentage Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cakes							
Percentage from Farmers	0.00	0.30	0.00	0.40	0.00	0.00	0.20
Percentage from Traders	56.20	43.50	100.00	51.60	40.00	78.20	50.40
Percentage Processing Businesses	16.20	48.80	0.00	35.80	47.30	12.40	37.20
Percentage GOEs	27.50	7.40	0.00	12.20	12.70	9.40	12.10
Percentage Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Meals							
Percentage from Farmers	0.00	5.40	4.50	2.40	8.80	0.00	4.10
Percentage from Traders	33.30	47.90	67.30	55.20	27.40	57.40	46.80
Percentage Processing Businesses	23.50	24.70	3.20	14.20	43.70	3.80	22.00
Percentage GOEs	41.40	8.40	25.00	17.60	8.90	38.80	17.90
Percentage Other	1.80	13.50	0.00	10.70	11.20	0.00	9.30
Additive							
Percentage from Farmers	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percentage from Traders	58.40	50.70	100.00	47.90	56.60	100.00	55.50

Table 7.5.1-Average value and percentage of sales to different customers by processor characteristics

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Total Value Sale (mill. D)	16295.00	26234.00	468479.00	7159.00	34506.00	418418.00	74505.00
Own Livestock Production (%)	11.30	7.40	0.10	10.70	4.70	2.00	7.50
Trader (%)	72.90	70.50	66.60	73.30	64.10	75.40	70.60
Producer (%)	15.20	22.00	32.90	16.00	30.70	22.30	21.70
Other (%)	0.60	0.10	0.30	0.00	0.50	0.20	0.20

Table 7.5.2-Average quantity of feed sold by type of animal feed and processor characteristics (metric ton)

Animal	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Pig	2413.00	9599.00	63617.00	2074.00	12068.00	64482.00	14130.00
Chicken	2260.00	609.00	35343.00	195.00	1343.00	30994.00	4956.00
Cattle	59.00	89.00	11469.00	288.00	25.00	8529.00	1383.00
Other	0.00	0.00	187.00	0.00	0.00	150.00	21.00

Table 7.5.3-Average value and percentage of feed sold to different customers by animal type and processor characteristics

Animal	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Pig							
Total Value Sale (mill. D)	7339.00	23688.00	291900.00	5337.00	29413.00	269238.00	50604.00
Own Livestock Production (%)	12.80	3.00	0.00	6.40	5.00	1.90	5.20
Trader (%)	70.10	73.90	67.90	76.50	64.40	76.90	72.40
Producer (%)	15.10	23.00	31.50	17.10	29.10	20.90	21.80
Other (%)	2.00	0.10	0.50	0.00	1.50	0.30	0.60
Chicken							
Total Value Sale (mill. D)	7813.00	2270.00	134881.00	690.00	4588.00	118132.00	18693.00
Own Livestock Production (%)	9.50	4.90	0.60	13.20	0.00	2.90	6.50
Trader (%)	57.50	85.10	64.90	60.30	60.40	71.20	64.00
Producer (%)	33.00	10.00	34.60	26.50	39.60	25.90	29.60
Other (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cattle							
Total Value Sale (mill. D)	142.00	223.00	41127.00	903.00	59.00	30591.00	4879.00
Own Livestock Production (%)	0.00	25.00	0.00	25.00	0.00	0.00	10.00
Trader (%)	71.60	67.80	55.90	63.00	71.20	62.60	65.40
Producer (%)	28.40	7.20	44.10	12.00	28.80	37.40	24.60
Other (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other							
Total Value Sale (mill. D)	1001.00	53.00	571.00	228.00	446.00	457.00	329.00
Own Livestock Production (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trader (%)	100.00	100.00	0.00	100.00	100.00	0.00	75.00
Producer (%)	0.00	0.00	100.00	0.00	0.00	100.00	25.00
Other (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.5.4-Average quantity of animal feed sold by feed type and processor characteristics (metric ton)

Feed	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	

Lactating Sow Ration	204.00	962.00	969.00	182.00	832.00	2243.00	804.00
Starter Ration for Pig	229.00	1347.00	9211.00	193.00	1440.00	8008.00	2380.00
Non-pregnant Sow	67.00	240.00	0.00	76.00	312.00	237.00	173.00
Grower Ration for Pig	409.00	3132.00	7985.00	666.00	3772.00	9102.00	3691.00
Fattening Ration	803.00	2496.00	151.00	615.00	3660.00	2451.00	1786.00
Concentrated Ration for Pig	170.00	358.00	11350.00	115.00	67.00	10804.00	2184.00
Other Pig	203.00	410.00	3486.00	107.00	768.00	2788.00	700.00
Layer Ration	283.00	16.00	1865.00	113.00	43.00	1756.00	691.00
Chicken Ration	348.00	195.00	3688.00	10.00	236.00	3768.00	1012.00
Starter Ration for poultry	165.00	132.00	1791.00	50.00	36.00	1891.00	573.00
Grower Ration for Poultry	11.00	261.00	3193.00	1.00	8.00	3447.00	927.00
Concentrated Ration for Poultry	41.00	6.00	3972.00	19.00	1.00	3333.00	537.00
Other Poultry	660.00	0.00	1140.00	0.00	561.00	977.00	392.00
Dairy Cattle Ration	59.00	74.00	1072.00	35.00	24.00	1107.00	185.00
Other Cattle	1.00	15.00	3781.00	229.00	0.00	3711.00	998.00
Other							

Trader (%)	79.00	100.00	98.00	93.30	57.50	98.70	86.40
Producer (%)	21.00	0.00	2.00	6.70	42.50	1.30	13.60
Other (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Poultry (ton)	2209.00	0.00	3634.00	0.00	1878.00	3115.00	1290.00
Own Livestock Production (%)	0.00		0.00		0.00	0.00	0.00
Trader (%)	82.00		70.00		82.00	70.00	79.20
Producer (%)	18.00		30.00		18.00	30.00	20.80
Other (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dairy Cattle Ration (ton)	140.00	176.00	3109.00	81.00	58.00	3086.00	503.00
Own Livestock Production (%)	0.00	25.00	0.00	33.30	0.00	0.00	12.50
Trader (%)	71.70	68.50	97.00	61.70	71.30	93.50	73.20
Producer (%)	28.30	6.50	2.00	5.00	28.70	6.00	14.10
Other (%)	0.00	0.00	0.20	0.00	0.00	0.20	0.00
Other Cattle (ton)	2.00	47.00	13825.00	744.00	1.00	13752.00	3647.00
Own Livestock Production (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trader (%)	10.00	80.00	33.90	72.50	10.00	18.40	35.80
Producer (%)	90.00	20.00	66.10	27.50	90.00	81.60	64.20
Other (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	1001.00	53.00	0.00	228.00	446.00	0.00	264.00
Own Livestock Production (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trader (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Producer (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 7.5.-Average sale price of animal feed by feed type and processor characteristics (000VND/ton)

Feed	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Lactating Sow Ration	3220.00	2366.00	3150.00	2869.00	2380.00	2922.00	2719.00
Starter Ration for Pig	4729.00	3249.00	5333.00	3427.00	3803.00	4623.00	3864.00
Non-pregnant Sow	2655.00	2276.00		2392.00	2476.00	2400.00	2428.00
Grower Ration for Pig	2960.00	2329.00	2885.00	2528.00	2445.00	2765.00	2571.00

Fattening Ration	2841.00	2249.00	2400.00	2466.00	2320.00	2298.00	2393.00
Concentrated Ration for Pig	5225.00	4847.00	6068.00	4760.00	5150.00	5892.00	5340.00
Other Pig	2805.00	2474.00	3750.00	2440.00	2661.00	3750.00	2660.00
Layer Ration	3312.00	3200.00	3761.00	3253.00	3333.00	3761.00	3620.00
Chicken Ration	3274.00	3800.00	3264.00	3025.00	3440.00	3331.00	3309.00
Starter Ration for poultry	3668.00	3300.00	3556.00	3570.00	3733.00	3530.00	3576.00
Grower Ration for Poultry	3185.00	3900.00	3944.00		3185.00	3939.00	3802.00
Concentrated Ration for Poultry	5860.00	6400.00	5690.00	6167.00	5400.00	5927.00	5885.00
Other Poultry	4470.00		3250.00		4470.00	3250.00	4188.00
Dairy Cattle Ration	2397.00	2418.00	2900.00	2437.00	2383.00	2650.00	2470.00
Other Cattle	3200.00	3200.00	3744.00	3262.00	3200.00	3941.00	3653.00

Table 7.6.1-Average feed prices over the period from Q3, 98 to Q2, 99 by processor characteristics (000VND/ton)

Feed	Ownership category			Mill Size			Overall	during TET
	GOE	Private	Foreign	Small	Medium	Large		
Lactating Sow Ration	3.10	2.49	3.28	2.83	2.58	3.00	2.78	0.63
Starter Ration for Pig	3.56	3.19	3.79	3.58	3.06	3.46	3.35	0.65
Non-pregnant Sow	2.50	2.12	3.22	2.16	2.35	2.78	2.36	1.45
Grower Ration for Pig	2.75	2.32	3.00	2.42	2.44	2.75	2.48	2.01
Fattening Ration	2.93	2.23	2.83	2.50	2.33	2.62	2.45	0.99
Concentrated Ration for Pig	5.35	4.76	6.28	4.97	5.09	6.04	5.30	0.43
Layer Ration	3.37	3.22	3.44	3.33	3.36	3.44	3.38	1.63
Chicken Ration	3.25	3.12	3.75	3.12	3.25	3.75	3.43	1.39
Starter Ration for poultry	3.72	3.56	3.77	3.53	3.74	3.80	3.70	0.20
Grower Ration for Poultry	3.23	3.80	3.84	3.00	3.47	3.83	3.49	0.03
Concentrated Ration for Poultry	5.36	---	6.50	6.32	5.04	6.50	5.85	0.05
Dairy Cattle Ration	2.36	2.20	2.80	2.25	2.36	2.46	2.36	1.62

Table 7.6.2-Average prices, growth rates, and instability measure over the period from Q3, 98 to Q3, 99 by feed category

	Mean	GrRate	Min	Max	IndInst
Lactating Sow Ration	2.794	-0.177	2.783	2.807	0.237
Starter Ration for Pig	3.450	-1.442	3.365	3.571	1.838
Non-pregnant Sow	2.390	-0.132	2.379	2.399	0.272
Grower Ration for Pig	2.517	-0.424	2.492	2.542	0.751
Fattening Ration	2.491	-0.799	2.462	2.532	0.745
Concentrated Ration for Pig	5.311	-0.486	5.256	5.359	0.338
Layer Ration for Chicken	3.369	-0.402	3.340	3.401	0.532
Chicken Ration	3.432	-0.444	3.298	3.488	2.441
Starter Ration for Chicken	3.690	0.165	3.647	3.713	0.788
Grower Ration for Chicken	3.501	-0.197	3.491	3.524	0.271
Concentrated Ration for Chicken	5.846	-0.110	5.829	5.864	0.188
Dairy Cattle Ration	2.378	-0.654	2.350	2.416	0.445

Table 7.6.3-Feed characteristics by feed category and processor characteristics

Type of feed	Ownership category			Mill Size			Overall	Price
	GOE	Private	Foreign	Small	Medium	Large		
Lactating Sow Ration								
Meta Energy	2867.00	3045.00	3067.00	3012.00	2936.00	3050.00	2992.00	2.78
Dry Matter (%)	87.00	86.30	87.70	86.80	86.40	87.20	86.70	
Crude Protein (%)	19.10	14.40	22.70	17.90	14.50	20.20	17.00	
Crude Fat (%)	5.80	5.10	4.00	6.00	5.10	4.00	5.30	
Crude Fibre (%)	6.40	5.10	7.00	5.10	6.10	5.50	5.60	
Starter Ration for Pig								
Meta Energy	3024.00	3083.00	3175.00	3021.00	3042.00	3258.00	3073.00	3.35
Dry Matter (%)	87.40	87.20	87.00	86.60	88.10	86.50	87.30	
Crude Protein (%)	19.20	16.50	19.50	16.80	17.80	17.70	17.40	
Crude Fat (%)	6.70	3.70	1.00	4.20	5.60	2.20	4.70	
Crude Fibre (%)	3.70	5.50	5.00	6.20	4.30	4.60	5.00	
Non-pregnant Sow								
Meta Energy	2930.00	2933.00	2900.00	2900.00	2887.00	3000.00	2927.00	2.36
Dry Matter (%)	88.00	86.00	86.00	86.50	87.00	86.00	86.60	
Crude Protein (%)	15.00	13.00	13.00	14.00	13.30	13.50	13.60	
Crude Fat (%)	6.40	4.50	2.00	4.80	7.00	2.50	4.80	
Crude Fibre (%)	5.20	7.00	7.00	5.80	6.30	7.50	6.50	
Grower Ration for Pig								
Meta Energy	2980.00	2889.00	3040.00	2864.00	2925.00	3071.00	2931.00	2.48
Dry Matter (%)	87.30	86.10	88.00	86.60	86.50	87.00	86.70	
Crude Protein (%)	17.00	14.30	24.80	15.20	14.50	21.90	16.40	
Crude Fat (%)	5.20	4.60	3.00	5.00	5.00	3.00	4.80	
Crude Fibre (%)	4.30	5.60	6.00	5.10	5.70	5.30	5.30	
Fattening Ration								
Meta Energy	2950.00	2859.00	2950.00	2885.00	2844.00	3033.00	2888.00	2.45

Dry Matter (%)	86.90	86.90	87.00	86.70	87.30	86.70	86.90	
Crude Protein (%)	16.90	12.50	13.00	14.20	12.80	13.30	13.60	
Crude Fat (%)	5.70	4.70	2.50	5.30	5.40	2.80	5.00	
Crude Fibre (%)	5.50	6.40	7.00	6.60	5.80	6.50	6.20	
Concentrated Ration for Pig								
Meta Energy	2739.00	2521.00	2450.00	2767.00	2623.00	2375.00	2615.00	5.30
Dry Matter (%)	87.90	87.10	87.00	88.20	87.40	87.00	87.60	
Crude Protein (%)	36.60	28.00	34.00	32.00	33.40	35.20	33.30	
Crude Fat (%)	6.30	5.20	3.00	5.40	6.70	3.00	5.70	
Crude Fibre (%)	4.90	5.60	8.00	5.10	5.20	6.50	5.40	
Layer Ration								
Meta Energy	2915.00	2800.00	2800.00	2975.00	2855.00	2800.00	2858.00	3.38
Dry Matter (%)	87.40	86.00	87.00	87.00	87.70	86.80	87.10	
Crude Protein (%)	17.10	17.00	22.20	15.20	18.30	20.90	18.80	
Crude Fat (%)	5.90	3.00	5.00	6.20	3.00	4.90		
Crude Fibre (%)	4.50	5.00	5.00	5.00	4.30	5.00	4.70	
Chicken Ration								
Meta Energy	3052.00	2975.00	3088.00	3083.00	3055.00	3030.00	3051.00	3.43
Dry Matter (%)	87.60	86.00	88.00	87.00	87.70	87.60	87.50	
Crude Protein (%)	18.40	17.00	31.50	18.30	18.30	28.40	22.90	
Crude Fat (%)	6.00	5.00	4.00	5.00	6.70	4.00	5.60	
Crude Fibre (%)	4.40	4.50	5.00	4.30	4.30	5.00	4.50	
Starter Ration for poultry								
Meta Energy	3115.00	3100.00	2867.00	3167.00	3080.00	2900.00	3029.00	3.70
Dry Matter (%)	87.40	86.00	86.70	86.70	87.70	86.50	86.90	
Crude Protein (%)	22.20	20.50	20.30	21.70	22.30	20.20	21.30	
Crude Fat (%)	5.20	5.00	2.50	4.00	5.90	2.50	4.40	
Crude Fibre (%)	3.60	4.50	4.80	3.50	3.80	4.80	4.10	
Grower Ration for Poultry								

Meta Energy	3100.00	3000.00	3000.00	3100.00	3000.00	3025.00	3.49	
Dry Matter (%)	87.00	86.00	87.00	87.00	86.70	86.80		
Crude Protein (%)	18.50	18.00	19.50	18.50	19.00	18.80		
Crude Fat (%)	5.50	4.00	5.50	4.00	5.00			
Crude Fibre (%)	5.00	5.00	5.00	5.00	5.00	5.00		
Concentrated Ration for Poultry								
Meta Energy	2450.00	2150.00	2750.00	2150.00	2150.00	2350.00	5.85	
Dry Matter (%)	88.00	87.00	88.00	88.00	86.70	87.40		
Crude Protein (%)	38.00	25.50	39.50	36.50	25.50	33.80		
Crude Fat (%)	5.00	3.20	5.00	3.20	4.10			
Crude Fibre (%)	5.80	6.50	6.50	5.00	6.50	6.00		
Dairy Cattle Ration								
Meta Energy	2650.00	2876.00	2800.00	2860.00	2650.00	2867.00	2810.00	2.46
Dry Matter (%)	87.30	86.60	88.00	87.30	86.70	87.00	87.00	
Crude Protein (%)	15.20	15.20	15.00	15.00	14.80	15.70	15.20	
Crude Fat (%)	5.70	3.50	4.50	6.00	2.00	4.60		
Crude Fibre (%)	8.30	9.70	9.80	8.70	9.00	9.20		

Minerals added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Vitamins added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Antibiotics added (%)	60.00	50.00	100.00	100.00	33.30	80.00	72.70
Oxidizer (%)	80.00	100.00	100.00	100.00	66.70	100.00	90.90
Starter Ration for poultry							
Amino acids added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Minerals added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Vitamins added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Antibiotics added (%)	60.00	100.00	100.00	75.00	66.70	100.00	81.80
Oxidizer (%)	60.00	100.00	100.00	75.00	66.70	100.00	81.80
Grower Ration for Poultry							
Amino acids added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Minerals added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Vitamins added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Antibiotics added (%)	50.00	50.00	100.00	100.00	50.00	66.70	66.70
Oxidizer (%)	50.00	100.00	100.00	100.00	50.00	100.00	83.30
Concentrated Ration for Poultry							
Amino acids added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Minerals added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Vitamins added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Antibiotics added (%)	25.00	0.00	100.00	0.00	50.00	66.70	42.90
Oxidizer (%)	50.00	100.00	100.00	0.00	100.00	100.00	71.40
Dairy Cattle Ration							
Amino acids added (%)	66.70	60.00	100.00	66.70	66.70	66.70	66.70
Minerals added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Vitamins added (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Antibiotics added (%)	66.70	40.00	100.00	66.70	33.30	66.70	55.60
Oxidizer (%)	66.70	60.00	100.00	66.70	33.30	100.00	66.70

Table 7.7.1-Average transport distance, weight, cost, and price by transport category and processor characteristics

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Truck							
Distance between start and end point (km)	63.00	52.00	44.00	51.00	81.00	44.00	55.00
Average weight transported (tons)	3.00	3.00	1010.00	3.00	6.00	1260.00	171.00
Average cost per shipment (mill. D)	324.00	186.00	1359.00	220.00	398.00	1586.00	432.00
Transportation price (000VND/ton/km)	3.75	1.97	1.25	3.05	1.16	1.32	2.51
Boat/ship							
Distance between start and end point (km)	102.00	175.00	743.00	140.00	60.00	743.00	332.00
Average weight transported (tons)	58.00	24.00	667.00	49.00	30.00	667.00	253.00
Average cost per shipment (mill. D)	2175.00	1200.00	49767.00	2040.00	900.00	49767.00	17822.00
Transportation price (000VND/ton/km)	0.41	0.42	0.22	0.39	0.50	0.22	0.35

Table 7.7.2-Average period and quantity stored by product

Feed storage	% Who stored	Avg. stored period (days)	Avg. quantity stored (tons)	Max quantity stored (tons)
Complete and Concentrated Feed	74.30	5.50	120.00	155.80
Raw Materials	97.10	85.30	3242.50	5194.60
Supplementary Feed	45.70	20.50	235.30	351.20
Other	2.90	1.30	0.70	0.90

Table 7.8.1: Use of communication technology by processor characteristics

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Has telephone (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Has fax (%)	75.00	39.10	100.00	31.60	72.70	100.00	54.30
Has computer (%)	50.00	34.80	100.00	21.10	63.60	100.00	45.70
Has Email (%)	12.50	8.70	75.00	5.30	9.10	80.00	17.10

Table 7.8.2-Main sources of price, regulatory, and credit access information by processor characteristics

Information	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Price							
Intermediaries	25.00	34.80	0.00	42.10	18.20	0.00	28.60
Personnal contacts	12.50	60.90	0.00	57.90	27.30	20.00	42.90
Feed mill	37.50	34.80	0.00	31.60	36.40	20.00	31.40
Trader	62.50	47.80	50.00	47.40	63.60	40.00	51.40
Media	25.00	4.30	75.00	10.50	18.20	40.00	17.10
Regulation							
Media	87.50	82.60	100.00	84.20	81.80	100.00	85.70
Official Correspondences	12.50	13.00	100.00	10.50	27.30	60.00	22.90
Credit							
Bank	100.00	65.20	100.00	84.20	54.50	100.00	77.10
Personnal contacts	25.00	8.70	0.00	15.80	0.00	20.00	11.40

Table 7.9.1-Average real value of investment over the 1988-93 and 1994-99 periods by asset ownership category

	Period and Ownership category							
	1988-93				1994-99			
	GOE	Private	Foreign	Overall	GOE	Private	Foreign	Overall
Transport	183.00	20.00	0.00	55.00	139.00	280.00	338.00	254.00
Buildings	441.00	47.00	20082.00	2427.00	348.00	1003.00	71078.00	8862.00
Land	0.00	113.00	0.00	74.00	257.00	326.00	0.00	273.00
Equipment	456.00	36.00	1820.00	336.00	2122.00	828.00	6311.00	1750.00
goods	0.00	0.00	0.00	0.00	7.00	3.00	206.00	27.00
Other	0.00	0.00	820.00	94.00	0.00	0.00	97.00	11.00
Total	1080.00	216.00	22722.00	2986.00	2873.00	2440.00	74819.00	11177.00

Table 7.9.2-Average real value of investments over the 1988-93 and 1994-99 periods by asset ownership category

	Period and Ownership category							
	1988-93				1994-99			
	Small	Medium	Large	Overall	Small	Medium	Large	Overall
Transport	31.00	82.00	84.00	55.00	222.00	279.00	323.00	254.00
Buildings	195.00	82.00	16065.00	2427.00	915.00	844.00	56700.00	8862.00
Land	52.00	146.00	0.00	74.00	194.00	423.00	241.00	273.00
Equipment	405.00	77.00	642.00	336.00	276.00	1724.00	7407.00	1750.00
goods	0.00	0.00	0.00	0.00	6.00	2.00	165.00	27.00
Other	0.00	0.00	656.00	94.00	0.00	0.00	78.00	11.00
Total	683.00	387.00	17447.00	2986.00	1613.00	3272.00	64914.00	11177.00

Table 7.9.3-Average current value of investments by asset and processor characteristics

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Transport	257.00	319.00	184.00	240.00	353.00	335.00	289.00
Buildings	1562.00	1033.00	66713.00	1470.00	932.00	52984.00	8660.00
Land	2378.00	722.00	0.00	698.00	1898.00	300.00	1018.00
Equipment	792.00	1192.00	7323.00	603.00	577.00	9049.00	1801.00
goods	6.00	3.00	189.00	5.00	2.00	152.00	25.00
Other	0.00	0.00	634.00	0.00	0.00	507.00	72.00
Total	4995.00	3269.00	75043.00	3016.00	3762.00	63327.00	11865.00

Table 7.9.?-Average real value of investments over the 1988-93 and 1994-99 periods by asset ownership category (mill. D)

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Transport	4722.00	299.00	338.00	2106.00	360.00	408.00	1315.00
Buildings	10689.00	1050.00	91160.00	5278.00	926.00	72765.00	13551.00
Land	257.00	439.00	0.00	246.00	569.00	241.00	347.00
Equipment	2643.00	863.00	8131.00	708.00	1801.00	8049.00	2100.00
goods	7.00	3.00	206.00	6.00	2.00	165.00	27.00
Other	0.00	0.00	917.00	0.00	0.00	734.00	105.00
Total	18318.00	2654.00	100752.00	8344.00	3658.00	82362.00	17445.00

Table 7.10.5-Characteristics of processor who receive advance payment for feed

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Receive advance payment (%)	37.50	8.70	75.00	5.30	27.30	80.00	22.90
% of sale	17.00	45.00	57.30	6.00	21.70	60.50	39.10
Advance payment period	3.30	4.00	1.30	8.00	1.00	2.80	2.80

Table 7.10.6-Characteristics of processor who sell feed on consignment

Consignment	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Sale as consignment (%)	87.50	56.50	100.00	65.00	77.80	66.70	68.60
% of sale	58.70	61.70	47.50	60.50	67.30	36.20	58.50
Average consignment period (days)	23.60	54.20	22.00	30.80	71.30	14.30	39.90

Table 7.11.1-Operating costs by processor characteristics

Operating Cost	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Own Transportation	149.62	195.62	1418.17	87.23	369.35	1129.73	324.83
%	8.80	10.50	1.80	8.50	13.70	0.90	9.10
Rented Transportation	149.93	30.57	1243.63	49.26	88.60	993.31	196.49
%	5.40	5.60	1.10	8.00	1.90	0.70	5.10
Truck Loading Fee	48.66	43.99	1820.84	19.79	67.19	1513.87	248.13
%	2.00	2.90	2.70	1.80	3.70	3.30	2.60
Water Use	11.96	6.45	49.81	7.25	9.66	39.85	12.67
%	0.60	0.70	0.00	0.70	0.70	0.00	0.60
Electricity and Fuel	506.94	93.19	4800.15	48.87	431.85	3944.12	725.70
%	11.80	7.90	5.30	9.20	9.00	5.20	8.50
Repair & Maintenance	49.93	22.92	1603.20	13.76	44.12	1318.56	209.70
%	1.60	2.40	1.90	2.70	1.30	2.00	2.20
Bag Costs	332.23	465.51	5822.37	113.51	661.08	5445.10	1047.26
%	11.30	20.40	8.90	13.50	21.50	20.40	17.00
Quality Control Testing	11.09	2.76	42.23	4.74	7.11	30.58	9.18
%	0.50	0.70	0.60	1.00	0.40	0.00	0.70
Fumigation	30.05	4.32	228.01	3.75	19.94	192.25	35.77
%	0.90	0.40	0.20	0.50	0.50	0.30	0.50
Storage Rent	0.00	1.47	1629.89	1.78	0.00	1303.91	187.24
%	0.00	2.10	1.20	2.50	0.00	1.00	1.50
Equipment rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00
%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other rent	0.25	0.18	99.37	0.33	0.00	79.50	11.53
%	0.00	0.00	0.20	0.00	0.00	0.20	0.00
Health & vet inspection	22.94	0.87	0.00	9.66	0.00	4.00	5.81
%	2.90	0.00	0.00	1.20	0.00	0.10	0.70
Hired labor	294.94	239.91	8216.66	118.23	356.25	6915.81	1164.12
%	8.30	17.50	11.50	14.90	15.60	12.10	14.70
Communication	41.79	25.74	552.62	17.53	40.84	470.90	89.62
%	2.30	2.80	1.10	3.20	2.00	0.90	2.50
Management	321.80	70.52	3809.39	25.93	248.25	3242.11	555.25
%	7.40	2.40	6.70	2.90	4.00	8.20	4.00
Marketing	456.32	119.96	3147.03	21.35	462.19	2701.63	542.80
%	11.20	3.50	2.60	3.00	8.70	5.60	5.20
Taxes & Duties	235.47	182.69	4945.55	148.51	241.98	4076.84	739.08
%	12.50	10.40	5.70	12.50	8.80	5.50	10.30
Credit	191.34	32.12	15907.38	39.07	92.48	12827.90	1882.83
%	7.90	2.80	16.20	5.00	2.20	14.50	5.50
Depreciation	134.97	98.66	15138.08	66.02	177.70	12138.46	1825.75
%	4.00	5.60	29.80	7.10	5.50	17.00	8.00
Other	20.04	9.72	1171.33	8.72	18.94	939.07	144.84
%	0.70	1.30	2.40	1.60	0.40	2.00	1.30

Table 7.11.3-Average operating cost per ton of feed produced by cost category and processor characteristics

Operating cost	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Own Transportation	34.94	28.38	8.68	35.73	23.52	5.87	27.63
%	8.80	10.50	1.80	8.50	13.70	0.90	9.10
Rented Transportation	28.74	12.99	7.04	21.83	10.51	5.28	15.91
%	5.40	5.60	1.10	8.00	1.90	0.70	5.10
Truck Loading Fee	9.93	6.28	16.92	8.48	4.98	15.10	8.33
%	2.00	2.90	2.70	1.80	3.70	3.30	2.60
Water Use	3.31	1.54	0.26	2.61	1.12	0.21	1.80
%	0.60	0.70	0.00	0.70	0.70	0.00	0.60
Electricity and Fuel	106.83	22.06	27.84	32.97	66.74	22.53	42.09
%	11.80	7.90	5.30	9.20	9.00	5.20	8.50
Repair & Maintenance	10.88	16.77	11.38	21.68	5.31	9.61	14.81
%	1.60	2.40	1.90	2.70	1.30	2.00	2.20
Bag Costs	58.68	40.30	48.08	41.52	47.80	54.83	45.39
%	11.30	20.40	8.90	13.50	21.50	20.40	17.00
Quality Control Testing	2.43	2.40	1.32	3.71	0.78	0.19	2.29
%	0.50	0.70	0.60	1.00	0.40	0.00	0.70
Fumigation	4.82	2.35	1.20	3.48	2.34	1.12	2.78
%	0.90	0.40	0.20	0.50	0.50	0.30	0.50
Storage Rent	0.00	12.59	8.27	15.24	0.00	6.62	9.22
%	0.00	2.10	1.20	2.50	0.00	1.00	1.50
Equipment rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00
%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other rent	0.16	0.05	1.18	0.13	0.00	0.95	0.20
%	0.00	0.00	0.20	0.00	0.00	0.20	0.00
Health & vet inspection	14.79	0.02	0.00	6.23	0.00	0.08	3.39
%	2.90	0.00	0.00	1.20	0.00	0.10	0.70
Hired labor	55.68	55.28	52.62	68.80	36.93	42.80	55.07
%	8.30	17.50	11.50	14.90	15.60	12.10	14.70
Communication	11.65	8.91	4.31	13.32	4.27	3.08	9.01
%	2.30	2.80	1.10	3.20	2.00	0.90	2.50
Management	67.60	4.57	36.02	8.87	42.10	31.67	22.57
%	7.40	2.40	6.70	2.90	4.00	8.20	4.00
Marketing	99.53	7.17	18.06	11.47	65.48	19.04	29.53
%	11.20	3.50	2.60	3.00	8.70	5.60	5.20
Taxes & Duties	77.08	31.20	30.72	54.56	26.88	24.99	41.64
%	12.50	10.40	5.70	12.50	8.80	5.50	10.30
Credit	44.96	6.95	103.86	19.45	12.71	85.12	26.72
%	7.90	2.80	16.20	5.00	2.20	14.50	5.50
Depreciation	23.92	13.82	142.00	22.12	15.28	97.77	30.78
%	4.00	5.60	29.80	7.10	5.50	17.00	8.00
Other	3.75	3.51	14.79	4.71	1.90	11.90	4.85
%	0.70	1.30	2.40	1.60	0.40	2.00	1.30

Table 7.12.1-Average Overall revenue, costs, and profits by processor characteristics

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Sale	4.16	2.57	3.89	3.08	2.84	3.45	3.08
Raw material	2.99	2.17	2.43	2.52	2.18	2.28	2.39
Operation cost	0.65	0.28	0.53	0.38	0.42	0.39	0.39
Profit	0.51	0.12	0.92	0.19	0.24	0.78	0.30

Table 7.12.4-Main reason profitability improved between 1998 and 1999 by processor characteristics

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Sale price	50.00	20.00	0.00	33.30	25.00	0.00	28.60
Purchase price	0.00	20.00	0.00	0.00	25.00	0.00	14.30
Volume of trade	50.00	60.00	0.00	66.70	50.00	0.00	57.10
Competition level	0.00	40.00	0.00	33.30	25.00	0.00	28.60
Other	0.00	20.00	0.00	33.30	0.00	0.00	14.30

Table 7.12.5- Main reason profitability declined between 1998 and 1999 by processor characteristics

	Ownership category			Mill Size			Overall
	GOE	Private	Foreign	Small	Medium	Large	
Sale price	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Purchase price	50.00	0.00	50.00	0.00	50.00	50.00	18.20
Volume of trade	50.00	28.60	50.00	28.60	50.00	50.00	36.40
Competition level	50.00	0.00	0.00	0.00	50.00	0.00	9.10
Other	50.00	28.60	0.00	42.90	0.00	0.00	27.30

Table 8.1.1: Distribution of traders by region and business type

Region	Type of business			Overall
	Assembler	Wholesaler	Retailer	
RRD	3.70	9.26	9.88	22.84
NE	3.70	7.41	4.94	16.05
NW	0.62	1.23	3.70	5.56
NCC	2.47	4.94	3.70	11.11
SCC	0.62	3.70	5.56	9.88
CH	0.62	3.09	2.47	6.17
NES	0.00	5.56	6.17	11.73
MRD	1.85	6.79	8.02	16.67
Total	13.58	41.98	44.44	100.00

Table 8.1.2: Distribution of traders in sample by business type and size

Type of business	Size of business			Overall
	Small	Medium	Large	
Assembler	8.02	3.7	1.85	13.58
Wholesaler	9.26	15.43	17.28	41.98
Retailer	35.8	8.64	0	44.44
Total	53.09	27.78	19.14	100

Table 8.1.3: Percentage of business income by income source and region

Region	Complete & Concentrated Feed	Raw Materials	Supplementary Feed	Non-Feed
RRD	50.40	29.80	0.10	19.60
NE	53.90	28.40	0.00	17.70
NW	38.10	9.70	0.00	52.20
NCC	27.70	50.80	0.00	21.60
SCC	71.10	17.80	2.10	9.10
CH	73.80	20.70	0.20	5.30
NES	75.20	15.40	0.00	9.50
MRD	73.30	14.00	0.60	12.10

Table 8.1.4: Percentage of business income by income source and region

	Type of business			Size of business		
	Assembler	Wholesaler	Retailer	Small	Medium	Large
Complete & Concentrated Feed	4.80	74.90	58.30	48.50	62.00	78.30
Raw Materials	82.90	12.10	18.90	29.20	24.40	12.60
Supplementary Feed	0.00	0.50	0.30	0.50	0.20	0.00
Non-Feed	12.40	12.60	22.60	21.70	13.40	9.10

Table 8.2.1: Usage and price of labor by type of labor, gender, and type and size of business

	Type of business			Size of business			Overall
	Assembler	Wholesaler	Retailer	Small	Medium	Large	
Male family							
Use labor (%)	95.50	83.60	69.40	77.00	82.20	80.00	79.00
Average number of labor	1.10	1.00	0.80	0.90	0.90	1.00	0.90
Average number of work days/year	210.20	268.80	226.90	202.00	282.00	289.40	241.50
Female family							
Use labor (%)	86.40	83.60	90.30	87.40	91.10	80.00	87.00
Average number of labor	0.90	0.90	1.00	0.90	1.00	0.90	1.00
Average number of work days/year	299.20	333.60	291.20	295.70	325.60	326.20	309.60
Male skilled permanent							
Use labor (%)	13.60	28.40	6.90	4.60	17.80	50.00	16.70
Average number of labor	0.40	0.60	0.10	0.10	0.30	1.10	0.30
Average number of work days/year	360.00	353.70	324.00	315.00	360.00	352.00	348.90
Wage rate (000D/day)	27.10	24.80	23.60	27.80	23.00	25.40	24.90
Female skilled permanent							
Use labor (%)	4.50	10.40	0.00	1.10	2.20	20.00	4.90
Average number of labor	0.00	0.30	0.00	0.00	0.00	0.60	0.10
Average number of work days/year	360.00	325.70		120.00	360.00	360.00	330.00
Wage rate (000D/day)	25.00	20.10		20.00	23.00	20.50	20.80

Table 8.2.1: (Continued)

	Type of business			Size of business			Overall
	Assembler	Wholesaler	Retailer	Small	Medium	Large	
Male unskilled permanent							
Use labor (%)	27.30	29.90	8.30	4.60	24.40	56.70	19.80
Average number of labor	3.80	0.70	0.10	0.10	0.60	3.50	0.90
Average number of work days/year	291.70	318.60	360.00	360.00	304.80	322.90	321.30
Wage rate (000D/day)	24.40	18.20	17.70	16.20	16.90	21.50	19.20
Female unskilled permanent							
Use labor (%)	9.10	7.50	4.20	3.40	6.70	13.30	6.20
Average number of labor	0.20	0.20	0.00	0.00	0.10	0.40	0.10
Average number of work days/year	240.00	360.00	300.00	300.00	280.00	360.00	318.00
Wage rate (000D/day)	16.70	19.10	12.30	12.30	17.80	18.80	16.60
Male temporary							
Use labor (%)	27.30	28.40	11.10	12.60	26.70	36.70	21.00
Average number of labor	1.00	0.80	0.20	0.20	0.80	1.40	0.60
Average number of work days/year	101.70	100.10	26.40	63.20	60.10	126.30	82.50
Wage rate (000D/day)	25.00	22.60	22.80	21.40	23.50	25.90	23.60
Female temporary							
Use labor (%)	0.00	6.00	0.00	2.30	4.40	3.30	3.10
Average number of labor	0.00	0.10	0.00	0.00	0.10	0.00	0.00
Average number of work days/year	138.80			167.50	150.00	120.00	151.00
Wage rate (000D/day)	12.80			16.00	11.00	15.00	13.80

Table 8.2.2: Usage and price of labor by type of labor, and type and size of business

Labor category	Type of business			Size of business			Overall
	Assembler	Wholesaler	Retailer	Small	Medium	Large	
Family							
Use labor (%)	95.50	97.00	100.00	100.00	100.00	90.00	98.10
Average number of labor	2.00	1.90	1.80	1.80	2.00	2.00	1.90
Average number of work days/year	257.10	304.50	269.80	260.90	304.30	313.10	282.00
Skilled permanent							
Use labor (%)	13.60	32.80	6.90	5.70	20.00	53.30	18.50
Average number of labor	0.40	0.80	0.10	0.10	0.30	1.70	0.40
Average number of work days/year	360.00	343.60	324.00	276.00	360.00	352.50	342.00
Wage rate (000D/day)	27.10	24.00	23.60	25.80	23.00	24.50	24.20
Unskilled permanent							
Use labor (%)	27.30	35.80	11.10	8.00	24.40	66.70	23.50
Average number of labor	4.00	0.90	0.10	0.10	0.70	3.90	1.00
Average number of work days/year	291.70	325.50	337.50	334.30	304.80	328.50	322.70
Wage rate (000D/day)	24.40	18.50	15.10	14.60	16.70	21.30	18.70
Temporary							
Use labor (%)	27.30	32.80	11.10	13.80	28.90	40.00	22.80
Average number of labor	1.00	0.90	0.20	0.20	0.90	1.40	0.60
Average number of work days/year	101.70	104.70	26.40	71.60	66.80	125.80	87.50
Wage rate (000D/day)	25.00	21.10	22.80	19.80	22.20	25.00	22.30

Table 8.2.3: Usage and price of labor by type of labor, and region

Labor category	Region							Overall	
	RRD	NE	NW	NCC	SCC	CH	NES		MRD
Family									
Use labor (%)	100.00	96.20	100.00	100.00	100.00	100.00	100.00	92.60	98.10
Average number of labor	2.10	1.70	1.80	1.80	1.90	2.60	1.80	1.60	1.90
Average number of work days/year	289.20	295.80	195.90	207.20	280.20	306.00	302.00	319.00	282.00
Skilled permanent									
Use labor (%)	16.20	19.20	11.10	0.00	0.00	10.00	36.80	37.00	18.50
Average number of labor	0.40	0.20	0.10	0.00	0.00	0.40	0.70	1.30	0.40
Average number of work days/year	360.00	360.00	120.00			360.00	351.40	336.00	342.00
Wage rate (000D/day)	27.00	26.10	20.00			23.30	21.20	24.20	24.20
Unskilled permanent									
Use labor (%)	27.00	11.50	0.00	11.10	12.50	0.00	36.80	51.90	23.50
Average number of labor	0.70	0.40	0.00	0.20	0.10	0.00	1.10	3.50	1.00
Average number of work days/year	296.00	360.00		330.00	360.00		302.10	337.70	322.70
Wage rate (000D/day)	15.30	18.40		11.50	15.00		22.80	20.60	18.70
Temporary									
Use labor (%)	45.90	11.50	0.00	38.90	18.80	10.00	5.30	18.50	22.80
Average number of labor	1.50	0.20	0.00	0.70	0.60	0.80	0.10	0.40	0.60
Average number of work days/year	72.00	70.00		96.00	60.40	59.00	100.00	158.40	87.50
Wage rate (000D/day)	26.00	20.00		18.00	18.30	20.00	30.00	18.80	22.30
All workers									
Use labor (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Average number of labor	4.50	2.50	1.90	2.60	2.60	3.80	3.70	6.80	3.90
Average number of work days/year	238.30	291.30	197.00	191.70	261.50	293.90	287.90	315.20	263.70
Wage rate (000D/day)	22.00	22.40	20.00	16.60	16.90	21.70	22.60	22.10	21.20

Table 8.3.1: Gross value of trader operations and total sales by region

	Region							
	RRD	NE	NW	NCC	SCC	CH	NES	MRD
GVO (mD)	3116.00	1867.00	424.00	1358.00	824.00	2367.00	3735.00	4434.00
Sales (mD)	2746.00	1726.00	264.00	709.00	768.00	2104.00	3442.00	3288.00
% Sales	67.90	74.40	79.00	38.50	79.80	80.10	87.40	85.30

Table 8.3.2: Gross value of trader operations and total sales by business type and size

	Type of business			Size of business		
	Assembler	Wholesaler	Retailer	Small	Medium	Large
GVO (mD)	2339.00	4741.00	679.00	408.00	2455.00	8930.00
Sales (mD)	216.00	4447.00	547.00	344.00	1858.00	7688.00
% Sales	7.80	87.50	80.10	67.70	73.50	89.20

Table 8.3.3: Value of purchases of feed and raw materials by business type and size

	Type of business			Size of business			Overall
	Assembler	Wholesaler	Retailer	Small	Medium	Large	
Total Purchases (mD)	2119.00	4552.00	643.00	389.00	2344.00	8490.00	2469.00
% Pig feed	5.10	54.70	55.60	47.00	47.10	54.00	48.40
% Poultry feed	2.60	26.50	22.10	19.00	21.70	27.00	21.30
% Cattle feed	0.00	1.50	0.90	1.30	0.40	1.10	1.00
% Raw materials	92.10	12.20	19.10	31.70	26.10	10.60	26.10

Table 8.3.4: Value of purchases of feed and raw materials by region

	Region							
	RRD	NE	NW	NCC	SCC	CH	NES	MRD
Total Purchases (mD)	2944.00	1825.00	384.00	1293.00	804.00	2240.00	3607.00	4173.00
% Pig feed	39.60	43.10	51.70	27.90	47.90	69.40	71.60	54.30
% Poultry feed	27.80	31.30	28.50	10.90	24.50	11.50	9.60	17.20
% Cattle feed	0.00	0.00	0.00	0.00	2.90	0.00	5.50	0.40
% Raw materials	31.40	25.30	19.60	61.20	19.90	19.20	12.20	14.50

Table 8.3.5: Value of purchased feed by procurement source and business type and size

	Type of business			Size of business			Overall
	Assembler	Wholesaler	Retailer	Small	Medium	Large	
Value purchased feed (mD)	206.00	4284.00	523.00	274.00	1795.00	7384.00	2046.00
% Local private feed producer	0.00	24.10	13.20	8.40	26.00	29.70	17.50
% Local private trader	85.70	23.80	72.70	76.40	33.40	9.50	51.10
% GOE feed producer	0.00	6.30	4.60	5.00	6.50	3.40	5.10
% Joint venture feed producer	14.30	35.40	6.30	5.10	29.90	45.00	19.90
% Other	0.00	7.70	0.60	3.00	1.40	9.10	3.80

Table 8.4.1: Average pig, poultry, and cattle feed prices over time

Feed type	Q3,98	Q4, 98	Q1, 99	Q2, 99	Q3, 99
Lactating Sow Ration	3.30	4.02	3.93	3.40	3.40
Starter Ration for Pig	5.33	5.36	5.35	5.36	5.34
Non-Pregnant Sow	3.02	3.02	3.02	3.04	3.04
Grower Ration for Pig	3.18	3.15	3.18	3.51	3.12
Fatteng Ration	3.23	3.21	3.20	3.40	3.12
Concentrated Ration for Pig	6.71	6.68	6.61	6.58	6.60
Layer Ration	4.51	4.53	4.38	4.37	4.36
Chicken Ration	4.04	4.11	3.93	3.94	3.94
Starter Ration for Poultry	4.17	4.17	4.07	4.05	4.04
Grower Ration for Poultry	4.04	4.01	3.99	3.97	3.94
Concentrated Ration for Poultry	7.37	7.21	7.11	7.09	7.09
Dairy Cattle Ration	2.66	2.66	2.71	2.74	2.71

Table 8.4.2: Average raw material prices over time

Raw material type	Q3,98	Q4, 98	Q1, 99	Q2, 99	Q3, 99
Rice	2.05	2.11	2.08	2.24	2.26
Maize	2.34	2.46	2.55	2.39	2.10
Cassava	1.96	2.00	1.95	1.95	1.89
Soyabeans	4.41	4.35	4.18	4.15	4.27
Rice Bran	2.02	1.83	1.77	1.73	1.81
Maize Bran	2.02	2.02	1.96	1.87	1.86
Wheat Bran	1.94	1.93	1.93	1.77	1.74
Groundnut Cake	3.53	3.40	3.30	3.28	3.08
Fish Meal	4.15	4.09	4.09	4.08	4.16
Bone Meal	2.82	2.52	2.52	2.52	2.52
Mineral Premix	14.67	14.67	23.50	23.50	21.30
Vitamin Premix	36.62	33.02	30.09	30.37	35.58
DCP	1.30	1.30	1.30	1.40	1.40
Dry Fish	2.90	2.80	2.85	2.80	2.85

Table 8.4.3: Average feed prices over the period from Q3,98 to Q2,99 by type and size of business ('000 VND/kg)

	Type of business			Size of business			Overall
	Assembler	Wholesaler	Retailer	Small	Medium	Large	
Lactating Sow Ration		3.63	3.58	3.90	3.32	3.51	3.61
Starter Ration for Pig	6.07	5.35	5.36	5.65	4.71	5.44	5.36
Non-Pregnant Sow		3.39	2.53	2.71	3.15	3.15	3.01
Grower Ration for Pig		3.50	2.91	2.99	3.81	3.19	3.25
Fatteng Ration	7.04	3.03	3.23	3.51	2.96	2.99	3.21
Concentrated Ration for Pig	6.94	6.50	6.69	6.73	6.55	6.37	6.62
Layer Ration		4.13	5.15	5.00	4.37	3.77	4.38
Chicken Ration		3.85	4.47	4.12	4.77	3.52	3.93
Starter Ration for Poultry	4.46	4.07	4.06	4.21	3.94	3.94	4.07
Grower Ration for Poultry	4.52	4.02	3.84	4.03	3.98	3.86	3.97
Concentrated Ration for Poultry	7.57	6.98	7.20	7.34	6.97	6.78	7.11
Dairy Cattle Ration		2.67	2.71	2.71	2.46	2.78	2.69

Table 8.4.4: Average feed prices over the period from Q3,98 to Q2,99 by type and region

	Region								Overall
	RRD	NE	NW	NCC	SCC	CH	NES	MRD	
Lactating Sow Ration	3.43	4.75			3.97	4.47	3.20	3.33	3.61
Starter Ration for Pig	6.23	4.61	6.54	4.54	5.78	5.05	4.58	5.02	5.36
Non-Pregnant Sow	3.20				2.80	4.73	2.72	2.72	3.01
Grower Ration for Pig	3.89	3.59	4.10		2.65	3.11	3.03	3.15	3.25
Fatteng Ration	3.15	4.54	3.38	6.70	2.63	2.96	2.99	2.56	3.21
Concentrated Ration for Pig	6.83	7.03	6.91	6.76	6.52	6.19	5.87	6.14	6.62
Layer Ration	4.56	5.24	3.92	4.22	4.86	4.19	3.81	3.47	4.38
Chicken Ration		4.27			4.44	5.03	3.26	3.49	3.93
Starter Ration for Poultry	4.26	4.38	4.80	4.33	3.78	4.69	3.48	3.57	4.07
Grower Ration for Poultry	4.09	4.54	3.90	4.12	3.83	4.63	3.31	3.39	3.97
Concentrated Ration for Poultry	7.65	7.72	8.17	7.58	5.55	6.60	5.70	5.29	7.11
Dairy Cattle Ration							2.50	3.18	2.69

Table 8.4.5: Average prices, growth rates, and instability measure over the period from Q3,98 to Q3,99 by feed category

	Mean	GrRate	Min	Max	IndInst
Lactating Sow Ration	3.61	-1.07	3.30	4.02	10.60
Starter Ration for Pig	5.35	0.02	5.33	5.36	0.31
Non-Pregnant Sow	3.03	0.21	3.02	3.04	0.11
Grower Ration for Pig	3.23	0.77	3.12	3.51	5.59
Fatteng Ration	3.23	-0.08	3.12	3.40	3.60
Concentrated Ration for Pig	6.64	-0.45	6.58	6.71	0.44
Layer Ration	4.43	-1.04	4.36	4.53	1.02
Chicken Ration	3.99	-0.93	3.93	4.11	1.59
Starter Ration for Poultry	4.10	-0.92	4.04	4.17	0.66
Grower Ration for Poultry	3.99	-0.62	3.94	4.04	0.05
Concentrated Ration for Poultry	7.17	-0.95	7.09	7.37	0.84
Dairy Cattle Ration	2.70	0.65	2.66	2.74	0.97

Table 8.4.6: Average prices, growth rates, and instability measure over the period from Q3,98 to Q3,99 by raw material category

	Mean	GrRate	Min	Max	IndInst
Rice	2.15	2.57	2.05	2.26	2.17
Maize	2.37	-2.41	2.10	2.55	7.03
Cassava	1.95	-0.98	1.89	2.00	1.69
Soyabeans	4.27	-1.12	4.15	4.41	2.17
Rice Bran	1.83	-2.66	1.73	2.02	4.73
Maize Bran	1.95	-2.31	1.86	2.02	1.53
Wheat Bran	1.86	-3.07	1.74	1.94	2.78
Groundnut Cake	3.32	-3.07	3.08	3.53	1.34
Fish Meal	4.11	0.04	4.08	4.16	0.96
Bone Meal	2.58	-2.25	2.52	2.82	4.30
Mineral Premix	19.53	12.95	14.67	23.50	16.40
Vitamin Premix	33.13	-1.40	30.09	36.62	9.99
Dry Fish	2.84	-0.35	2.80	2.90	1.58

Table 9.1: Percentage of Producer Reports of Animal Disease by Disease Type

Disease	Pig	Chicken	Duck	Cattle	Buffalo
Swine Fever	6.42	-	-	-	-
Swine Pasteurellosis	16.30	-	-	-	-
Swine Erysipelas	1.21	-	-	-	-
Swine Leptospirosis	0.18	-	-	-	-
Internal Parasitism	5.03	2.27	-	4.05	12.50
Salmonella	22.19	3.03	4.88	-	-
Mineral Deficiency	1.21	0.45	-	1.34	12.50
Newcastle Disease	-	9.40	1.22	-	-
Duck Plague	-	-	15.86	-	-
Avian Pasteurellosis	-	22.42	17.08	-	-
Fowl Pox	-	1.51	-	-	-
Gumboro	-	11.97	-	-	-
Mareks	-	0.61	-	-	-
Blackleg	-	-	-	2.70	-
Foot and Mouth	0.69	-	-	-	-
Picoplasmas	6.93	15.00	3.66	-	-
E.Coli	11.09	11.52	4.88	1.34	-
Bovine Pasteurellosis	-	-	-	18.91	25.00
Unknown Disease	24.78	18.94	50.00	71.65	50.00
Total	100.00	100.00	100.00	100.00	100.00

Table 9.2: Percentage of Producer Reports of Pig Disease by Disease Type

Disease	Local Pigs	Crossbred Pigs	Exotic Pigs
Swine Fever	2.04	8.61	4.45
Swine Pasteurellosis	12.25	23.39	6.66
Swine Erysipelas	4.08	1.54	0.00
Swine Leptospirosis	0.00	0.32	0.00
Internal Parasitism	16.33	5.23	2.21
Salmonella	16.33	26.15	19.45
Mineral Deficiency	6.12	0.61	1.11
Foot and Mouth	0.00	0.00	2.21
Picoplasmas	2.04	9.53	4.45
E.Coli	6.12	6.77	21.68
Unknown Disease	34.70	17.84	37.79
Total	100.00	100.00	100.00

Table 9.3: Percentage of Producer Reports of Chicken Disease by Disease Type

Disease	Local Chickens	Crossbred Chickens	Exotic Chickens
Internal Parasitism	2.20	2.50	2.40
Salmonella	1.32	6.25	3.60
Mineral Deficiency	0.43	0.00	0.61
Newcastle Disease	18.95	11.25	3.01
Avian Pasteurellosis	48.46	10.00	9.01
Fowl Pox	2.64	1.25	0.90
Gumboro	4.41	16.26	16.81
Mareks	0.00	0.00	1.20
Picoplasmas	4.41	16.26	22.82
E.Coli	6.61	11.25	15.61
Unknown Disease	10.58	25.00	24.02
Total	100.00	100.00	100.00

Table 9.4: Percentage of Producer Reports of Duck Disease by Disease Type

Disease	Local Ducks	Crossbred Ducks	Exotic Ducks
Salmonella	0.00	15.38	6.67
Newcastle Disease	2.70	0.00	0.00
Duck Plague	10.81	7.69	26.67
Avian Pasteurellosis	18.92	23.08	13.33
Picoplasmas	0.00	0.00	10.00
E.Coli	5.41	7.69	3.33
Unknown Disease	62.16	46.15	40.00
Total	100.00	100.00	100.00

Table 9.8: Poultry Diseases Reported by Commune Veterinary Services as a Proportion of Total Poultry Disease Reports by Region

Disease	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta	National
Newcastle Disease	23.38	24.00	23.53	21.05	30.77	10.00	22.22	16.67	21.40
Duck Plague	10.39	8.00	5.88	23.68	7.69	10.00	0.00	16.67	12.23
Avian Pasteurellosis	14.28	28.00	23.53	21.05	23.07	20.00	22.22	20.00	19.66
Internal Parasitism	6.49	20.00	11.77	15.79	7.69	5.00	11.11	0.00	9.17
Salmonellosis	6.49	8.00	5.88	10.52	7.69	15.00	0.00	10.00	8.30
Fowl Pox	16.88	8.00	29.42	2.63	7.69	10.00	33.33	10.00	13.10
Gumboro	7.79	4.00	0.00	0.00	15.38	10.00	11.11	13.33	6.99
Mareks	5.20	0.00	0.00	0.00	0.00	5.00	0.00	0.00	2.18
Vitamin Deficiency	3.90	0.00	0.00	5.26	0.00	5.00	0.00	6.67	3.49
Mineral Deficiency	3.90	0.00	0.00	0.00	0.00	10.00	0.00	6.67	3.05
Other Poultry Disease	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 9.9: Bovine Diseases Reported by Commune Veterinary Services as a Proportion of Total Bovine Disease Reports by Region

Disease	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta	National
Pasteurellosis	23.69	27.17	33.33	9.73	35.12	75.00	34.85	36.88	26.54
Blackleg	3.95	0.00	0.00	0.00	8.78	0.00	0.00	0.00	1.56
Internal Parasitism	29.61	30.79	20.00	29.20	26.35	25.00	23.24	24.59	28.10
Foot and Mouth	0.00	1.81	0.00	19.47	0.00	0.00	17.43	12.29	5.73
Rinderpest	1.98	3.62	0.00	12.98	0.00	0.00	0.00	0.00	3.64
Picoplasmas	17.77	28.98	26.66	16.22	0.00	0.00	0.00	0.00	17.70
E.Coli	1.98	5.43	6.67	9.73	0.00	0.00	0.00	0.00	4.16
Vitamin Deficiency	9.87	0.00	6.67	0.00	8.78	0.00	11.61	12.29	5.20
Mineral Deficiency	9.87	0.00	6.67	0.00	17.57	0.00	11.61	12.29	5.73
Other Bovine Diseases	1.29	2.18	0.00	2.66	3.40	0.00	1.24	1.65	1.64
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 9.10: Percentage of Pigs Affected by Disease that Died From that Disease during 1998-1999 as Reported by Commune Veterinary Services

Disease	Percentage of Affected Pigs that Died
Swine Fever	61.53
Swine Pasteurellosis	13.71
Swine Erysipelas	6.00
Internal Parasitism	7.89
Salmonellosis	18.61
Swine Leptospirosis	20.44
Mycoplasmas	6.43
E.Coli	25.21
Vitamin Deficiency	0.87
Mineral Deficiency	0.90
Other Swine Disease	18.07

Table 9.11: Percentage of Poultry Affected by Disease that Died From that Disease during 1998-1999 as Reported by Commune Veterinary Services

Disease	Percentage of Affected Poultry that Died
Newcastle Disease	56.09
Duck Plague	57.91
Avian Pasteurellosis	25.91
Internal Parasitism	7.76
Salmonellosis	15.51
Fowl Pox	25.06
Gumboro	25.36
Mareks	28.20
Vitamin Deficiency	0.00
Mineral Deficiency	0.00
Other Poultry Disease	8.33

Table 9.16: Percentage of Provincial/District Officials Identifying Various Poultry Diseases as the Most Frequent for Different Household Sizes in Their Area

Disease	Small Household	Medium Household	Large Household
Internal Parasitism	1.41	2.78	0.00
Vitamin Deficiency	0.00	0.00	2.13
Salmonella	0.00	1.39	0.00
Newcastle Disease	53.52	40.28	21.28
Duck Plague	2.82	2.78	2.13
Avian Pasteurellosis	14.08	15.28	8.51
Gumboro	26.76	31.94	55.32
Mareks	1.41	1.39	0.00
E.Coli	0.00	1.39	0.00
Mycoplasmas	0.00	2.78	10.63
Total	100.00	100.00	100.00

Table 9.17: Percentage of Provincial/District Officials Identifying Various Bovine Diseases as the Most Frequent in Their Area

Disease	Red River Delta	North East	North West Coast	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta	National
Pasteurellosis	0.00	0.00	0.00	0.00	25.00	0.00	0.00	16.67	4.62
Avian Pasteurellosis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.67	1.54
Bovine Pasteurellosis	0.00	27.27	0.00	72.73	37.50	0.00	14.29	50.00	27.70
Foot and Mouth	0.00	0.00	0.00	0.00	0.00	0.00	14.29	0.00	1.54
Picoplasmas	0.00	0.00	0.00	27.27	0.00	0.00	0.00	0.00	4.62
Other Bovine Diseases	100.00	72.73	100.00	0.00	37.50	100.00	71.42	16.67	60.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 9.18: Percentage of Provincial/District Officials Identifying Various Bovine Diseases as the Most Frequent for Different Household Sizes in Their Area

Disease	Small Household	Medium Household	Large Household
Leptospirosis	0.00	0.00	4.00
Pasteurellosis	4.77	5.26	0.00
Internal Parasitism	0.00	1.75	12.00
Newcastle Disease	1.59	0.00	0.00
Bovine Pasteurellosis	25.39	26.31	32.00
Foot and Mouth	1.59	1.75	0.00
Picoplasmas	4.77	5.26	4.00
Other Bovine Disease	61.89	59.65	48.00
Total	100.00	100.00	100.00

Table 9.19: Producers Utilizing Various Veterinary Services as a Proportion of All Producers by Region

Region	Vaccination	Internal Parasite Treatment	Castration	Clinical Assessments	Disinfection	Artificial Insemination	Regular Examination
Red River Delta	89.66	64.04	44.04	21.57	41.12	35.96	2.47
North East	92.18	63.27	33.65	15.17	20.85	39.34	0.24
North West	85.82	69.50	48.23	7.09	4.26	13.48	0.71
North Central Coast	94.68	53.55	68.09	1.77	3.19	42.70	0.00
South Central Coast	75.68	15.44	30.89	25.48	4.25	35.14	0.77
Central Highlands	68.94	23.60	19.88	18.63	7.45	21.12	0.00
North East South	95.05	26.24	58.91	45.54	38.12	56.93	1.98
Mekong River Delta	78.07	36.54	43.52	27.57	20.93	15.28	0.66
National	86.3	47.2	43.38	20.15	20.29	33.95	0.95

Table 9.20: Various Veterinary Services as a Percentage of Total Veterinary Services Received by Animal Type

Treatment	Pigs	Chickens	Ducks	Cattle	Buffalo
Vaccination	43.32	75.64	85.93	65.28	89.23
Internal Parasitism	16.58	2.89	0.00	6.03	7.31
Castration	15.80	0.26	0.00	1.34	0.38
Clinical Assessment	6.14	7.45	10.37	6.30	1.15
Disinfection	4.65	12.36	2.22	1.07	0.00
Artificial Insemination	11.21	0.18	0.00	10.59	0.00
Regular Examination	0.23	0.35	0.00	0.13	0.00
Other	2.08	0.88	1.48	9.25	1.92
Total	100.00	100.00	100.00	100.00	100.00

Table 9.21: Various Veterinary Services as a Percentage of Total Veterinary Services Received by Pig Types

	Local Pig	Crossbred Pig	Exotic Pig
Vaccination	40.19	40.15	51.35
Internal Parasitism	9.15	22.89	8.98
Castration	3.49	21.52	12.32
Clinical Assessment	1.79	5.66	9.73
Disinfection	1.79	4.86	5.87
Artificial Insemination	39.81	3.37	8.92
Regular Examination	0.19	0.09	0.52
Other	3.58	1.46	2.30

Table 9.22: Various Veterinary Services as a Percentage of Total Veterinary Services Received by Chicken Types

	Local Chicken	Crossbred Chicken	Exotic Chicken
Vaccination	79.76	82.08	73.44
Internal Parasitism	7.94	0.94	1.53
Castration	0.79	0.00	0.13
Clinical Assessment	5.16	8.49	8.05
Disinfection	4.76	6.60	15.58
Artificial Insemination	0.00	0.00	0.26
Regular Examination	0.40	0.94	0.26
Other	1.19	0.94	0.77

Table 9.23: Various Veterinary Services as a Percentage of Total Veterinary Services Received by Duck Types

	Local Duck	Crossbred Duck	Exotic Duck
Vaccination	86.67	92.86	82.61
Internal Parasitism	0.00	0.00	0.00
Castration	0.00	0.00	0.00
Clinical Assessment	12.00	0.00	10.87
Disinfection	0.00	0.00	6.52
Artificial Insemination	0.00	0.00	0.00
Regular Examination	0.00	0.00	0.00
Other	1.33	7.14	0.00

Table 9.24: Various Veterinary Services as a Percentage of Total Veterinary Services Received by Cattle Types

	Local Cattle	Crossbred Cattle	Exotic Cattle
Vaccination	69.43	56.64	50.00
Internal Parasitism	6.31	5.31	8.33
Castration	0.99	2.21	0.00
Clinical Assessment	4.73	9.29	16.67
Disinfection	0.59	2.21	0.00
Artificial Insemination	6.11	20.35	16.67
Regular Examination	0.00	0.44	0.00
Other	11.83	3.54	8.33

Table 9.25: Average Number of Animals Receiving Veterinary Services per Year per Farm by Treatment Type

Treatment	Pigs	Chickens	Ducks	Cattle	Buffalo
Vaccination	225.7	2222.2	356.6	7.7	3.6
Internal Parasitism	69.3	632.5	0.0	7.8	3.5
Castration	53.6	34.3	0.0	2.2	11.0
Clinical Assessment	72.4	1013.4	139.9	3.4	1.0
Disinfection	418.3	5174.5	380.0	21.0	0.0
Artificial Insemination	8.9	885.0	0.0	3.7	0.0
Regular Examination	261.6	435.0	0.0	3.0	0.0
Other	7.3	1732.5	302.0	2.0	1.8

Table 9.26: Average Number of District Level and Province Level Veterinary Service Units by Region

Region	District Level Veterinary Service Units	Province Level Veterinary Service Units
Red River Delta	11.82	7.25
North East	2.33	2.67
North West	10.00	9.00
North Central Coast	2.22	13.50
South Central Coast	6.00	8.00
Central Highlands	8.75	19.00
North East South	6.33	18.00
Mekong River Delta	7.38	9

Table 9.27: Average Year Veterinary Service Unit Commenced Operations by Region and Veterinary Service Unit Level

Region	Commune Level	District Level	Province Level
Red River Delta	1978	1981	1972
North East	1991	1985	1982
North West	1972	1974	1991
North Central Coast	1979	1978	1981
South Central Coast	1995	1981	1986
Central Highlands	1991	1989	1979
North East South	1992	1982	1984
Mekong River Delta	1989	1982	1985

Table 9.28: Average Veterinary Service Unit Budget by Region and Veterinary Service Unit Level (D'000/year)

Region	Commune Level	District Level	Province Level
Red River Delta	1519.33	40358.00	897262.50
North East	2845.30	29275.00	915733.30
North West	-	91631.00	420000.00
North Central Coast	1722.50	39000.00	825000.00
South Central Coast	1828.57	34998.83	799938.00
Central Highlands	4033.33	20637.00	1100000.00
North East South	2160.00	502697.90	2215000.00
Mekong River Delta	609.07	39689.38	897542.70

Table 9.29: Average Percentage of Villages Accessible by Various Travel Means by Commune Level Veterinary Service Units

Region	Vehicle Access	Motorcycle Access	Boat Access
Red River Delta	98.03	100.00	14.45
North East	100.00	100.00	7.84
North West	80.00	100.00	6.67
North Central Coast	100.00	100.00	0.00
South Central Coast	78.71	99.00	6.00
Central Highlands	80.00	100.00	0.00
North East South	85.63	100.00	6.25
Mekong River Delta	80.73	98.75	56.81

Table 9.30: Percentage of Animals Within the Veterinary Service Unit Area Vaccinated Against Various Diseases as Estimated by Commune, District and Provincial Veterinary Service Units

Animal/Vaccination	Commune Level	District Level	Province Level
Pigs (Swine Fever)	58.3	50.56	56.32
Breeding Sows (Swine Fever)	65.7	60.70	63.91
Chickens (Newcastle Disease)	46.1	44.44	42.88
Ducks (Duck Fever)	48.2	49.21	44.53
Cattle (Bovine Pasteurellosis)	50.9	46.36	40.14
Breeding Cattle Cows (Bovine Pasteurellosis)	54.2	47.25	36.43
Buffalo (Bovine Pasteurellosis)	55.9	48.50	38.22
Breeding Buffalo Cows (Bovine Pasteurellosis)	58.4	51.24	35.89

Table 9.31: Percentage of Animals Within the Commune Veterinary Service Unit Area Vaccinated Against Various Diseases as Estimated by Commune Veterinary Service Units, by Region

Disease	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highland	North East South	Mekong River Delta
Pigs (Swine Fever)	58.3	35.4	35	41.6	55.1	76.2	86.5	72.4
Breeding Sows (Swine Fever)	67	36.4	48.3	42.9	57.3	80	98.1	86.5
Chickens (Newcastle Disease)	59.8	33.4	23.3	13	25.4	83.3	57.5	55.1
Ducks (Duck Fever)	55.1	7.2	33.3	25	50.3	100	65	72
Cattle (Bovine Pasteurellosis)	55.2	66.9	59.7	63.8	35.4	70	42.8	22.7
Breeding Cattle Cows (Bovine Pasteurellosis)	59.7	68.6	61.3	63.8	33	66.7	38.3	25.8
Buffalo (Bovine Pasteurellosis)	62.8	66.4	58	68.6	47	90	53.3	9.4
Breeding Buffalo Cows (Bovine Pasteurellosis)	68.3	63.2	61.3	68.6	38.3	100	42.7	15

Table 9.32: Average Activities of Official in Commune Level Veterinary Service Unit

Region	Hours of Fieldwork per month	Average Distance Traveled per Producer	Total Distance Traveled per Month	Days of Fieldwork Per month	Farm Visits per Month
Red River Delta	149.4	2.0	166.1	25.1	104.0
North East	137.0	4.2	322.3	25.1	108.8
North West	93.0	2.5	194.6	20.4	80.8
North Central Coast	188.2	4.6	304.5	26.8	58.6
South Central Coast	180.5	3.1	373.2	23.7	113.4
Central Highlands	146.7	5.7	670.0	29.5	260.0
North East South	190.0	3.0	634.5	24.1	179.1
Mekong River Delta	164.9	3.1	444.6	22.2	153.4

Table 9.33: Average Number of Animals Receiving Service From Commune Level Veterinary Service Unit by Animal Type (Animals per Year)

Treatment	Pigs	Cattle	Poultry
Clinical Assessments	1401	67	299
Drug Administrations	1444	86	489
Post Mortems	148	21	0
Vaccinations	1470	201	1604
Artificial Insemination	198	21	0
Castration	746	3	20
Pregnancy Examinations	52	37	0
Drenching	1248	32	401
Other	854	3	1167

Table 9.34: Average Number of Animals Receiving Service From District Level Veterinary Service Unit by Animal Type (Animals per Year)

Treatment	Pigs	Cattle	Poultry
Clin assess	2938	406	853
Drug admin	3092	436	843
Post mortem	120	60	0
Vaccination	14497	2157	13469
AI	1363	222	0
Castration	2963	25	19
Preg exam	6	215	0
Drenching	2739	48	0
Other	0	0	0

Table 9.35: Average Number of Animals Receiving Service From Province Level Veterinary Service Unit by Animal Type (Animals per Year)

Treatment	Pig	Cattle	Poultry
Clin assess	39313	5278	2340
Drug admin	36492	3170	1830
Post mortem	502	764	0
Vaccination	106540	23121	373458
AI	10835	3373	0
Castration	23117	161	0
Preg exam	576	1923	0
Drenching	31693	252	0
Other	41629	0	0

Table 9.36: Percentage of Commune Veterinary Service Unit Time Allocated to Customer Types by Region

Region	Small Farms	Medium Farms	Large Private Business	Others	Total
Red River Delta	66.9	25.7	6.3	1.1	100.00
North East	79.0	17.4	3.6	0.0	100.00
North West	88.8	11.2	0.0	0.0	100.00
North Central Coast	82.7	13.2	4.1	0.0	100.00
South Central Coast	73.2	26.6	0.2	0.0	100.00
Central Highlands	75.0	25.0	0.0	0.0	100.00
North East South	59.5	38.2	2.3	0.0	100.00
Mekong River Delta	66.8	31.8	1.3	0.0	100.00
National	71.94	24.72	3.07	0.28	100.00

Table 9.37: Inspection Types as a Percentage of all Inspections Performed by District and Provincial Veterinary Services

Inspection	Percentage
Regular	19.15
Exported Meat	0.30
Carcass – Domestic	19.45
Disinfection	8.51
Market Wholesale	6.38
Restaurants	0.91
Animal Health	6.08
Food Premises Inspection	3.34
Live Animal Transportation	15.50
Abattoir/Slaughterhouse	13.68
Transmissible Disease	6.38
Food Vehicle	0.30
Total	100.00

Table 9.38: Average Number of Person Days Required to Complete Inspection By Inspection Type

Type of inspection	Number of person days for inspection
Regular	3.6
Exported Meat	2
Carcass – Domestic	1.64
Disinfection	2.45
Market Wholesale	2.34
Restaurants	4
Animal Health	2.53
Food Premises Inspection	1.44
Live Animal Transportation	1.57
Abattoir/Slaughterhouse	1.96
Transmissible Disease	7.15
Food Vehicle	0.63

Table 9.39: Provision of Inspection Services by Veterinary Service Unit Level

Level	Percentage of Total Person Days Allocated for Inspection Duties	Income from Inspection Fees as a Percentage of 1999 Budget	Total Number of Person Days Allocated for Inspection Duties
Province	6.77	2.44	2246.46
District	15.56	6.47	328.90

Table 9.40: Business Compliance by Inspection Type

Inspection Type	Average Number of Businesses Inspected by Veterinary Service Unit per Year	Percentage of Inspected Businesses Complying	Percentage of Inspected Businesses Penalized
Regular	31.86	85.64	12.14
Exported Meat	62.00	75.67	6.50
Carcass – Domestic	133.29	78.15	9.73
Disinfection	121.96	75.43	3.85
Market Wholesale	46.52	88.48	6.02
Restaurants	14.25	75.00	0.25
Animal Health	44.16	74.05	0.00
Food Premises Inspection	11.08	92.31	11.64
Live Animal Transportation	191.35	85.25	10.18
Abattoir/Slaughterhouse	34.00	84.61	4.95
Transmissible Disease	115.86	78.58	0.00
Food Vehicle	70.00	100.00	2.00

Table 9.41: Average Annual Costs of Components of Veterinary Service per Producer

Service	Veterinary Fee (D'000)	Drug Cost (D'000)	Total Cost (D'000)	Veterinary Fee Per Animal (D'000)	Drug Cost Per Animal (D'000)
Vaccination	3.78	6.24	10.02	0.75	0.32
Internal Parasitism	1.10	0.92	2.02	0.21	0.17
Castration	2.28	0.50	2.71	0.50	0.11
Clinical Assessment	9.09	6.70	15.67	3.63	2.38
Disinfection	2.51	2.48	4.99	0.11	0.10
Artificial Insemination	22.81	14.37	37.05	10.76	6.44
Regular Examination	3.65	3.74	7.59	0.23	0.24
Other	24.32	8.90	32.92	15.20	4.96

Table 9.42: Average Total Annual Veterinary Costs per Producer, by Region (D'000)

Region	Veterinary Cost	Drug Cost	Total Cost
Red River Delta	15.00	8.43	23.43
North East	11.89	7.10	18.98
North West	14.90	6.40	21.30
North Central Coast	33.47	7.44	40.91
South Central Coast	14.93	7.80	22.73
Central Highlands	23.34	9.07	32.41
North East South	49.78	143.58	193.36
Mekong River Delta	26.42	13.22	39.64

Table 9.43: Purchase and Sale Prices of Vaccines by Vaccine Type

Type of Vaccine	Purchase Price (D000)	Sale Price (D000)
Swinefever	0.34	0.42
S. pasteurellosis	0.39	0.54
S. erysipelas	0.46	0.53
S. leptospirosis	2.56	2.67
E. coli	3.58	3.93
Salmonella	0.41	0.48
Anthrax	0.95	0.99
Blackleg	2.00	2.30
Rinderpest	0.47	48.26
Newcastle dis	0.26	0.29
Duck plague	0.57	0.62
Fowl pox	0.38	0.43
Gumboro	0.35	0.41
A. pasteurellosis	0.61	0.67
Rabies	195.06	268.72
Distemper	14.41	15.78
Other	4.68	4.89

Table 9.44: Average Fee Charged to Producers by Commune Level Veterinary Service Units, by Region

Region	Average Fee (D000)
Red River Delta	6.93
North East	9.49
North West	3.82
North Central Coast	10.09
South Central Coast	11.97
Central Highlands	8.50
North East South	8.27
Mekong River Delta	9.84

Table 9.45: Average Inspection Fees Charged by Provincial and District Veterinary Service Units

Type of inspection	Average Inspection Fee (D000)
Regular	18
Exported Meat	0
Carcass – Domestic	11
Disinfection	17
Market Wholesale	14
Restaurants	0
Animal Health	21
Food Premises Inspection	8
Live Animal Transportation	52
Abattoir/Slaughterhouse	15
Transmissible Disease	6
Food Vehicle	0

Table 9.46: Average Inspection Fees, by Veterinary Service Unit Level

Type of inspection	Province Fee (D000)	District Fee (D000)
Regular	43	9
Exported Meat	0	0
Carcass – Domestic	26	7
Disinfection	19	17
Market Wholesale	26	7
Restaurants	0	0
Animal Health	32	17
Food Premises Inspection	17	4
Live Animal Transportation	33	61
Abattoir/Slaughterhouse	10	17
Transmissible Disease	16	0
Food Vehicle	0	0

Table 9.47: Percentage of Received Veterinary Treatments Reported as Successful by Producers, by Region

Region	Percentage
Red River Delta	75.58
North East	80.15
North West	60.78
North Central Coast	81.33
South Central Coast	78.93
Central Highlands	66.09
North East South	78.19
Mekong River Delta	77.18

Table 9.48 : Percentage of Received Veterinary Treatments Reported as Successful by Producers, by Disease Type

Disease	Percent
Swine Fever	31.43
Swine Pasteurellosis	72.41
Swine Erysipelas	57.14
Swine Leptospirosis	93.62
Internal Parasitism	63.76
Salmonella	91.50
Scouring/Diarrhea	100.00
Mineral Deficiency	15.00
Newcastle Disease	50.00
Duck Plague	66.91
Avian Pasteurellosis	63.64
Fowl Pox	62.03
Gumboro	100.00
Mareks	20.00
Blackleg	100.00
Anthrax	88.41
Picoplasmas	70.83
E.Coli	66.67
Bovine Pasteurellosis	66.56
Unknown Disease	76.34

Table 9.49: Various Reasons given by Producers for lack of Effective Treatment as a Percentage of Total Reasons, by Region

Region	Poor Quality Drugs	Dosage Too Small	Wrong Diagnosis	Wrong Treatment	Other	Total
Red River Delta	25.00	16.67	16.67	8.33	33.33	100.00
North East	16.67	5.56	30.56	11.11	36.11	100.00
North West	10.00	20.00	10.00	10.00	50.00	100.00
North Central Coast	0.00	0.00	24.24	39.39	36.36	100.00
South Central Coast	21.95	4.88	17.07	19.51	36.59	100.00
Central Highlands	21.21	3.03	27.27	33.33	15.15	100.00
North East South	21.43	7.14	10.71	14.29	46.43	100.00
Mekong River Delta	11.43	8.57	37.14	22.86	20.00	100.00
National	16.25	6.67	23.3	21.25	32.5	100.00

Table 9.50: Average Staff Training Levels as a Percentage of Staff Numbers by Veterinary Service Unit Level

Training Level	Commune	District	Province
Postgraduate	0.00	0.18	1.33
Graduate	10.65	52.54	55.60
Technicians	48.76	44.46	37.55
Village Level Agents	40.59	2.81	5.52

Table 9.51: Average Equipment Numbers and Average Number of Equipment per Staff for Commune Level Veterinary Service Units

Equipment Type	Number	Percentage Working	Number Per Staff
Motorcycles	6	100.00	0.76
Bicycles	3	93.33	0.48
Refrigerators	2	100.00	0.32
Cold Boxes	2	100.00	0.55
Liquid N Container	1	90.00	0.26
Field Treatment Kits	4	100.00	0.63
Post Mortem Kits	6	100.00	0.90
Syringes	8	96.83	1.55
Thermometers	5	96.16	0.80
Stethoscopes	1	100.00	0.41
Emasculators	3	100.00	0.53
Scissors	4	97.48	0.76
Needles	60	90.94	12.80
Knives	3	95.34	0.65
Pincers	5	95.39	0.94

Table 9.52: Average Equipment Numbers and Average Number of Equipment per Staff for District Level Veterinary Service Units

Equipment Type	Number	Percentage Working	Number per Staff
Cars	1	100.00	0.11
Motorbike	1	100.00	0.23
Refrigerator	1	100.00	0.15
Freezers	1	93.06	0.27
Cold box	6	99.05	1.25
Centrifuge	1	0.00	0.05
Microscope	2	70.31	0.28
Distillers	1	66.67	0.19
Autoclave	1	83.33	0.16
Liq N jar	4	83.33	0.60
Fld trtment kit	2	93.33	0.41
Post mortem kit	1	87.50	0.33
Syringes	19	96.52	3.17
Thermometer	15	95.40	1.50
Stethoscope	6	88.46	0.59
Emasculator	22	100.00	1.54
Scissors	17	96.31	1.63
Needles	109	94.29	18.73
Knives	17	98.67	1.54
Pincers	17	98.15	2.19

Table 9.53: Average Equipment Numbers and Average Number of Equipment per Staff for Province Level Veterinary Service Units

Equipment Type	Number	Percentage Working	Number per Staff
Trucks	2	100.00	0.03
Cars	2	95.00	0.04
Motorbike	4	100.00	0.08
Refrigerator	2	100.00	0.04
Freezers	9	98.99	0.31
Cold box	36	100.00	1.06
Centrifuge	1	67.86	0.04
Microscope	3	78.43	0.15
Distillers	1	75.00	0.02
Autoclave	2	92.31	0.06
Liq N jar	84	100.00	0.86
Fld trtment kit	14	91.72	0.24
Post mortem kit	2	100.00	0.04
Syringes	128	95.45	1.47
Thermometer	119	96.50	1.32
Stethoscope	21	89.58	0.34
Emasculator	23	88.89	0.35
Scissors	68	99.06	0.93
Needles	686	98.44	18.91
Knives	383	98.60	3.99
Pincers	465	97.94	4.54

Table 9.54: Tests Performed as a Percentage of Total Tests Performed Annually, by Veterinary Service Unit Level

Test Type	Province Level	District Level
Serology	14.89	0.00

Bacteriology	27.66	0.00
Virology	6.38	0.00
Parasitology	31.91	100.00
Pathology	10.64	0.00
Toxicology	2.13	0.00
Biochemistry	4.26	0.00
Other	2.13	0.00

Table 9.55: Effectiveness of Vaccines by Source as Rated by Commune Level Veterinary Service Units

Vaccine Source	Very Good	Good	Fair	Poor
Private Business	25.00	68.75	6.25	0.00
District veterinary service unit	5.81	63.95	25.58	4.65
Other	0.00	100.00	0.00	0.00
Average	8.26	65.14	22.94	3.67

Table 9.56: Effectiveness of Veterinary Drugs by Source as Rated by Commune Level Veterinary Service Units

Source	Very Good	Good	Fair	Very Poor
Private Business	4.23	70.42	23.94	1.41
District Level veterinary service unit	3.33	73.33	23.33	0.00
Other	0.00	80.00	20.00	0.00
Average	3.70	70.37	25.00	0.93

Table 10.1: Percentage of Extension Services Utilized within Communes Derived From Different Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta	National
Government Extension Services	9.52	20.34	15.38	17.19	14.71	6.67	18.75	15.38	15.48
Department of Veterinary Services	10.71	18.64	15.38	14.06	17.65	13.33	18.75	23.08	15.71
Cooperatives	15.48	15.25	19.23	15.62	26.47	40.00	6.25	7.69	15.24
GOE	3.57	1.69	0.00	0.00	5.88	0.00	0.00	0.00	1.90
Informal Extension Clubs	4.76	5.08	3.85	1.56	5.88	6.67	6.25	7.69	5.48
Research Centers	1.19	3.39	0.00	0.00	2.94	0.00	6.25	0.00	1.43
Private Companies	7.14	1.69	7.69	0.00	8.82	20.00	6.25	15.38	5.95
Animal Association	1.19	0.00	0.00	0.00	2.94	0.00	0.00	0.00	0.95
Women's Union	9.52	10.17	7.69	17.19	2.94	0.00	12.50	0.00	9.05
Farmer's Union	11.90	11.86	15.38	17.19	2.94	6.67	12.50	15.38	11.90
Youth's Union	9.52	5.08	7.69	12.50	2.94	0.00	6.25	0.00	6.90
Gardening Association	5.95	3.39	0.00	4.69	2.94	6.67	0.00	7.69	4.52
Veteran's Association	7.14	3.39	7.69	0.00	2.94	0.00	6.25	7.69	4.29
Other	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.2: Percentage of Extension Service Providers Gaining Different Quality Ratings from Communes, by Region

Quality Rating	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta	National
Very Good	3.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
Good	65.48	72.88	52.00	28.12	44.12	53.33	37.50	30.77	51.79
Adequate	30.95	27.12	48.00	71.88	55.88	40.00	62.50	69.23	46.30
Poor	0.00	0.00	0.00	0.00	0.00	3.33	0.00	0.00	0.24
Very Poor	0.00	0.00	0.00	0.00	0.00	3.33	0.00	0.00	0.24
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.3: Percentage of Extension Service Providers Gaining Different Quality Ratings from Producers, by Extension Provider Type

Source	Very Good	Good	Adequate	Poor	Very Poor	Total
Government Extension Services	4.62	69.23	26.15	0.00	0.00	100.00
Department of Veterinary Services	1.54	53.85	43.08	0.00	1.54	100.00
Cooperatives	1.56	53.12	43.75	1.56	0.00	100.00
GOE	0.00	37.50	62.50	0.00	0.00	100.00
Informal Extension Clubs	0.00	60.87	39.13	0.00	0.00	100.00
Research Centers	16.67	83.33	0.00	0.00	0.00	100.00
Private Companies	0.00	48.00	52.00	0.00	0.00	100.00
Animal Association	0.00	75.00	25.00	0.00	0.00	100.00
Women's Union	0.00	47.37	52.63	0.00	0.00	100.00
Farmer's Union	0.00	50.00	50.00	0.00	0.00	100.00
Youth's Union	0.00	31.03	68.97	0.00	0.00	100.00
Gardening Association	0.00	42.11	57.89	0.00	0.00	100.00
Veteran's Association	0.00	22.22	77.78	0.00	0.00	100.00
Other	0.00	40.00	60.00	0.00	0.00	100.00
Average		1.43	51.79	46.30	0.24	100.00

Table 10.4: Percentage of Producers Utilizing Extension Services, by Region

Region	Percentage of Producers Utilizing Extension Services
Red River Delta	22.02
North East	18.48
North West	35.46
North Central Coast	50.71
South Central Coast	27.41
Central Highlands	19.88
North East South	31.68
Mekong River Delta	30.90
Average	28.42

Table 10.5: Various Extension Providers as a Percentage of Total Extension Service Providers, by Extension Service

Extension Provider	Breeding	Animal Nutrition	Marketing	Crop management	Animal Husbandry	All Services
Government Extension Services	7.40	2.42	33.33	60.24	52.43	20.86
Veterinary Services Department	2.00	3.03	0.00	0.00	3.40	2.29
Cooperatives	21.80	0.00	0.00	22.89	5.83	14.70
GOE	28.60	2.42	0.00	0.00	3.40	16.06
Informal Extension Clubs	0.00	0.00	0.00	1.20	0.97	0.31
Research Centers	1.40	0.00	0.00	1.20	1.94	1.25
NGO's	0.20	0.00	0.00	0.00	0.49	0.21
Private Company	12.00	81.21	66.67	0.00	11.65	22.94
Veterinary Association	0.40	0.00	0.00	0.00	0.00	0.21
Animal Association	0.00	0.61	0.00	0.00	4.37	1.04
Women's Union	0.20	0.00	0.00	0.00	0.49	0.21
Farmer's Union	0.20	0.00	0.00	3.61	1.46	0.73
Joint Venture	0.60	1.82	0.00	0.00	10.19	2.82
Other	25.20	8.48	0.00	10.84	3.40	16.37
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.6: Various Extension Providers as a Percentage of Total Extension Service Providers, by Animal Type

Extension Provider	Pigs	Chickens	Ducks	Cattle	Buffalo
Government Extension Services	22.28	10.26	18.75	62.86	0.00
Veterinary Services Department	4.62	2.05	3.12	0.00	0.00
Cooperatives	3.26	4.10	6.25	5.71	66.67
GOE	3.80	14.87	6.25	8.57	0.00
Informal Extension Clubs	0.27	0.00	3.12	0.00	0.00
Research Centers	1.36	1.54	0.00	8.57	0.00
NGO's	0.27	0.00	0.00	0.00	16.67
Private Company	29.35	42.56	31.25	2.86	16.67
Veterinary Association	0.27	0.51	0.00	0.00	0.00
Animal Association	1.36	2.56	0.00	0.00	0.00
Women's Union	0.27	0.51	0.00	0.00	0.00
Farmer's Union	0.82	0.00	0.00	0.00	0.00
Joint Venture	5.16	4.10	0.00	0.00	0.00
Other	26.90	16.92	31.25	11.43	0.00
Total	100.00	100.00	100.00	100.00	100.00

Table 10.7: Quality Rating Levels Given by Producers to Various Extension Services (%)

Extension Provider	Very Good	Good	Fair	Poor	Total
Government Extension Services	1.50	75.00	23.50	0.00	100.00
Veterinary Services Department	0.00	95.45	4.55	0.00	100.00
Cooperatives	0.00	79.43	20.57	0.00	100.00
GOE	2.60	89.61	7.14	0.65	100.00
Informal Extension Clubs	0.00	66.67	33.33	0.00	100.00
Research Centers	8.33	91.67	0.00	0.00	100.00
NGO's	0.00	100.00	0.00	0.00	100.00
Private Company	4.09	86.36	9.55	0.00	100.00
Veterinary Association	0.00	50.00	50.00	0.00	100.00
Animal Association	0.00	90.00	10.00	0.00	100.00
Women's Union	50.00	0.00	50.00	0.00	100.00
Farmer's Union	0.00	71.43	28.57	0.00	100.00
Joint Venture	3.70	66.67	25.93	3.70	100.00
Other	0.64	87.26	12.10	0.00	100.00
Average	2.09	83.00	14.70	0.21	100.00

Table 10.8: Producers Rating of Best Extension Provider, by Extension Service Type (%)

Best Provider	Breeding	Animal Nutrition	Marketing	Crop Management	Animal Husbandry	All Services
Government Extension Services	4.18	1.21	0.00	10.98	7.28	4.90
Veterinary Services Department	1.20	1.21	0.00	1.22	3.40	1.67
Cooperatives	8.17	0.00	0.00	1.22	0.00	4.38
GOE	19.72	3.03	0.00	0.00	1.46	11.15
Informal Extension Clubs	0.00	0.00	0.00	1.22	0.00	0.10
Research Centers	1.20	0.00	0.00	0.00	0.00	0.62
NGO's						0.00
Private Company	4.58	67.88	0.00	0.00	0.00	14.06
Veterinary Association	0.20	0.00	0.00	0.00	0.00	0.10
Animal Association	0.00	0.61	0.00	0.00	0.49	0.21
Women's Union						0.00
Farmer's Union	0.20	0.00	0.00	0.00	0.00	0.10
Joint Venture	0.00	0.61	0.00	0.00	0.49	0.21
Could not compare	50.20	18.79	100.00	85.37	86.89	55.94
Other	10.36	6.67	0.00	0.00	0.00	6.56
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.9: Producer Information Sources as a Percentage of Total Information Provision, by Information Type

Source	Price and Market	Regulatory	Credit
Extension Agents	1.67	8.38	2.22
Press	0.90	5.86	0.57
Letter/Courier	0.05	1.60	0.21
Radio/TV	13.98	74.04	11.69
Intermediaries	7.74	1.10	3.78
Banks	0.09	0.00	64.98
Personal Contacts	38.73	5.45	13.19
Feed Mills	1.00	0.18	0.10
Traders	35.07	0.23	0.72
Feed Mill Associations	0.23	0.00	0.00
Other	0.54	3.16	2.54
Total	100.00	100.00	100.00

Table 10.10: Producer Market Information Sources as a Percentage of Total Information Provision Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Extension Agents	0.67	2.14	0.00	0.00	5.43	0.62	1.49	2.33
Press	0.67	0.71	0.00	0.00	1.94	0.00	2.48	1.33
Letter	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00
Radio/TV	26.07	8.55	17.73	27.30	3.88	11.80	5.45	5.00
Intermediaries	3.60	10.45	12.77	3.19	11.24	3.11	8.91	10.67
Banks	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00
Personal Contacts	38.88	50.83	27.66	33.69	40.31	43.48	23.27	38.00
Feed Mills	1.35	0.00	4.26	0.00	1.94	0.62	0.99	0.67
Traders	27.87	26.37	37.59	35.46	34.11	39.13	55.45	41.33
Feed Mill Associations	0.00	0.24	0.00	0.00	0.00	0.62	1.49	0.00
Other	0.90	0.48	0.00	0.35	0.39	0.62	0.50	0.67
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.11: Producer Regulatory Information Sources as a Percentage of Total Information Provision, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Extension Agents	6.80	15.87	7.80	3.19	4.71	2.58	8.50	11.56
Press	2.27	2.16	0.00	6.03	8.24	3.23	14.50	12.59
Letter/Courier	0.68	3.85	0.00	2.48	1.18	1.29	0.00	1.36
Radio/TV	81.18	63.94	82.98	87.23	79.22	76.77	59.00	64.97
Intermediaries	1.59	0.00	0.71	0.00	0.78	3.23	3.50	0.68
Personal Contacts	4.76	7.69	7.09	1.06	3.14	9.03	6.00	6.46
Feed Mills	0.45	0.24	0.71	0.00	0.00	0.00	0.00	0.00
Traders	0.00	0.24	0.00	0.00	0.39	0.00	0.50	0.68
Other	2.27	6.01	0.71	0.00	2.35	3.87	8.00	1.70
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.12: Producer Credit Information Sources as a Percentage of Total Information Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Extension Agents	0.23	4.56	0.00	1.42	0.54	1.64	0.68	7.25
Press	0.23	0.72	0.00	0.71	1.08	0.00	1.35	0.48
Letter	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.97
Radio/TV	18.20	18.71	17.39	1.42	6.49	9.84	6.76	3.38
Intermediaries	0.69	0.00	2.90	5.67	15.68	6.56	5.41	2.42
Banks	60.37	59.71	73.91	64.89	68.65	64.75	77.03	67.63
Personal Contacts	16.13	13.19	2.90	25.89	3.78	13.93	3.38	11.59
Feed Mills	0.23	0.00	0.72	0.00	0.00	0.00	0.00	0.00
Traders	0.23	0.00	1.45	0.00	2.16	1.64	1.35	1.45
Other	3.69	2.64	0.72	0.00	1.66	1.64	4.05	4.83
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.13: Animal and Meat Trader Information Sources as a Percentage of Total Information Sources, by Information Type

Source	Market/Price	Regulatory	Credit
Extension Agents	0.25	2.78	0.28
Press	0.49	7.59	0.85
Letter	0.00	2.03	0.00
Radio/TV	3.69	71.90	10.99
Intermediaries	10.34	1.01	2.25
Banks	0.00	0.00	61.97
Personal Contact	22.17	8.35	18.59
Feed Mill	1.48	0.25	0.00
Traders	55.17	0.25	1.41
Other	4.43	3.04	2.82
Other	1.97	2.78	0.85
Total	100.00	100.00	100.00

Table 10.14: Animal and Meat Trader Market Information Sources as a Percentage of Total Information Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Extension Agent	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Press	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Radio/TV	3.57	1.27	7.69	9.62	1.96	4.17	0.00	3.70
Intermediaries	10.71	6.33	23.08	1.92	17.65	12.50	17.14	5.56
Personal Contact	8.33	21.52	0.00	23.08	25.49	50.00	14.29	44.44
Feed Mill	1.19	0.00	0.00	0.00	1.96	0.00	0.00	7.41
Traders	70.24	69.62	69.23	65.38	33.33	29.17	48.57	29.63
Other	2.38	0.00	0.00	0.00	7.84	4.17	20.00	7.41
Other	0.00	1.27	0.00	0.00	11.76	0.00	0.00	1.85
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.15: Animal and Meat Trader Regulatory Information Sources as a Percentage of Total Information Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Extension Agent	2.41	1.27	0.00	0.00	2.08	0.00	11.76	5.88
Press	6.02	2.53	0.00	3.85	14.58	0.00	11.76	19.61
Letter	0.00	3.80	0.00	5.77	0.00	0.00	0.00	3.92
Radio/TV	60.24	88.61	84.62	90.38	70.83	47.62	73.53	49.02
Intermediaries	2.41	0.00	3.85	0.00	0.00	4.76	0.00	0.00
Personal Contact	22.89	0.00	11.54	0.00	6.25	19.05	0.00	7.84
Feed Mill	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Traders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96
Other	2.41	3.80	0.00	0.00	0.00	23.81	0.00	3.92
Other	2.41	0.00	0.00	0.00	6.25	4.76	2.94	7.84
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.16 Animal and Meat Trader Credit Information Sources as a Percentage of Total Information Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Extension Agent	0.00	0.00	0.00	1.92	0.00	0.00	0.00	0.00
Press	2.47	0.00	0.00	1.92	0.00	0.00	0.00	0.00
Radio/TV	2.47	30.77	30.77	0.00	7.69	5.56	0.00	2.94
Intermediaries	1.23	0.00	3.85	7.69	5.13	0.00	0.00	0.00
Banks	65.43	55.13	53.85	57.69	74.36	33.33	76.92	70.59
Personal Contact	20.99	12.82	11.54	30.77	12.82	33.33	19.23	11.76
Traders	1.23	0.00	0.00	0.00	0.00	5.56	3.85	5.88
Other	4.94	0.00	0.00	0.00	0.00	22.22	0.00	5.88
Other	1.23	1.28	0.00	0.00	0.00	0.00	0.00	2.94
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.17: Feed Mill Information Sources as a Percentage of Total Information Sources

Source	Market	Regulation	Credit
Press	0.00	16.67	0.00
Radio/TV	16.67	33.33	0.00
Banks	0.00	0.00	100.00
Personal Contacts	33.33	16.67	0.00
Feed Mills	0.00	16.67	0.00
Other	50.00	16.67	0.00
Total	100.00	100.00	100.00

Table 10.18: Feed Mill Market Information Sources, by Region as a Proportion of Total Information Sources

Source	Red River Delta	North Central Coast	Mekong River Delta
Radio/TV	0.00	100.00	0.00
Personal Contact	50.00	0.00	0.00
Other	50.00	0.00	100.00
Total	100.00	100.00	100.00

Table 10.19: Feed Mill Regulatory Information Sources as a Percentage of Total Information Sources, by Region

Source	Red River Delta	North Central Coast	Mekong River Delta
Press	0.00	100.00	0.00
Radio/TV	50.00	0.00	0.00
Personal Contacts	25.00	0.00	0.00
Feed Mills	25.00	0.00	0.00
Other	0.00	0.00	100.00
Total	100.00	100.00	100.00

Table 10.20: Feed Trader Information Sources as a Percentage of Total Information Sources

Source	Market	Regulation	Credit
Extension agents	0.00	1.88	0.00
Press	0.62	8.75	2.86
Letter	0.00	3.12	0.00
Radio/TV	0.62	71.25	3.57
Intermediaries	6.17	3.12	2.86
Banks	0.00	0.00	67.14
Personal contacts	11.73	3.12	21.43
Feed mills	34.57	3.12	0.00
Traders	43.21	0.62	0.71
Feed mill association	0.62	0.62	0.00
Other	2.47	2.50	0.71
Other	0.00	1.88	0.71
Total	100.00	100.00	100.00

Table 10.21: Feed Trader Market Information Sources as a Percentage of Total Information Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Press	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70
Radio/TV	0.00	0.00	0.00	0.00	0.00	0.00	5.26	0.00
Intermediaries	2.70	7.69	0.00	5.56	0.00	0.00	15.79	11.11

Personal contacts	10.81	15.38	11.11	38.89	14.29	0.00	5.26	0.00
Feed mills	27.03	34.62	22.22	0.00	28.57	41.67	47.37	62.96
Traders	51.35	38.46	55.56	55.56	57.14	58.33	26.32	22.22
Feed mill Association	0.00	0.00	11.11	0.00	0.00	0.00	0.00	0.00
Other	8.11	3.85	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.22: Feed Trader Regulatory Information Sources as a Percentage of Total Information Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Extension agents	0.00	0.00	0.00	0.00	7.69	0.00	0.00	7.41
Press	0.00	0.00	0.00	0.00	0.00	18.18	26.32	25.93
Letter	2.70	15.38	0.00	0.00	0.00	0.00	0.00	0.00
Radio/TV	86.49	69.23	100.00	94.44	84.62	63.64	47.37	40.74
Intermediaries	8.11	0.00	0.00	0.00	0.00	9.09	0.00	3.70
Personal contacts	0.00	11.54	0.00	0.00	0.00	0.00	5.26	3.70
Feed mills	0.00	3.85	0.00	0.00	0.00	0.00	0.00	14.81
Traders	2.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Feed mill Association	0.00	0.00	0.00	0.00	0.00	0.00	5.26	0.00
Other	0.00	0.00	0.00	5.56	7.69	9.09	15.79	3.70
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.23: Feed Trader Credit Information Sources as a Percentage of Total Information Sources, by Region

Source	Red River Delta	North East	North West	North Central Coast	South Central Coast	Central Highlands	North East South	Mekong River Delta
Press	0.00	0.00	0.00	0.00	20.00	0.00	15.38	0.00
Radio/TV	0.00	0.00	0.00	0.00	10.00	9.09	15.38	5.26
Intermediaries	2.86	3.85	0.00	5.56	0.00	0.00	7.69	0.00
Banks	68.57	73.08	87.50	44.44	70.00	90.91	53.85	63.16
Personal contacts	25.71	23.08	12.50	50.00	0.00	0.00	7.69	21.05
Feed mills	2.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.52
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10.24: Descriptive Statistics of Model Variables

Description	Name	Observations	Mean	Standard Deviation	Minimum	Maximum
Gender of Household Head	HHGENDER	2180	0.789	0.408	0	1
Age of Household Head	HHAGE	2180	44.867	10.513	1	81
Primary Schooled	PSC	2213	0.163	0.370	0	1
Some High School	SHC	2213	0.477	0.500	0	1
Complete High School	HSC	2213	0.256	0.436	0	1
Technical Training	TSC	2213	0.037	0.189	0	1
Some University	SUC	2213	0.007	0.085	0	1
Completed University	UNC	2213	0.025	0.157	0	1
Total labor days	TDW	2213	665.890	1001.869	65	36000
Total Farm Area	TAREA_TL	2213	1.362	25.422	0	1188.011
Red River Delta	RRD	2213	0.201	0.401	0	1
North East	NE	2213	0.191	0.393	0	1
North Central Coast	NCC	2213	0.127	0.334	0	1
South Central Coast	SCC	2213	0.117	0.322	0	1
Central Highlands	CH	2213	0.073	0.260	0	1
North East South	NES	2213	0.091	0.288	0	1
Mekong River Delta	MRD	2213	0.136	0.343	0	1
Small Farm	SMFARM	2213	0.700	0.459	0	1
Large Farm	LGFARM	2213	0.100	0.300	0	1
Transport Investment	TRASS	2203	0.470	0.499	0	1
Building Investment	BDASS	2203	0.098	0.297	0	1
Equipment Investment	EQASS	2203	0.404	0.491	0	1
Exposure to Pig Extension	PGEX	2213	0.633	0.482	0	1
Exposure to Chicken Extension	CHEX	2213	0.127	0.333	0	1
Exotic to Local Price Ratio	PRATIO	2213	1.94	1.23	0.44	4.60

Table 10.25: Exotic Pig Adoption Regression Results

Description	Name	Coefficient
Gender of Household Head	HHGENDER	-0.142
Age of Household Head	HHAGE	0.005
Primary Schooled	PSC	0.288
Some High School	SHC	0.278
Complete High School	HSC	0.368
Technical Training	TSC	0.666
Some University	SUC	0.617
Completed University	UNC	0.400
Total labor days	TDW	0.000
Total Farm Area	TAREA_TL**	-0.170
Red River Delta	RRD**	4.853
North East	NE**	3.890
North Central Coast	NCC**	3.770
South Central Coast	SCC**	4.906
Central Highlands	CH**	5.488
North East South	NES**	7.541
Mekong River Delta	MRD**	7.054
Small Farm	SMFARM**	-0.533
Large Farm	LGFARM**	0.403
Transport Investment	TRASS	0.026
Building Investment	BDASS**	-0.371
Equipment Investment	EQASS	0.089
Exposure to Pig Extension	PGEX**	0.480
Exotic/Local Price Ratio	PRATIO**	0.208
Constant	_CONS**	-6.984

** significant at 5% level

Probit estimates Number of obs = 1726

LR χ^2 (23) = 1015.35

Prob > χ^2 = 0.0000

Log likelihood = -351.56458 Pseudo R2 = 0.5908

Table 10.26: Results of Exotic Pig Adoption Regression Including Various Service Provider Types

Variable	Name	Coefficient
Number of extension visits	EXTDAYS	0.028
Extension Services Dept	ESD	-0.409
Veterinary Services Dept	VSD	-0.594
Research Centers	RSC	1.715
Private Companies	PCO	0.276
Joint Ventures	JVT	0.323
Other	OTR	0.318
On-farm extension	FVISIT*	0.592
Medium Sized Farm	MDFARM**	0.532
Large Farm	LGFARM**	0.695
North East	NE**	-0.915
North West	NW**	-0.930
North Central Coast	NCC**	-0.918
South Central Coast	SCC*	-0.361
Central Highlands	CH	0.064
North East South	NES**	2.046
Mekong River Delta	MRD**	1.585
Pig Farm	PGFARM**	2.177
Constant	_CONS**	-3.670

** significant at 5% level

Probit estimates Number of obs=2213

LR chi2(18)=1082.16

Prob > chi2=0.0000

Log likelihood = -441.66559 Pseudo R2=0.5506

Table 10.27: Results of Intensity of Exotic Pig Adoption Regression

Description	Name	Coefficient
Gender of Household Head	HHGENDER	-0.001
Age of Household Head	HHAGE	0.004
Primary Schooled	PSC	0.154
Some High School	SHC	0.262
Complete High School	HSC	0.581
Technical Training	TSC	0.663
Some University	SUC	1.704
Completed University	UNC	0.965
Total livestock labor days	LTDW	0.000
Total Farm Area	TAREA_TL	-0.151
Red River Delta	RRD**	1.192
North Central Coast	NCC	0.782
South Central Coast	SCC**	1.576
Central Highlands	CH**	2.081
North East South	NES**	1.873
Mekong River Delta	MRD**	1.503
Small Farm	SMFARM	-0.964
Large Farm	LGFARM*	0.207
Transport Investment	TRASS**	0.213
Building Investment	BDASS	-0.301
Equipment Investment	EQASS	-0.415
Exposure to Pig Extension	PGEX	1.097
Exotic/Local Price Ratio	PRATIO	0.023
Constant	_CONS**	-0.985

** significant at 5% level

Source	SS	df	MS	Number of obs =	342
Model	12.4354723	22	.565248741	Prob > F =	0.0000
Residual	8.49393265	319	.026626748	R-squared =	0.5942
Total	20.929405341		.061376554	Root MSE =	.16318

Table 10.28: Results of Exotic Chicken Adoption Regression

Description	Name	Coefficient
Gender of Household Head	HHGENDER	-0.001
Age of Household Head	HHAGE**	0.004
Primary Schooled	PSC	0.154
Some High School	SHC	0.262
Complete High School	HSC*	0.581
Technical Training	TSC*	0.663
Some University	SUC**	1.704
Completed University	UNC	0.965
Total labor days	TDW	0.000
Total Farm Area	TAREA_TL**	-0.151
Red River Delta	RRD**	1.192
North East	NE	0.484
North Central Coast	NCC	0.782
South Central Coast	SCC**	1.576
Central Highlands	CH**	2.081
North East South	NES**	1.873
Mekong River Delta	MRD**	1.503
Small Farm	SMFARM**	-0.964
Large Farm	LGFARM	0.207
Transport Investment	TRASS**	0.213
Building Investment	BDASS	-0.301
Equipment Investment	EQASS**	-0.415
Exposure to Chicken Extension	CHEX**	1.097
Exotic/Local Price Ratio	CPRATIO	0.023
Constant	_CONS**	-0.985

** significant at 5% level

Probit estimates Number of obs = 1048

LR χ^2 (23)= 412.45Prob > χ^2 = 0.0000

Log likelihood = -467.99475 Pseudo R2= 0.3059

Table 10.29: Results of Exotic Chicken Adoption Regression Including Various Service Provider Types

Variable	Name	Coefficient
Number of Extension Visits	EXTDAYS	0.640
Extension Services Dept	ESD	0.340
Private Companies	PCO**	1.520
Other	OTR	-0.541
On-Farm Extension	FVISIT	-0.176
Medium Farm	MDFARM**	0.548
Large Farm	LGFARM**	0.679
North East	NE**	-0.462
North West	NW**	-1.058
North Central Coast	NCC**	-0.553
South Central Coast	SCC**	-0.406
Central Highlands	CH	-0.193
North East South	NES**	-0.368
Mekong River Delta	MRD**	-0.507
Poultry Farm	PTFARM**	2.608
Constant	_CONS**	-2.310

Probit estimates Number of obs=2213

LR chi2(16)=814.05

Prob > chi2=0.0000

Log likelihood = -593.54412 Pseudo R2=0.4068

Table 10.30: Results of Exotic Chicken Adoption Intensity Regression

Description	Name	Coefficient
Gender of Household Head	HHGENDER	0.010
Age of Household Head	HHAGE**	-0.001
Primary Schooled	PSC	-0.024
Some High School	SHC	-0.040
Complete High School	HSC	-0.023
Technical Training	TSC	0.002
Some University	SUC	0.000
Completed University	UNC	-0.010
Total labor days	TDW	0.000
Total Farm Area	TAREA_TL	0.006
Red River Delta	RRD	-0.025
North East	NE	-0.027
North Central Coast	NCC	0.017
South Central Coast	SCC	0.033
Central Highlands	CH	-0.003
North East South	NES	0.014
Mekong River Delta	MRD	-0.022
Small Farm	SMFARM	0.004
Large Farm	LGFARM**	0.030
Transport Investment	TRASS**	-0.020
Building Investment	BDASS	0.021
Equipment Investment	EQASS	-0.045
Exposure to Chicken Extension	CHEX	0.024
Exotic/Local Price Ratio	CPRATIO**	0.016
Constant	_CONS**	1.025

Source	SS	df	MS	Number of obs =	360
Model	.459753892	23	.0199893	Prob > F =	0.2564
Residual	5.67350291	336	.016885425	R-squared =	0.0750
Total	6.1332568359		.017084281	Root MSE =	.12994

Table 11.1: Average Annual Production Cost of Livestock Breeding Centers (000 VND)

	Central Level Pig Breeding Centers	Provincial Level Pig Breeding Centers	Central Level Chicken Breeding Centers
1997			
Average	2,039,484.24	3,179,641.00	3,118,744.00
1. Breeding	202,902.00	127,306.00	568,824.00
2. Feed cost	1,315,259.00	2,256,266.00	1,590,387.00
3. Infrastructure	87,347.00	87,863.00	177,766.00
4. Veterinary service	81,062.00	123,816.00	86,888.00
5. Management cost	134,626.00	181,978.00	208,427.00
6. Labour cost	137,566.00	224,580.00	264,324.00
7. Other cost	158,345.00	88,462.00	222,130.00
1998			
Average	2,362,811.81	3,320,399.45	3,072,459.00
1. Breeding	244,712.00	138,905.00	584,726.00
2. Feed cost	1,574,647.00	2,339,097.00	1,490,601.00
3. Infrastructure	153,096.00	86,369.00	161,477.00
4. Veterinary service	78,608.00	142,748.00	93,274.00
5. Management costs	136,519.00	201,175.00	237,477.00
6. Labour cost	151,096.00	307,372.00	249,539.00
7. Other cost	128,471.00	104,736.00	255,363.00
1999			
Average	2,299,030.80	3,845,284.70	3,409,888.00
1. Breeding	318,415.00	289,740.00	753,391.00
2. Feed cost	1,416,679.00	2,438,277.00	1,664,810.00
3. Infrastructure	128,531.00	93,834.00	176,706.00
4. Veterinary service	85,694.00	205,980.00	113,946.00
5. Management cost	148,230.00	251,652.00	165,063.00
6. Labour cost	157,769.00	324,734.00	287,474.00
7. Other cost	128,776.00	241,065.00	248,494.00

Table 11.2 Average Annual Revenue of Livestock Breeding Centers ('000D)

	Central Level Pig Breeding Centers	Provincial Level Pig Breeding Centers	Central Level Chicken Breeding Centers
1997			
Average	969,701.77	2,386,220.00	2,880,401.00
Maximum	2,215,067.60	11,031,719.00	4,861,050.00
Minimum	205,087.50	119,154.00	484,147.00
1998			
Average	1,178,701.90	2,713,547.00	2,489,301.00
Maximum	3,057,180.60	17,439,972.00	9,409,300.00
Minimum	248,977.55	89,121.00	112,054.00
1999			
Average	1,825,760.80	3,744,479.00	2,566,512.00
Maximum	4,785,606.00	17,819,484.00	8,173,821.74
Minimum	225,219.75	110,703.00	169,249.00

Table 11.3: Government subsidies to livestock breeding centers ('000D)

	Central Level Pig Breeding Centers	Provincial Level Pig Breeding Centers	Central Level Chicken Breeding Centers
1997			
Average	282,500.00	477,294.00	325,750.00
Max	622,000.00	873,497.80	1,010,000.00
Min	0.00	0.00	0.00
1998			
Average	398,428.00	425,709.00	262,971.00
Max	1,143,651.00	1,403,000.00	540,000.00
Min	105,000.00	0.00	0.00
1999			
Average	301,672.00	364,582.00	339,506.00
Max	699,549.00	1,193,609.00	1,040,000.00
Min	77,000.00	79,452.00	40,000.00
Total subsidy for three years	982,600.00	1,294,586.00	928,227.00
Max	2,143,700.00	3,168,000.00	2,590,000.00
Min	345,000.00	402,000.00	153,000.00
Breeding Maintenance	819188	808029	445000
Infrastructure	162300	403633	460727
Animal Purchase	1100	82923	0
Other	0	0	22500

Table 11.4: Selling Quantities and average selling price of main products from Pig breeding centers

Products	Central Pig Breeding Centers			Provincial Pig Breeding Centers		
	1997	1998	1999	1997	1998	1999
Whole country						
Boars (liveweight kg)	9,434	10,770	11,318	2,748	4,064	2,784
Selling price (VND/liveweight kg)	29,416	26,497	27,040	24,788	21,743	23,545
Gilt (liveweight kg)	10,301	12,306	7,940	28,298	26,605	37,666
Selling price (VND/liveweight kg)	20,520	17,425	20,510	21,644	18,431	23,327
Commercial piglets (liveweight kg)	42,756	63,970	97,169	41,844	48,535	45,355
Selling price (VND/liveweight kg)	16,315	13,666	15,872	17,250	14,918	19,517
South						
Boars (liveweight kg)	4,129	3,573	9,225	2,256	1,960	3,120
Selling price (VND/liveweight kg)	17,564	17,535	26,273	22,500	20,000	26,000
Gilt (liveweight kg)	7,161	1,918	3,179	55,702	52,755	77,839
Selling price (VND/liveweight kg)	16,549	17,752	24,073	22,537	19,446	29,506
Commercial piglets (liveweight kg)	93,843	119,141	144,884	78,217	88,632	77,591
Selling price (VND/liveweight kg)	21,473	19,970	30,793	20,184	17,841	27,165
North						
Boars (liveweight kg)	10,191	11,799	11,666	2,846	4,590	2,717
Selling price (VND/liveweight kg)	31,109	27,778	27,168	25,245	22,179	23,054
Gilt (liveweight kg)	10,824	14,037	8,733	5,462	4,814	4,189
Selling price (VND/liveweight kg)	21,182	17,370	19,916	20,900	17,585	18,177
Commercial piglets (liveweight kg)	34,242	54,774	89,217	12,746	16,457	19,566
Selling price (VND/liveweight kg)	15,455	12,616	13,385	14,903	12,580	13,399

Table 11.5: Selling Quantities and Average Selling price of main products from chicken breeding centers

Products	Central Chicken Breeding Centers		
	1997	1998	1999
Chicks (number)	264564	302666	306029
Selling price (VND/head)	3147	3945	4988
Pullets (kg)	5587	1074	2494
Selling price (VND/kg)	15847	13779	13398
Broilers (kg)	52307	24343	28918
Selling price (VND/kg)	14182	14166	14539
Breeding eggs (pc)	345735	271709	203028
Selling price (VND/pc)	1426	1943	2536
Commercial eggs (pc)	612560	814000	644923
Selling price (VND/pc)	554	570	607

Table 11.6: Average Profitability of livestock breeding centers ('D million/year)

	Provincial Level Pig Breeding		
	Central Level Pig Breeding Centers	Centers	Central level Chicken Breeding Centers
Including all costs but not including subsidies			
1997	-1069.78	-1184.11	-473.27
1998	-793.42	-606.85	-100.80
1999	-238.35	-583.16	-843.37
Including all costs and subsidies			
1997	-787.28	-785.68	-171.60
1998	-316.13	-154.14	263.78
1999	40.87	-357.75	-552.36
Not including subsidies or infrastructure and stock purchase costs			
1997	-824.61	-867.87	-97.08
1998	-588.86	-381.58	282.77
1999	508.24	163.05	86.73
Including subsidies but not including infrastructure and stock purchase costs			
1997	-542.11	-469.44	204.59
1998	-111.57	71.13	647.35
1999	787.46	388.45	377.74

Table 11.7: Proportion of Products Sold to Different Customers by Central Pig Breeding Centers (%)

Type of products	Household farm	Commercial farm	State Breeding Centers	Provincial Breeding Centers	AI Stations	Other Centers
Barrows	59.70	3.10	2.70	7.10	26.50	0.90
Gilts	57.10	9.00	6.30	25.80	0.00	1.70
Commercial piglets	45.00	19.60	11.70	14.00	0.00	9.80
Semen	100.00	0.00	0.00	0.00	0.00	0.00

Table 11.8: Proportion of Products Sold to Different Customers by Provincial Pig Breeding Centers (%)

Type of products	Household farm	Commercial farm	State Breeding Centers	Provincial Breeding AI Stations	Other Centers
Barrows	57.90	8.80	8.10	16.60	7.80
Gilts	64.50	10.30	2.20	13.50	9.20
Commercial piglets	68.00	16.00	0.00	1.60	14.10
Semen	65.30	17.90	0.00	0.00	15.70

Table 11.9: Proportion of Products Sold to Different Customers by Provincial Pig Breeding Centers (%)

Type of products	Household farm	Commercial farm	State Breeding Centers	Provincial Breeding AI Stations	Other Centers
Chicks	54.5	19.3	11.00	13.70	1.40
Pullets	68.90	16.50	0.80	11.20	2.40
Broilers	55.00	1.60	0.00	0.00	43.30
Breeding eggs	30.30	19.10	17.10	12.90	19.30
Commercial eggs	66.30	0.00	0.00	2.10	31.70

Table 11.10: Average Herd size of Central Pig Breeding Center (head)

Breeds	Total	Yorkshire	Landrace	Duroc	YS x LR	2 Lines Crosses	3 Line Crosses	>3 lines Crosses	Mong Cai
No. of farms with breed	8	7	5	3	5	3	1	2	2
Average Number	678	223	88	6	125	11	2	42	1328

Table 11.11: Average Herd size of Provincial Pig Breeding Center (head)

Breeds	Total	Yorshire	Landrace	Duroc	YS x LR	Pietrain	2 Lines Crosses	3 Line Crosses	>3 lines Crosses	Other Crosses	Mong Cai
No. of farms with breed	12	10	9	5	7	3	3	2	1	1	5
Average Number	562	196	226	113	342	63	111	79	5	1	130

Table 11.12: Average Flock size of Central Chicken Breeding Center (birds)

Breeds	Total	Kabir	Ross	Tam Hoang	ISA	Loghmand	Leghorn	Ri	Luong phuong	BE	BT2
No. of farms with breed	7	1	2	2	5	1	2	1	2	1	1
Average Number	29018	16003	6304	13475	13592	12470	7350	2463	3505	16595	5300

Table 11.13 Genetic Structure of Adult Breeding Animals at Central and Provincial Breeding Centers

		Average Population	Proportion of GGP	Proportion of GP	Proportion of PS
Central Pig Breeding Center	Sows	295	16.85	69.44	13.71
	Boars	15	18.44	74.13	7.43
Provincial Pig Breeding Center	Sows	356	10.08	41.02	49.18
	Boars	14	11.36	45.70	42.93
Central Chicken Breeding Center	Hens	12415	28.77	4.02	67.21
	Roosters	1045	14.94	18.08	66.98

Table 11.14 Gender Distribution of Young Breeding Animals at Central and Provincial Breeding Centers

	Average Proportion
Central Pig Breeding Center	Gilts
	78.89
	Barrows
	21.11
Provincial Pig Breeding Center	Gilts
	82.04
	Barrows
	17.96
Central Chicken Breeding Center	Male Pullet
	86.83
	Female Pullet
	13.17

Figure 11.1: Idealized Distribution System for Breeding Stock

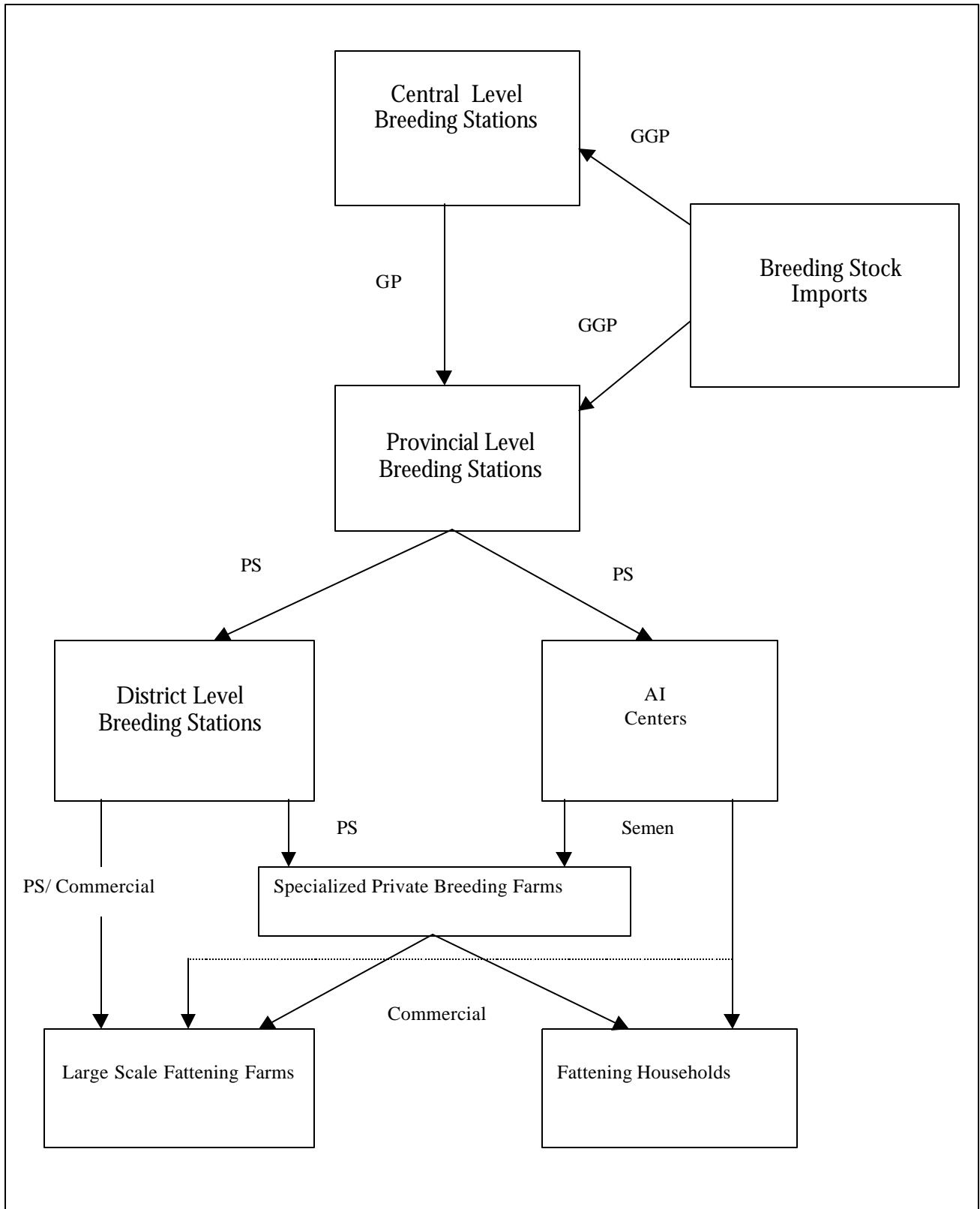


Figure 11.2: Idealized Representation of Breeding Pyramid

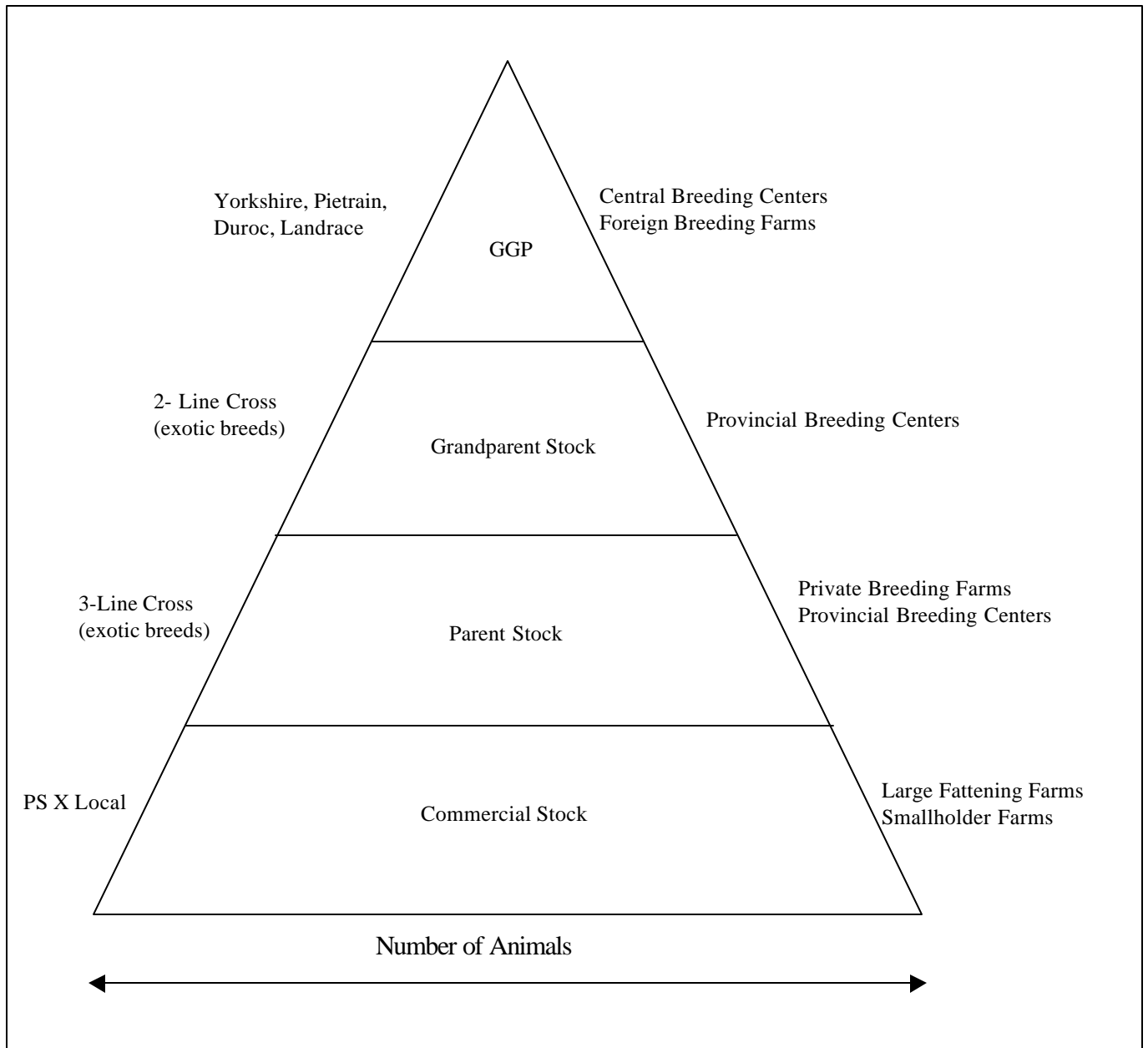


Table 12.1 Sampled Number of Urban and Suburban Households by Income Category (Hanoi)

	Poor	Medium	Rich	Total
Urban	26	44	30	100
Suburban	10	67	22	99
Total	36	111	52	199

Table 12.2 Sampled Number of Urban and Suburban Households by Income Category (Ho Chi Minh City)

	Poor	Medium	Rich	Total
Urban	37	62	57	156
Suburban	18	70	41	129
Total	55	132	98	285

Table 12.3: Average Household Size by Location and Income Level

	Hanoi	Ho Chi Minh City
Average household size	4.3	5.0
Urban	3.7	4.9
Low Income	3.4	5.0
Medium Income	3.8	4.8
High Income	3.7	5.1
Suburban	5.0	5.0
Low Income	4.5	4.5
Medium Income	5.0	5.0
High Income	5.0	5.3

Table 12.4: Number of persons per household by category

	Average	Ha Noi	Ho Chi Minh		Ho Chi Minh		
			Urban	Suburban	City	Urban	Suburban
Gender							
Male	2.33	2.15	1.84	2.47	2.45	2.39	2.53
Female	2.46	2.19	1.89	2.49	2.66	2.67	2.64
Education							
None	0.38	0.36	.021	0.51	0.40	0.36	0.46
Primary School	0.88	0.65	0.41	0.90	1.04	0.94	1.15
Middle School	1.30	1.27	0.79	1.75	1.33	1.06	1.64
High School	1.18	1.02	0.71	1.33	1.29	1.38	1.17
Technical School	0.29	0.37	0.55	0.19	0.24	0.25	0.22
Other	0.76	0.67	1.06	0.28	0.82	1.06	0.53
Age							
0-5 years	0.29	0.25	0.2	0.30	0.31	0.28	0.36
6-18 years	1.23	1.24	0.96	1.53	1.22	1.12	1.35
19-60 years	2.87	2.52	2.33	2.71	3.12	3.12	3.12
61+ years	0.40	0.34	0.24	0.43	0.45	0.55	0.33

Table 12.5: Characteristics of Household Head (% of total)

	Average	Ha Noi		Ho Chi Minh City			
		Urban	Suburban	Urban	Suburban		
Gender							
Male	70.52	68.84	58.00	79.80	71.68	68.59	75.38
Female	29.48	31.16	42.00	20.20	28.32	31.41	24.62
Education							
None	1.86	1.51	1.00	2.02	2.10	1.92	2.31
Primary School	16.08	9.55	6.00	13.13	20.63	17.31	24.62
Middle School	28.25	30.65	21.00	40.40	26.57	19.87	34.62
High School	23.92	22.11	10.00	34.34	25.17	27.56	22.31
Technical School	9.28	13.07	20.00	6.06	6.64	7.69	5.38
Other	20.62	23.12	42.00	4.04	18.88	25.64	10.77
Activity							
Government	26.39	35.18	63.00	7.07	20.28	23.72	16.15
Agriculture	27.01	33.17	3.00	63.64	22.73	3.85	45.38
Student	0.62	0.5	1.00	0.00	0.70	0.00	1.54
Other	45.98	31.16	33.00	29.29	26.29	72.44	38.92
Employment							
Self Employed	60.41	50.25	20.00	80.81	67.48	61.54	74.62
Private Sector	4.74	4.02	4.00	4.04	5.24	5.77	4.62
Public Sector	15.05	17.59	29.00	6.06	13.29	14.74	11.54
Other	19.79	28.14	47.00	9.09	13.99	17.95	9.23

Table 12.6: Monthly Household Expenditure by Income Group and Location (D'000)

	Hanoi			Ho Chi Minh City		
	Low Income	Medium Income	High Income	Low Income	Medium Income	High Income
Non-Food	417.59	843.79	1108.11	682.31	1202.56	2255.59
Non-Livestock Food	302.06	387.55	417.96	448.23	681.55	918.41
Livestock Food	624.54	377.13	467.31	254.41	460.27	892.31

Table 12.7: Monthly Household Expenditure by Location (D'000)

	Ha Noi		Ho Chi Minh City	
	Urban	Suburban	Urban	Suburban
Non-Food	1005.01	664.80	1531.95	1382.39
Non-Livestock Food	383.13	376.90	658.57	789.80
Livestock Food	469.52	421.14	547.03	596.47

Table 12.8: Proportionate Household Monthly Expenditure by Income Group and Location (% of total expenditure)

	Ha Noi			Ho Chi Minh City		
	Low Income	Medium Income	High Income	Low Income	Medium Income	High Income
Non-Food	39.56	48.99	51.96	46.01	49.61	53.51
Non-Livestock Food	31.93	26.92	23.87	35.31	28.70	24.11
Livestock Food	28.51	24.08	24.17	18.68	21.70	22.38

Table 12.9: Proportionate Household Monthly Expenditure by Location (% of total expenditure)

	Ha Noi		Ho Chi Minh City	
	Urban	Suburban	Urban	Suburban
Non-Food	49.65	46.46	51.65	48.59
Non-Livestock Food	23.26	30.84	26.85	30.25
Livestock Food	27.09	22.70	21.50	21.16

Table 12.10: Proportionate Household expenditure on Non-Food Items (% of total)

Item	Average	Ha Noi	Ho Chi Minh City
Clothing	10.89	12.49	9.77
Housing	5.56	4.75	6.14
Utilities	26.14	25.14	26.90
Sanitation	0.47	0.34	0.56
Gas	9.71	7.79	11.04
Education	21.36	23.10	20.11
Health	7.36	5.64	8.58
Books	2.64	2.75	2.56
Other	15.87	18.00	14.33

Table 12.11: Proportionate Household expenditure on Non-Food Items (% of total)

Item	Urban	Suburban
Clothing	10.49	11.34
Housing	6.19	4.87
Utilities	28.31	23.78
Sanitation	0.72	0.19
Gas	9.53	9.90
Education	21.10	21.61
Health	6.67	8.16
Books	3.09	2.14
Other	13.89	18.03

Table 12.12: Proportionate Household expenditure on Non-Food Items (% of total)

Item	Low Income	Medium Income	High Income
Clothing	11.46	10.56	11.06
Housing	8.21	4.75	5.29
Utilities	29.48	24.13	27.50
Sanitation	0.79	0.39	0.41
Gas	8.62	10.14	9.65
Education	17.46	22.41	21.96
Health	9.88	7.35	5.88
Books	2.06	2.84	2.67
Other	12.04	17.41	15.59

Table 12.13: Proportionate Household expenditure on Non-Livestock Food Items (% of total)

	Average	Ha Noi	Ho Chi Minh City
Rice	38.57	42.79	35.62
Bread, biscuits, cakes	4.39	4.95	4.01
Vegetables	12.02	11.26	12.57
Fruits	12.89	14.17	12.03
Oils	4.01	3.51	4.34
Fish	15.41	11.58	18.05
Condiments and Spices	3.70	3.28	3.99
Beverages	6.42	5.78	6.86
Sugar	2.59	2.67	2.53

Table 12.14: Proportionate Household expenditure on Non-Livestock Food Items (% of total)

	Urban	Suburban
Rice	31.67	46.32
Bread, biscuits, cakes	5.18	3.51
Vegetables	12.70	11.28
Fruits	16.32	9.08
Oils	4.61	3.31
Fish	16.91	13.69
Condiments and Spices	3.47	3.97
Beverages	6.53	6.28
Sugar	2.61	2.57

Table 12.15: Proportionate Household expenditure on Non-Livestock Food Items (% of total)

	Low Income	Middle Income	High Income
Rice	41.95	40.09	34.07
Bread, biscuits, cakes	3.29	4.21	5.37
Vegetables	14.86	12.02	10.33
Fruits	8.72	13.09	15.16
Oils	3.25	4.21	4.11
Fish	17.09	14.20	16.29
Condiments and Spices	3.57	3.80	3.63
Beverages	3.83	5.91	8.80
Sugar	3.45	2.48	2.24

Table 12.16: Proportionate Household expenditure on Livestock Food Items (% of total)

Product	Average	Ha Noi	Ho Chi Minh City
Fresh Pork	41.26	41.11	41.31
Processed Pork	3.22	3.14	3.28
Pork Products Consumed Outside the Home	3.00	2.81	3.12
Fresh Chicken	16.29	20.62	13.26
Processed Chicken	0.33	0.45	0.24
Chicken Consumed Outside the Home	1.06	1.30	0.89
Fresh Eggs	8.26	8.70	7.97
Processed Eggs	1.08	1.15	1.02
Eggs Consumed Outside the Home	0.24	0.36	0.16
Fresh Duck	2.08	1.39	2.57
Processed Duck	0.64	0.10	1.01
Duck Consumed Outside the Home	0.03	0.00	0.06
Quail	0.18	0.09	0.25
Fresh Beef	12.03	11.21	12.60
Processed Beef	0.56	0.54	0.58
Beef Consumed Outside the Home	1.38	1.65	1.19
Fresh Milk	1.80	0.72	2.57
Dairy Products	6.56	4.62	7.94

Table 12.17: Proportionate Household expenditure on Livestock Food Items (% of total)

Product	Urban	Suburban
Fresh Pork	35.54	47.59
Processed Pork	3.35	3.08
Pork Products Consumed Outside the Home	3.34	2.61
Fresh Chicken	14.56	18.23
Processed Chicken	0.49	0.15
Chicken Consumed Outside the Home	1.35	0.73
Fresh Eggs	8.26	8.28
Processed Eggs	1.49	0.62
Eggs Consumed Outside the Home	0.25	0.23
Fresh Duck	2.31	1.83
Processed Duck	0.60	0.68
Duck Consumed Outside the Home	0.04	0.02
Quail	0.28	0.07
Fresh Beef	14.53	9.24
Processed Beef	0.92	0.17
Beef Consumed Outside the Home	1.99	0.69
Fresh Milk	3.06	0.40
Dairy Products	7.63	5.38

Table 12.18: Proportionate Household expenditure on Livestock Food Items (% of total)

Product	Low Income	Medium Income	High Income
Fresh Pork	45.78	42.16	36.97
Processed Pork	1.38	2.96	4.77
Pork Products Consumed Outside the Home	2.27	3.14	3.20
Fresh Chicken	15.80	17.19	15.14
Processed Chicken	0.05	0.24	0.65
Chicken Consumed Outside the Home	1.01	1.09	1.04
Fresh Eggs	10.73	8.47	6.47
Processed Eggs	1.14	0.93	1.28
Eggs Consumed Outside the Home	0.08	0.31	0.23
Fresh Duck	2.14	2.06	2.09
Processed Duck	0.16	0.51	1.15
Duck Consumed Outside the Home	0.09	0.01	0.03
Quail	0.02	0.13	0.36
Fresh Beef	10.00	11.20	14.61
Processed Beef	0.35	0.48	0.84
Beef Consumed Outside the Home	1.24	1.37	1.47
Fresh Milk	1.63	1.20	2.89
Dairy Products	6.12	6.58	6.83

Table 12.19: Weekly meal consumption outside the home by household head (number of meals)

	Average	Ha Noi	Ho Chi Minh City
Breakfast	3.07	2.25	3.65
Lunch	1.03	0.99	1.05
Dinner	0.15	0.07	0.21

Table 12.20: Weekly meal consumption outside the home by household head (number of meals)

	Urban	Suburban
Breakfast	3.84	2.21
Lunch	1.46	0.54
Dinner	0.21	0.07

Table 12.21: Weekly meal consumption outside the home by household head (number of meals)

	Low Income	Medium Income	High Income
Breakfast	2.25	2.98	3.73
Lunch	0.77	0.94	1.34
Dinner	0.26	0.13	0.11

Table 12.22: Average outside home meal cost (D'000)

	Average	Ha Noi	Ho Chi Minh City
Breakfast	3.46	2.43	3.87
Lunch	5.59	4.22	6.48
Dinner	7.65	6.00	8.00

Table 12.23: Average outside home meal cost (D'000)

	Urban	Suburban
Breakfast	3.61	3.19
Lunch	5.79	5.02
Dinner	8.58	5.40

Table 12.24: Average outside home meal cost (D'000)

	Low Income	Medium Income	High Income
Breakfast	2.60	3.10	4.25
Lunch	4.12	5.02	6.65
Dinner	3.75	5.33	11.86

Table 12.25: Monthly household consumption of non-livestock food products

Commodity	Household Monthly Consumption (kg)		
	Average	Ha Noi	Ho Chi Minh City
Rice	59.81	48.89	67.49
Bread, biscuits, cakes	3.89	3.38	4.22
Vegetables	29.95	30.22	29.76
Fruits	11.74	7.90	14.58
Oils	1.74	1.52	1.82
Fish	6.96	4.34	8.78
Condiments and Spices	1.17	1.02	1.41
Beverages	6.23	4.73	10.07
Spices	1.93	1.41	2.30
Total	123.42	103.41	140.43

Table 12.26: Monthly household consumption of non-livestock food products

Commodity	Household Monthly Consumption (kg)	
	Urban	Suburban
Rice	38.23	84.11
Bread, biscuits, cakes	4.21	3.52
Vegetables	28.30	31.79
Fruits	12.97	10.42
Oils	1.73	1.75
Fish	6.65	7.30
Condiments and Spices	1.00	1.35
Beverages	6.58	6.08
Spices	1.84	2.03
Total	101.51	148.35

Table 12.27: Monthly household consumption of non-livestock food products

Commodity	Household Monthly Consumption (kg)		
	Low Income	Medium Income	High Income
Rice	43.53	60.74	68.29
Bread, biscuits, cakes	3.45	4.95	2.68
Vegetables	34.99	27.70	30.52
Fruits	7.16	11.15	15.25
Oils	1.32	1.67	2.03
Fish	6.88	6.40	7.89
Condiments and Spices	0.84	1.20	1.31
Beverages	4.31	5.90	7.90
Spices	1.69	1.83	2.24
Total	104.17	121.54	138.11

Table 12.28: Monthly household consumption of livestock food products (kg)

Product	Average	Ha Noi	Ho Chi Minh City
Fresh Pork	2.86	2.54	3.16
Processed Pork	0.87	0.85	0.89
Pork Products Consumed Outside the Home	1.17	0.90	1.27
Fresh Chicken	3.41	3.71	3.19
Processed Chicken	1.59	1.28	1.99
Chicken Consumed Outside the Home	0.76	0.70	0.80
Fresh Eggs	2.69	1.41	3.52
Processed Eggs	1.20	0.79	1.40
Eggs Consumed Outside the Home	2.78	4.38	1.58
Fresh Duck	1.82	1.80	1.83
Processed Duck	1.61	1.07	1.66
Duck Consumed Outside the Home	0.42	0.00	0.43
Quail	1.55	2.13	1.36
Fresh Beef	2.07	2.00	2.12
Processed Beef	1.33	1.26	1.43
Beef Consumed Outside the Home	0.65	0.96	0.59
Fresh Milk	11.35	4.90	13.61
Dairy Products	1.13	0.80	1.31
	39.26	31.48	42.14

Table 12.29: Monthly household consumption of livestock food products (kg)

Product	Urban (kg/month)	Suburban (kg/month)
Fresh Pork	2.83	2.89
Processed Pork	0.94	0.77
Pork Products Consumed Outside the Home	1.14	1.23
Fresh Chicken	3.24	3.62
Processed Chicken	1.39	2.28
Chicken Consumed Outside the Home	0.74	0.80
Fresh Eggs	2.60	2.82
Processed Eggs	1.29	1.00
Eggs Consumed Outside the Home	1.09	4.47
Fresh Duck	1.88	1.73
Processed Duck	1.47	1.76
Duck Consumed Outside the Home	0.36	0.60
Quail	1.52	1.67
Fresh Beef	2.44	1.58
Processed Beef	1.26	2.00
Beef Consumed Outside the Home	0.77	0.52
Fresh Milk	13.05	5.66
Dairy Products	0.99	1.39
	39	36.79

Table 12.30: Monthly household consumption of livestock food products (kg)

Product	Low income	Medium income	High income
Fresh Pork	1.99	2.89	3.31
Processed Pork	0.69	0.83	0.93
Pork Products Consumed Outside the Home	0.95	1.03	1.38
Fresh Chicken	2.15	3.46	4.04
Processed Chicken	0.80	1.51	1.70
Chicken Consumed Outside the Home	0.76	0.76	0.77
Fresh Eggs	2.02	2.48	3.38
Processed Eggs	0.80	0.93	1.58
Eggs Consumed Outside the Home	1.00	4.79	0.74
Fresh Duck	1.40	1.89	1.89
Processed Duck	0.75	1.49	1.75
Duck Consumed Outside the Home	0.50	0.60	0.30
Quail	0.30	1.61	1.66
Fresh Beef	1.33	1.80	2.71
Processed Beef	0.88	1.26	1.65
Beef Consumed Outside the Home	0.38	0.53	0.85
Fresh Milk	11.91	8.73	13.44
Dairy Products	1.31	1.18	0.99
	29.92	37.77	43.07

Table 12.31: Annual Average Per Capita Consumption of Meat Products (Kg/Year)

Product	Average	Ha Noi	Ho Chi Minh City	Low Income	Middle Income	High Income
Fresh Pork	7.58	7.33	7.81	5.67	7.79	8.32
Processed Pork	2.35	2.50	2.22	2.17	2.32	2.42
Fresh Chicken	9.16	10.80	7.90	6.38	9.38	10.38
Processed Chicken	4.33	3.79	5.04	4.80	3.58	4.82
Fresh Duck	4.74	5.38	4.46	4.31	4.72	4.93
Processed Duck	3.95	3.08	4.04	2.25	3.74	4.21
Fresh Beef	5.65	6.04	5.41	4.41	5.05	6.91
Processed Beef	3.46	3.72	3.08	2.94	3.40	3.79

Table 12.32: Average Price of Livestock Food Products (D'000/kg)

	Average	Ha Noi	Ho Chi Minh City
Lean Pork	28.91	25.10	31.42
Fat Pork	10.25	10.38	9.70
Mixed Pork	20.65	17.51	23.73
Pork Bones	17.59	15.16	19.24
Pork Spam	41.77	31.29	51.47
Whole Fresh Chicken	21.58	18.95	23.48
Roasted Chicken	35.67	38.89	30.83
Broiled Chicken	29.60	39.00	23.33
Chicken Eggs	19.99	19.91	20.03
Duck Eggs	19.27	20.39	18.62
Salted Eggs	23.48	40.00	22.51
Half-hatchery Eggs	34.30	39.48	30.48
Whole Fresh Duck	21.35	13.73	24.64
Roasted Duck	28.72	34.50	28.13
Broiled Duck	16.67	na	16.67
Quail	23.89	23.25	24.11
Fresh Beef	35.64	29.44	39.49
Fresh Buffalo Meat	31.62	21.86	40.30
Beef Spam	36.16	27.90	58.57
Dried Beef	75.50	na	75.50
Milk	14.93	23.28	12.00

Table 12.33: Average Price of Livestock Food Products (D'000/kg)

	Urban	Suburban
Lean Pork	29.91	27.62
Fat Pork	10.68	9.97
Mixed Pork	21.24	20.02
Bones	18.58	16.49
Spam	42.20	41.07
Whole Fresh Chicken	22.32	20.82
Roasted Chicken	36.54	30.00
Broiled Chicken	32.67	25.00
Chicken Eggs	19.94	20.04
Duck Eggs	19.28	19.24
Salted Eggs	24.60	21.92
Half-hatchery Eggs	34.70	33.17
Whole Fresh Duck	18.07	26.33
Roasted Duck	29.19	28.23
Broiled Duck	20.00	10.00
Quail	24.37	21.83
Fresh Beef	37.79	32.64
Fresh Buffalo Meat	30.80	31.96
Beef Spam	34.41	80.00
Dried Beef	85.00	56.50
Milk	17.45	6.53

Table 12.34: Average Price of Livestock Food Products (D'000/kg)

	Low Income	Medium Income	High Income
Lean Pork	28.71	28.29	29.95
Fat Pork	10.08	10.34	10.21
Mixed Pork	20.55	20.42	21.15
Bones	17.49	17.20	18.26
Spam	38.86	41.17	42.78
Whole Fresh Chicken	19.81	22.01	21.82
Roasted Chicken	na	36.43	35.00
Broiled Chicken	na	20.00	32.00
Chicken Eggs	18.90	20.02	20.40
Duck Eggs	19.18	19.82	18.45
Salted Eggs	19.13	24.08	24.53
Half-hatchery Eggs	34.64	33.93	34.62
Whole Fresh Duck	16.42	25.25	18.23
Roasted Duck	25.00	29.98	28.21
Broiled Duck	na	22.00	14.00
Quail	20.00	18.98	30.07
Fresh Beef	32.43	34.62	38.31
Fresh Buffalo Meat	na	31.36	31.76
Beef Spam	26.67	32.58	45.56
Dried Beef	50.00	83.33	76.50
Milk	12.95	11.69	18.06

Table 12.35: Average Current Household Asset Value(D'000)

	National	Ha Noi	Ho Chi Minh City
Average	330933	250604	387328
Urban	370559	424323	336094
Suburban	286823	75130	449285
Low Income	62679	73204	55789
Medium Income	205660	127925	271027
High Income	697197	635290	730046

Table 12.36: Meat Shopping Locations (% of households)

	National	Ha Noi	Ho Chi Minh City
Store in Neighborhood	0.62	0.00	1.06
Local Supermarket	0.62	0.50	0.70
Main Local market	95.04	96.98	93.66
Other	3.72	2.51	4.58
Total	100.00	100.00	100.00

Table 12.37: Meat Shopping Locations (% of households)

	Urban	Suburban
Store in Neighborhood	0.39	0.88
Local Supermarket	0.78	0.44
Main Local market	95.29	94.74
Other	3.53	3.95
Total	100.00	100.00

Table 12.38: Meat Shopping Locations (% of households)

	Low Income	Medium Income	High Income
Store in Neighborhood	1.10	0.41	0.67
Local Supermarket	0.00	0.41	1.33
Main Local market	95.60	95.45	94.00
Other	3.30	3.72	4.00
Total	100.00	100.00	100.00

Table 12.39: Average Distance Traveled to Purchase Meat Products

	National	Ha Noi	Ho Chi Minh City
Average	762.86	586.81	883.52
Urban	348.38	322.32	364.68
Suburban	1219.93	845.96	1506.93
Low Income	401.43	451.57	369.53
Medium Income	780.73	606.19	925.95
High Income	949.55	637.21	1115.28

Table 12.40: Average time taken to make meat product purchases (hours)

	National	Ha Noi	Ho Chi Minh City
Average	2.28	2.71	1.98
Urban	2.15	2.85	1.72
Suburban	2.41	2.57	2.29
Low Income	1.94	2.52	1.57
Medium Income	2.27	2.58	2.01
High Income	2.49	3.11	2.17

Table 12.41: Parameter Estimates from LA-AIDS Model

		Pork	Chicken	Beef	Expenditure
Overall	Pork	0.099	-0.338	-0.104	0.017
	Chicken	-0.07	0.012	-0.044	0.009
	Beef	0.029	-0.326	-0.148	0.026
Low Income	Pork	0.096	-0.098	0.19	0.043
	Chicken	-0.052	0.146	-0.216	-0.004
	Beef	0.044	0.048	-0.026	0.039
Medium Income	Pork	0.123	-0.011	-0.09	0.042
	Chicken	-0.056	-0.007	-0.064	0.02
	Beef	0.067	-0.018	-0.154	0.062
High Income	Pork	0.069	-0.087	-0.094	0.019
	Chicken	-0.143	0.055	0.052	-0.004
	Beef	-0.074	-0.032	-0.042	0.015

Table 12.42: Expenditure and Own-Price Elasticities

		Expenditure elasticity	Own-price elasticity
Overall			
	Pork	0.971	-0.850
	Chicken	0.961	-0.957
	Beef	0.852	-1.867
Low Income			
	Pork	0.933	-0.893
	Chicken	1.018	-0.335
	Beef	0.723	-1.223
Medium Income			
	Pork	0.930	-0.837
	Chicken	0.917	-1.049
	Beef	0.613	-2.025
High Income			
	Pork	0.966	-0.894
	Chicken	1.018	-0.750
	Beef	0.933	-1.203

Table 12.43: Cross Price Elasticities

		Pork cross price elasticity	Chicken cross price elasticity	Beef cross price elasticity
Overall	Pork	na	-0.578	-0.181
	Chicken	-0.325	na	-0.196
	Beef	0.077	0.131	na
Low Income	Pork	na	-0.169	0.288
	Chicken	-0.224	na	-0.975
	Beef	0.136	0.251	na
Medium Income	Pork	na	-0.035	-0.161
	Chicken	-0.282	na	-0.279
	Beef	0.187	0.325	na
High Income	Pork	na	-0.165	-0.178
	Chicken	-0.629	na	0.236
	Beef	-0.369	-0.347	na

Table 13.1 Growth rate of pork meat trade volumes and values 1961-99.

	Average Growth Rate in Volume (%)	Average Growth Rate in Value (%)
1961-99	6.9	10.8
1961-70	13	17.4
1971-80	6.4	17.9
1981-90	7.2	10.5
1991-99	-2.5	-10.9

Source: FAO Agrostat

Table 13.2 Exports of swine meat from Viet Nam

	Quantity (metric tons)	Value (thousand US\$)
Average	11,690	20.7
Minimum	4,600	8
Maximum	25,000	45
Standard Deviatio	6,900	12

Table 13.3 Matrix of Policy Options

	Regulatory Framework	Competitive Market Environment	Supporting Science and Technology	Participatory Mechanisms	Transitional Support
Breeding	<ul style="list-style-type: none"> ○ Establish a Department of Animal Production at MARD for general coordination of animal production activities. ○ Review roles, activities, and performance of breeding centers in Viet Nam, including state, private, and foreign. ○ Establish a certification process for breeds produced by various state and private centers. ○ Establish import protocols for breeding stock on a country-by-country basis rather than being negotiated for each importation. 	<ul style="list-style-type: none"> ○ Provide commercial credit to qualified state and private centers willing to undertake breeding activities. ○ Transparency of process of importation of breeding stock with equal access of various organizations. 	<ul style="list-style-type: none"> ○ Investment in research to test new crossbreeds appropriate to the needs of small-scale producers in different agroecological environments. ○ Investment in extension activities to support dissemination of new breeds. 	<ul style="list-style-type: none"> ○ Establish a National Breed Improvement Board with representatives of farmers, feed industry, breeding centers, research and extension organizations. 	<ul style="list-style-type: none"> ○ Reorganize Breeding System as a Breeding Pyramid with breeding centers fully devoted to breeding activities. ○ Ensure coverage of national territory with effective and adequately resources AI centers with time-bound phasing-out of initial support.
Marketing	<ul style="list-style-type: none"> ○ Establish a livestock and animal products market information system to be publicly available at commune level. ○ Establish system of meat grading and standards. 	<ul style="list-style-type: none"> ○ Promote the establishment of provincial and district livestock market places. 		<ul style="list-style-type: none"> ○ Provide information about contracts arrangement with large companies. ○ Raise awareness of impact of animal protein on nutrition and health. 	<ul style="list-style-type: none"> ○ Expand commercial credit to private and public marketers and processors of animal products.
Animal Health and Veterinary Services	<ul style="list-style-type: none"> ○ Strengthen reporting system from commune to higher levels. ○ Zoning regulations for slaughterhouses and meat processing facilities. ○ Establish strict health inspection system at slaughterhouses. 	<ul style="list-style-type: none"> ○ Promote formation of private veterinarian profession regulated by professional association under control of DAH. 	<ul style="list-style-type: none"> ○ Improve staff capacity and facilities of diagnostic centers. 		
Feed and Animal Nutrition	<ul style="list-style-type: none"> ○ In partnership with the private feed industry, establish a 'truth in labeling' program for animal feed and monitor 	<ul style="list-style-type: none"> ○ Eliminate tariff rates on raw materials and ingredients used in the production of high quality commercial feed. 	<ul style="list-style-type: none"> ○ Support research programs to develop high yielding varieties for maize and high protein raw materials 	<ul style="list-style-type: none"> ○ Establish District and Provincial Agricultural Advisory Councils involving producers and private sector 	

	compliance with an effective testing and inspection system.	○ Further liberalize hybrid seed distribution in order to increase farmer access to high quality hybrid maize seeds.	○ used in feed production. ○ Provide support to research and extension of improved animal nutrition management methods appropriate to the needs and conditions of small scale producers.	representatives to assist in the formulation of extension plans and programs.	
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Table 13.4 Aggregate effects of alternative policy options

	Increase in Total Real Income (US\$ million)	Percentage Increase in Real Income (%)	Percentage Increase in CPI (%)	Percentage Increase in Livestock Income (%)
Breeding	522	2.4	-1.4	98.9
Marketing	283	1.3	-0.7	13.9
Feed Crops	130	0.6	-0.2	-0.1

Source: Based on Model built by the Authors.

Table 13.5 Regional effect on real income of alternative policy options

	Average Increase in Real Income (%)	Real Income Increase in RRD (%)	Real Income Increase in NE (%)	Real Income Increase in NW (%)	Real Income Increase in NCC (%)	Real Income Increase in SCC (%)	Real Income Increase in CH (%)	Real Income Increase in NES (%)	Real Income Increase in MRD (%)
Breeding	2.4	3.8	4.5	1.3	3.0	2.5	2.3	-0.3	3.0
Marketing	1.3	1.1	1.6	1.8	0.9	1.0	1.6	1.0	1.4
Feed Crops	0.6	0.3	0.7	0.6	1.2	0.6	1.0	0.5	0.1

Fig. 13.1 Changing State Priorities Over Time

