

QUANG NGAI RURAL DEVELOPMENT PROGRAM (QNRDP) - PHASE 1

First Report of the Marketing Specialist



VIET NAM-AUSTRALIA

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December 2002

VIE1506

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Abbreviations

ACIAR	Australian Centre for International Agricultural Research
ADP	Agricultural Diversification Project funded by World Bank
GDP	Gross Domestic Product
HCMC	Ho Chi Minh City
LWT	Live Weight
PMU	Program Management Unit
QNRDP	Quang Ngai Rural Development Program
VND	Vietnamese Dong

Exchange Rate

(December 2002)

VND 15,300 = US\$1.00

VND 8,550 = A\$1.00

Summary

Background

This report presents the findings of the first mission of the Marketing Specialist and concentrates on analysis of the cattle and beef market as it relates to farmers in Quang Ngai province. Some comments are also made on markets for pig and poultry products.

Livestock numbers (other than buffaloes) and meat consumption in Viet Nam are increasing rapidly. However, demand for meat is heavily concentrated in the two main cities and river delta areas. The great majority of meat consumed is pork, followed by chicken and bovine (cattle and buffalo) meats. Rapid growth in pork consumption has been driven by declining real prices as well as increasing incomes. Beef prices have been firm.

Quang Ngai province contains about 400,000 pigs, 1.8 million chickens, 224,000 cattle and 43,000 buffaloes. The province produces a surplus of pork and is an important source of cattle for beef production. Cattle and poultry numbers are growing quite quickly, and both pig and buffalo numbers are growing moderately.

Due to a combination of low incomes and low population, Quang Ngai province accounts for less than 1% of national consumer demand. Quang Ngai Rural Development Program (QNRDP) clearly needs to target markets outside the province in its efforts to help the rural poor to increase their incomes.

Cattle and beef marketing systems

The marketing system for cattle and beef is typical of a country in Viet Nam's current stage of development. It is entirely informal, with un-documented cash transactions, numerous intermediaries, little product differentiation, no effective regulation, low animal welfare and hygiene standards, no quality assurance systems, limited market information, and imbalances in bargaining power between buyers and sellers. Transmission of consumer preferences down the marketing chain is hindered by the multiple transactions and lack of any grading or product description protocols.

However, the system works remarkably well and provides a ready market for finished cattle anywhere in the country, at prices which broadly reflect the transaction costs down the long marketing pipeline from rural areas to big cities where most of the meat is consumed. The system presents no overriding constraints to profitable cattle finishing in Quang Ngai, although there are a number of initiatives which could be taken to ensure that QNRDP beneficiaries obtain the best possible financial returns.

Based on the experiences of other rapidly growing Asian countries, Viet Nam's cattle and beef marketing system is likely to evolve at a moderate pace during the next decade. This process should be monitored so that adjustments can be made to the changing demands of the market. In the immediate future QNRDP should watch for the emergence of a high quality beef sector within the existing informal marketing system. This is likely to offer premium prices for younger well finished animals within a specified range of live weight, muscularity and fatness. QNRDP beneficiaries who are experienced in cattle finishing will be in a strong position to benefit from this trend.

Product and price analysis

Cattle are generally traded on the basis of estimated yield of lean meat which translates to a per head price. Lean meat yields range from 30% of liveweight (LW) for cows in poor condition, up to 40% for the most heavily muscled bulls. This percentage is visually estimated by traders and butchers and used as the basis of pricing. Currently the “rule of thumb” in Quang Ngai for estimating the meat value of animals is VND 40,000 x kg of estimated lean meat. There are also premiums and discounts for the size of the animal (larger ones preferred), location (prices are lower in highland areas especially where roads are poor), the relative bargaining powers of the buyer and seller, and breeding value.

Beef quality perceptions are similar across all market sectors, and there is little differentiation in retail prices between different cuts of meat. This makes valuation relatively simple since it is primarily related to lean meat yield. A number of studies have failed to identify any relationship between meat prices and the age, sex, or condition of the animal. It is only the quantity of meat that matters.

QNRDP conducted a pilot cattle fattening program during the last quarter of 2002. “Fattening” is actually an inappropriate term since the purpose of intensively feeding livestock is to produce more muscle, not fat. In Viet Nam farmers are penalised twice for producing fat: first because it takes twice as much feed to produce fat as it takes to produce muscle, and second because the market discounts animals perceived to have a high percentage of fat in the carcass. In future this activity will be known as “finishing” rather than fattening.

Distinguishing between muscularity and fatness in a live animal is not easy since heavily muscled and fat animals both have a rounded or convex profile. However, it is important to be able to tell the difference between the two for several reasons: (a) to help identify suitable animals to purchase for the purpose of finishing; (b) to identify when animals begin to deposit fat – this is a sign that the optimum feeding period is coming to an end; and (c) to help estimate the sale value of finished animals. This report recommends a three level system for muscle scoring live cattle as an aid to selecting, valuing and marketing cattle, and explains how to distinguish between muscularity and fatness. The muscle scoring system has been used to develop a “price grid” for the purposes of valuing cattle of different weights and muscularity. This has proven to be a useful means of valuing animals during the marketing of cattle under the pilot cattle finishing program.

Twelve cattle involved in the pilot finishing programme were weighed and girth measured in order to estimate a formula for live weight prediction in the type of cattle found in Quang Ngai. This formula provides reasonable estimates of live weights for cattle over a wide range of weights and body conditions and is much more accurate than what can be calculated through the observations of an inexperienced person.

Frame is an important consideration in the selection of animals for finishing. Animals with a large skeletal volume (known as frame) are able to produce larger amounts of meat than those with small skeletons. Large framed cattle also maintain faster growth rates and continue to produce muscle at higher body weights, whereas smaller framed animals produce slower growth and more fat as they become heavier.

Financial risks and returns from cattle finishing

Purchasing cattle and feed is a big shift away from the normal methods of cattle raising and involves significant financial risk, particularly in relation to the buying and selling activities. Whilst the pilot finishing program has shown that if feeding recommendations are followed all types of healthy cattle will gain weight and value, generating a profit of about VND 500,000 per head. Risk assessment indicates that all but a few farmers are expected to make money from the exercise, but about a quarter will make less than VND 300,000 per animal and a quarter will make more than VND 750,000. This is a much higher degree of financial risk than is normally associated with cattle raising and farmers need to be made aware of the range of possible outcomes and the reasons behind them. Buying and selling prices have a far greater impact on the outcome than the cost of feed or the actual weight gain.

General conclusions and recommendations

The market for cattle and beef in Viet Nam is strong and will continue to develop as the national economy grows. Real prices are expected to be firm or increase due to the strong preference for what is regarded as a luxury food item, and the limited rate at which supply can be expanded from the existing bovine herds. Beef will retain a small but lucrative niche in the national meat market, and farmers in Quang Ngai province are in a good position to profit from this through carefully formulated marketing strategies which are focussed on the evolving needs of the market.

Pork is the dominant meat with 75% market share. The pork industry will continue to meet expanding consumer demand but will come under increasing competitive pressure from an emerging industrial chicken industry. In all countries (there are no known exceptions) where a modern vertically integrated chicken industry has been established it has been successful in winning a large share of the meat market on the basis of price and the versatility/popularity of the product.

Breeding, growing and finishing pigs is a traditional activity which could also be used in a modified form to generate income for Program beneficiaries. The main requirement for commercial success will be production of a heavier but leaner pig which will attract a price premium. A pilot pig finishing program should also be undertaken to develop a replicable production and marketing strategy.

QNRDP beneficiaries have little chance in competing with the industrialised poultry industry which will soon be delivering cheap and hygienic poultry products throughout the country. However the local live bird will remain in demand for some time to come, especially in the less developed provinces such as Quang Ngai. There may be profitable opportunities for QNRDP beneficiaries to supply this market, although no firm recommendation can be made until a pilot program has been carried out.

QNRDP's role in marketing support can include a wide range of activities such as:

- helping activity groups to investigate the market potential for items they may be interested in producing including product specifications, prices, seasonality, market channels, transport requirements, grading and packaging, quantities required etc;
- assisting groups to negotiate marketing arrangements with customers including dealers, traders, agents or end users;
- assisting groups to procure the inputs needed for efficient production;
- developing systems for product description, grading, quality assurance and valuation (such as the one recommended for cattle marketing in this report);
- gathering and disseminating market information so that the bargaining position of beneficiaries will be more evenly balanced with the dealers;
- providing training for farmers in marketing skills;
- analysing the reasons behind the success or failure of income generating activities and how marketing can be improved; and
- warning groups against the pursuit of activities where marketing is likely to be very difficult or where the necessary marketing infrastructure is not present.

Conclusions on cattle marketing

The market for cattle and beef in Quang Ngai presents no fundamental barriers to profitable beef production by QNRDP beneficiaries. However cattle finishing is first and foremost a trading activity. Purchase of the animal is the most important single decision in the whole exercise. The aim is to increase the value of the animal by increasing its weight and increasing its muscle score. The trials have shown that with good animal selection, and the use of urea in the ration, bulls and cows can gain weight at the rate of 0.6-0.7 kg/day or 35-40 kg over a two month feeding period. However profitability is only assured if three other conditions are met: (a) the animal is purchased at the right price and with a low muscle score; (b) it increases in muscularity during the feeding period, not fatness; and (c) the sale price represents fair value relative to the current price of meat.

Both cows and bulls can be finished profitably. However it will be difficult to procure regular supplies of bulls in suitable condition for entering the finishing program. Cows which are lactating or have recently weaned a calf are often seen in poor condition and will gain weight and muscle rapidly under intensive feeding. Such animals are much more abundant than bulls in poor condition.

Where possible animals should be purchased with muscle score 1 or 2 and a low level of fatness. Where this is not the case or where signs fat can be seen around the tail head or the brisket the animal should not be purchased as its weight gain will be disappointing and the sale price will be discounted for over-fatness.

The challenge is to identify suitable animals and purchase them at the right price. Most farmers have little experience in buying cattle, do not have a good understanding of the best type of animals to purchase for finishing, do not know where to go to find them, or how to assess their value. It is recommended that QNRDP help activity groups to make an agreement with a cattle

dealer to purchase the type of animals they require. This will require the farmers to surrender some of the margin to a dealer, but this is well worth doing if it succeeds in sourcing the right type of animals.

It is possible to obtain fair value for finished animals through the existing informal marketing system of dealers and abattoir operators provided (a) the seller has a reasonable understanding of the value of the animal; and (b) the seller is patient and seeks offers from a range of buyers. QNRDP can assist by taking potential buyers to inspect the cattle produced under the Program. Collusion between dealers no doubt exists although it is difficult to prove. Its effects can be minimised by following the recommendations given here – understanding livestock valuation, seeking alternative offers, patience in negotiation, and direct dealing as a group with abattoir operators from outside the immediate vicinity.

Market information

Markets only operate efficiently and fairly if the parties have equal access to accurate information about value. Traditionally farmers are disadvantaged in this regard, especially when there is an urgent need to sell livestock to raise cash for family emergencies. To improve the availability of cattle market information it is recommended to introduce the concept of “indicator” prices for feeder cows and bulls and finished cows and bulls. To be useful as a guide for buying and selling the indicator prices and the price grid should be updated monthly, or more often if market conditions alter markedly.

Descriptive language for livestock and meat

The only attributes of live cattle which can be objectively measured are age (by dentition), sex and live weight. Of these only live weight is an important determinant of value in Viet Nam. However it is rarely measured directly and is usually estimated by observation. There is a need to develop a standardised vocabulary for describing live animals so that all parties know exactly what is meant. This helps to reduce the considerable ambiguities and uncertainties in describing and valuing livestock.

Next steps

The present marketing study has highlighted the need to undertake a thorough marketing assessment before launching income-generating activities on a pilot basis. This will enable production and marketing systems to be more closely attuned to the needs of the market and give the best possible chances of commercial success.

During the first half of 2003 it is likely that QNRDP will undertake some pig production activities on a pilot basis, using procedures similar to those used for the pilot cattle finishing program. The planning of the pig programme should involve a pig marketing study to address a list of key issues detailed in the report. During 2003 a marketing study should also be undertaken for poultry products using a similar approach.

1 Introduction

QNRDP aims to assist rural households improve their standards of living through support to identify and implement new or improved income-generating enterprises, and by providing finance through newly created activity funds to facilitate the necessary investments. The Program provides the services of a Marketing Specialist to assist with the identification and analysis of marketing opportunities, and provide on-the-job training for Program staff in marketing and commercial analysis of potential income generating activities. This document reports on the first input of the Marketing Specialist between 22 October and 15 December 2002.

The terms of reference for the Marketing Specialist cover a wide range of issues to be addressed over the first five years of QNRDP. The diagnostic surveys undertaken during the design phase of the Program identified livestock production as the first priority for income generation among most communities. Cattle finishing¹ was selected as the spearhead income-generating activity to be undertaken on a pilot basis, and the first pilot finishing trial has been completed. This has confirmed the technical feasibility of cattle finishing, but has also revealed a number of problem areas in relation to a lack of understanding about how the cattle and beef marketing system works, and the best strategies to adopt for purchase and sale of animals. QNRDP therefore needs to develop a better understanding of the cattle and beef market in order to ensure the success of further cattle finishing activities during the coming years. Although no pig or poultry production trials have yet been undertaken it is likely that marketing will also emerge as an issue with this activity.

Experience with cattle finishing under the World Bank Agricultural Diversification Project (ADP) has demonstrated that both of these activities can be profitable, but success is dependent on farmers making sound buying and selling decisions. This is particularly true of cattle finishing where the purchase price of the animal is usually around 80% of total costs.

In view of the immediate concerns about cattle marketing it was agreed that the Marketing Specialist should initially focus attention on developing an understanding of cattle and beef marketing issues in Quang Ngai in order to improve the ability of farmers to conduct profitable finishing activities in the immediate future. This was also expected to serve as a practical training exercise for Program Management Unit (PMU) staff in how to analyse markets and use the information to guide commercial decision-making.

Subsequent visits of the Marketing Specialist will be used to analyse a broader range of marketing issues and other commodities as these come into the Program.

¹ The word “finishing” is used in this report rather than “fattening” since the aim is to produce an animal with a high content of lean meat with a minimal increase in fat content.

2 Supply and Demand of Livestock Products

2.1 Overview

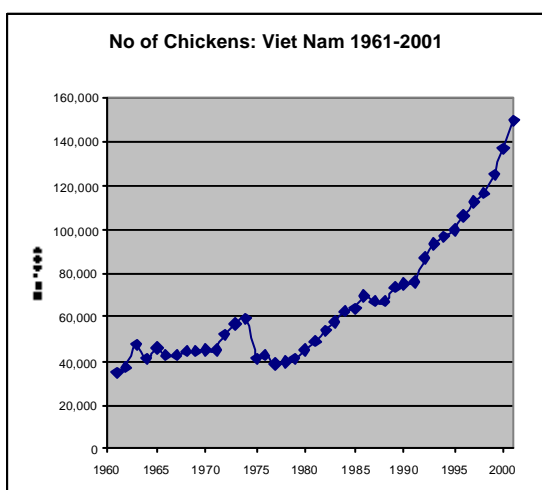
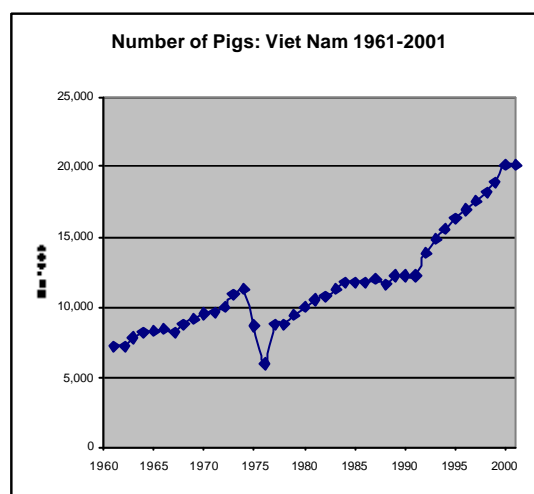
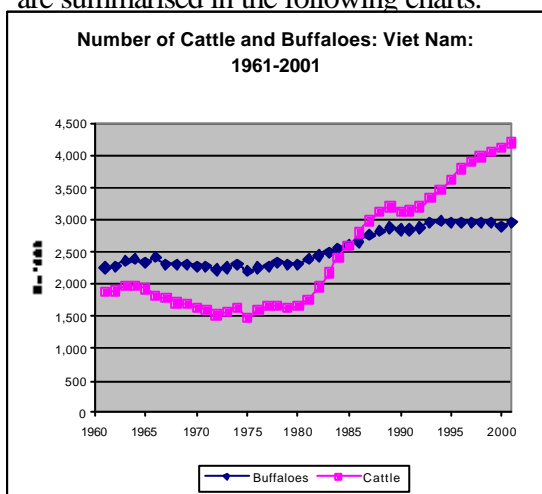
Livestock numbers (with the exception of buffalo) and meat consumption in Viet Nam are increasing rapidly. However demand for meat is heavily concentrated in the two main cities and river delta areas. The majority of meat consumed is pork, followed by chicken and bovine (cattle and buffalo) meats. Rapid growth in pork consumption has been driven by declining real prices as well as increasing incomes. Beef prices have been firm.

Quang Ngai province produces a surplus of pork and is an important source of cattle for beef production. Cattle and poultry numbers are growing quickly, and both pig and buffalo numbers are growing moderately.

Due to a combination of low incomes and low population, Quang Ngai province accounts for less than 1% of national consumer demand. QNRDP clearly needs to target markets outside the province in its efforts to help the rural poor to increase their incomes.

2.2 Livestock Population and Production

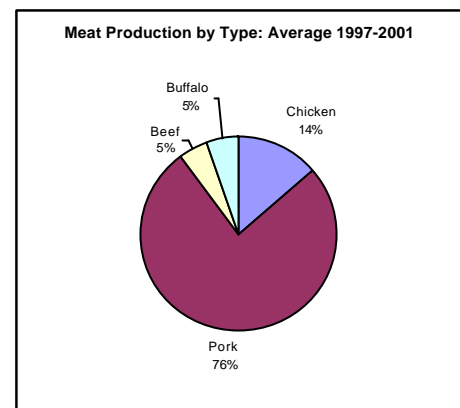
Vietnam currently has about 2.9 million buffalo, 4.2 million cattle, 20 million pigs and 150 million chickens. There is also an apparently large but un-recorded population of ducks and small numbers of sheep, goats, equines etc. The trends in livestock populations over the last 40 years are summarised in the following charts.



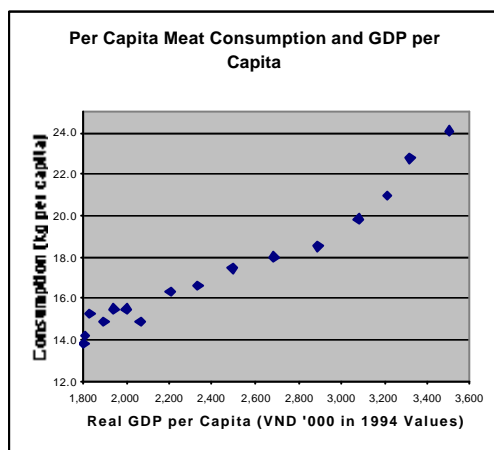
Pig and poultry production is leading growth in Viet Nam's livestock sector. Pig numbers began to grow rapidly in the mid 1990s with increasing investment in the commercial sector, mainly in the South. Poultry numbers have grown almost four-fold since the end of the war and production has increased by even more. In recent years growth in the poultry industry has accelerated with increasing commercial investment. These trends are similar to those observed in other rapidly growing economies of East and South-East Asia.

The cattle population has more than doubled in the last 20 years and is continuing to grow. However the buffalo herd has been stable at around 2.9 million head for the last decade. Declining use of buffalo for draft purposes will probably see the herd decline in coming years, but growth in the population of other species appears to be continuing.

Meat production is dominated by pork. As shown in the pie chart pork makes up 76% of production (carcase weight) followed by chicken with 14%, then beef and buffalo with 5% each. Buffalo meat production is roughly equal to beef production due to lower carcase weights for cattle and retention of cattle to increase the herd size. These production figures also reflect consumption since exports and imports of meat are insignificant relative to local production.



2.3 Demand for Meat

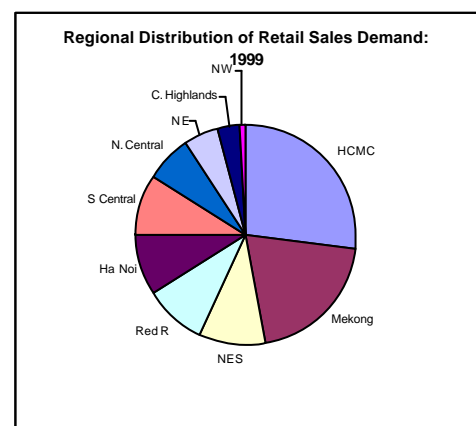


Meat consumption has risen rapidly in line with GDP and population growth. Per capita consumption is now around 24.1 kg carcase weight comprising about 1.2 kg each for beef and buffalo, 3.7 kg for chicken and 18.0 kg for pork. Most of the per capita growth has been in chicken and pork consumption. As shown in the chart, per capita meat demand is closely related to GDP per capita suggesting an income elasticity of demand² of 0.9-1.0. During the last few years the relationship between meat consumption and incomes seems to be even stronger.

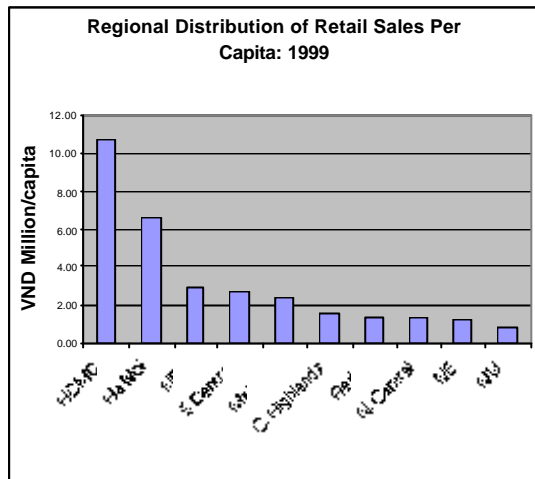
With population growth now running at around 1.3% and GDP per capita growing at around 5%, Viet Nam's meat consumption can be expected to continue to grow at a robust 6-7% per annum in the coming years. Most of this growth will consist of pork and poultry meats which are considerably cheaper than beef and buffalo and because of the shorter breeding cycles, production can increase faster. Beef, and to a lesser extent buffalo meat, are likely to retain a small but relatively lucrative share of the national meat market.

2.4 Regional Supply and Demand Patterns

The regional distribution of consumer demand within Vietnam is very concentrated in the large cities and in the South. The pie chart below shows that some three quarters of retail sales demand in Viet Nam comes from Ho Chi Minh City (HCMC), the Mekong Delta, and the Hanoi/Red River Delta regions. In per capita terms consumer demand in HCMC and Ha Noi stand well above the rest of the country. This pattern of demand almost certainly applies to animal products as well.

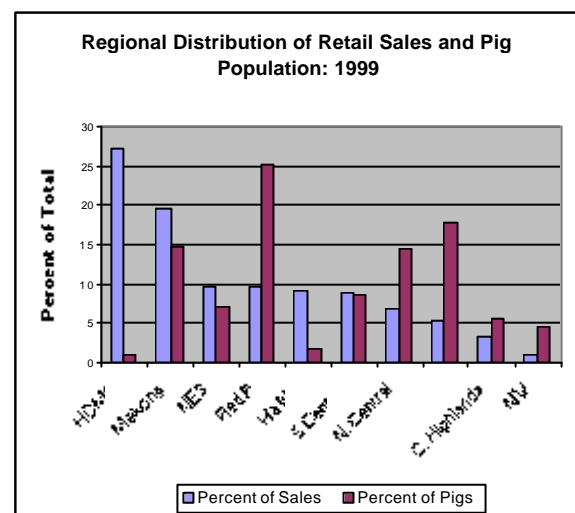
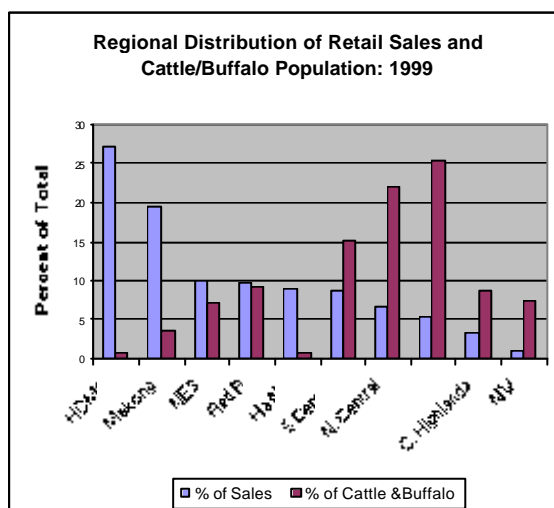


² Income elasticity is the percentage increase in consumption for each 1% increase in incomes.



In the South Central region where Quang Ngai is located, retail demand is about 8.6% of the national total, of which around half comes from Da Nang. Quang Ngai province itself accounts for less than 1% of national consumer demand.

It is useful to compare the regional distribution of meat supply and meat demand. The following charts show the regional distributions of cattle, buffalo and pigs relative to the level of retail demand. No data are available for the regional distribution of chickens, but it is believed to be similar to pigs.



Most of the cattle and buffalo population is concentrated in the regions where consumer demand for meat and other high value food items is lowest due a combination of low incomes and sparse population. Thus there is a clear polarisation between beef/buffalo supply regions and the main centres of meat demand. A similar pattern also exists in the pork industry and probably poultry as well, but to a lesser extent.

2.5 Meat Imports and Exports

International trade plays a very small role in the overall supply/demand pattern for meat in Vietnam. There is some importation of high quality chilled and frozen beef to supply international hotels, restaurants, airlines and expatriate communities in HCMC and Ha Noi, but this market sector has no connection with the mainstream meat market and has little influence on it.

There is some informal and un-registered cross-border movement of animals. Relatively high livestock prices in Viet Nam mean that the country would have difficulty competing as a meat or livestock exporter. Viet Nam's animal health status and hygienic conditions in the meat marketing system also present significant barriers to export.

2.6 Meat and Other Food Prices

There are no officially recorded data on livestock or wholesale meat prices in Viet Nam. However retail prices are collected for a limited range of products for the purposes of calculating the consumer price index. Beef and chicken prices have both increased over the last five years whereas the prices of pork and duck eggs have shown little change in nominal terms and have declined in real terms. In comparison, retail prices for fish and marine products have risen very strongly. Basic foods such as rice and beans have also seen rising prices, but sugar prices have fallen in line with weak international prices.

The declining real price of pork compared with increasing retail prices for other meats and fish explains why pork has been gaining market share in recent years.

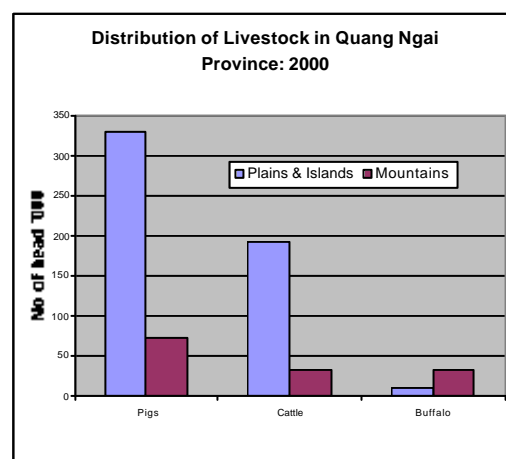
2.7 Meat Production and Consumption in Quang Ngai Province

Livestock numbers in the province are summarised in Table 1. As with the rest of Viet Nam, pigs are the predominant species. However, Quang Ngai has a relatively large cattle population relative to the number of pigs. Nationally there are about five pigs for every head of cattle, whereas in Quang Ngai there are less than two. Relative to the human population, the number of cattle is also about four times the national average. According to official statistics the pig industry is growing modestly and the buffalo population shows little change, whereas chicken and cattle numbers are growing strongly. The number of ducks and geese appears to be declining but the estimates may be unreliable.

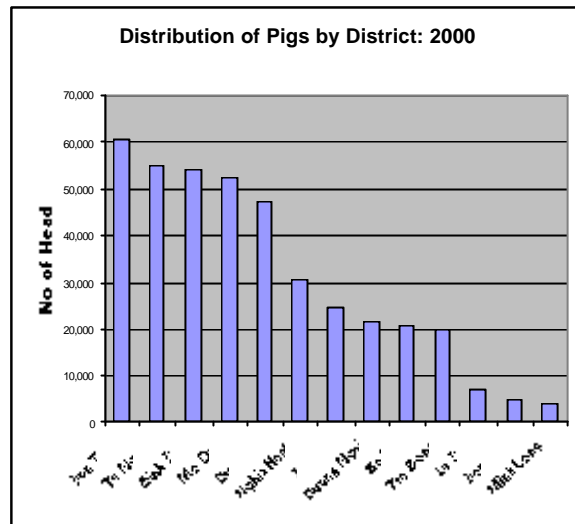
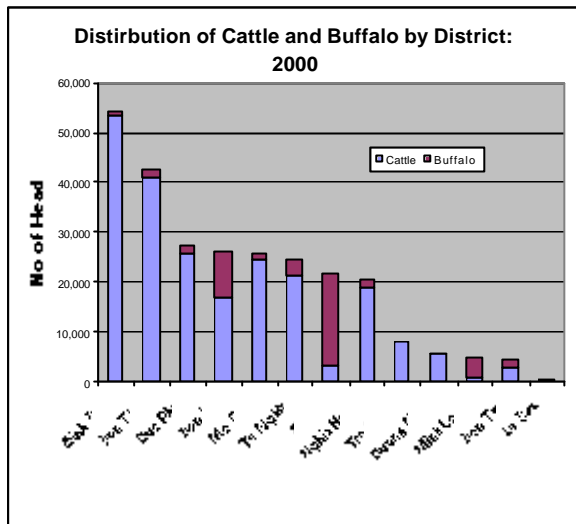
Table 1: Livestock Populations in Quang Ngai Province: 1996-2000

Species	1996	1997	1998	1999	2000	%+/- 96-00
Pigs (> 2 months)	376,579	369,138	354,226	386,527	402,706	6.9
Chickens ('000)	1,545	1,499	1,470	1,789	1,840	19.1
Cattle	199,616	202,222	203,487	217,297	224,155	12.3
Buffaloes	41,679	41,886	41,860	43,183	43,557	4.5
Sheep & Goats	1,897	2,258	2,430	2,736	2,900	52.9
Ducks ('000)	1,019	888	844	702	603	-40.8
Geese ('000)	9.9	8.8	8.0	7.1	7.0	-29.3

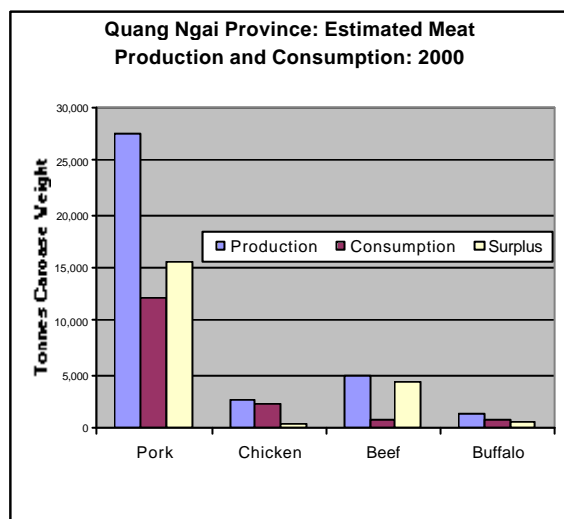
The distribution of livestock within the province shows a clear difference between the coastal plains and the highlands. Pigs and cattle are both concentrated in the lowland areas where market access is good. Poultry populations are not reported by region, but are likely to show a similar pattern to pigs. The small population of buffaloes is mainly located in the highlands.



The two main concentrations of bovine animals are in Binh Son and Son Tinh districts where cattle predominate. Three other districts (Duc Pho, Son Ha and Mo Duc) each have more than 25,000 bovines. The top five districts contain about two thirds of the cattle and buffalo population. Buffaloes only outnumber cattle in Ba To and Minh Long districts. Some two thirds of the pigs are also concentrated in five lowland districts.



Meat production in Quang Ngai is not directly reported but can be inferred from livestock populations, estimated offtake rates and carcase weights. Consumption can also be estimated on the basis of provincial GDP per capita levels (which are around half of the National average) and the close relationship between GDP per capita and meat consumption identified in Section 2.3. The results are shown in the accompanying chart and suggest that pork production is about 27,500 tonnes carcase weight of which some 44% is consumed within the province; whereas only 16% of the 5,000 tonnes of beef is consumed locally. Supply and demand of chicken meat is well balanced and there appears to be a small surplus of buffalo meat.



3 Product Analysis

3.1 Introduction

In order to develop a sound marketing strategy for livestock and livestock products it is necessary to have a clear understanding of the product characteristics, especially those characteristics which have a major influence on value. This is more difficult for cattle than most other livestock commodities because:

- there is a high degree of variation in the size and composition of cattle bodies (compared to say pigs or poultry);
- cattle are a composite product containing many items of value including meat and a wide range of byproducts including hide, edible offals, bones, blood etc;
- there is no objective means of measuring the composition of individual animals before slaughter;
- different markets place very different values on the various components of the carcass (eg meat versus fat) so that value depends on the intended market as well as the intrinsic product characteristics; and
- the breeding worth of cattle can have an influence on price as well as the meat and byproduct value.

3.2 Livestock Characteristics

The predominant cattle breed in Quang Ngai is the native yellow type (bo vang) which is a small-framed *Bos taurus* animal with low to moderate productive potential. Mature body weights are around 200-250 kg for bulls and 180-220 kg for cows, depending on condition. There are also a number of native yellow/Sindhi crossbreeds (laisind) which are larger framed and have better meat production potential and mature body weights of up to 350 kg for bulls and 250-300 kg for cows. These exhibit varying degrees of *Bos indicus* characteristics. Both types are kept for draft and meat production and are rarely milked. They tend to produce rather lean carcasses which is in line with the market preference for lean meat.

The buffalo population consists of the standard Asian swamp buffalo which are used for draft purposes, with sale of surplus animals for meat.

3.3 Live Weights, Meat Yields and Values

Cattle are generally traded on the basis of estimated yield of lean meat which translates to a per head price. Carcass weights are never measured or discussed and per kg liveweights (LWT) are not generally considered by either the buyer or seller.

Data from a range of published sources and discussions with traders and butchers indicates that lean meat yields range from 30% of liveweight for cows in poor condition, up to 40% for the most heavily muscled bulls. This percentage is visually estimated by traders and butchers and used as the basis of pricing. Currently the “rule of thumb” in Quang Ngai for estimating the meat value of animals is VND 40,000 x kg of estimated lean meat. On this basis, liveweight prices for a 250 kg animal are shown in Table 2.

Table 2: Liveweight Prices for a 250kg Animal

% Meat Yield	Kg Lean Meat	VND/head	VND/kg LWT
30%	75.0	3.0 million	12,000
35%	87.5	3.5 million	14,000
40%	100.0	4.0 million	16,000

This “rule of thumb” appears to provide a reasonable explanation of prices, but there are also premiums and discounts for the size of the animal (larger ones preferred), location (prices are lower in highland areas especially where roads are poor), the relative bargaining powers of the buyer and seller, and breeding value. Emaciated cattle sell for less than the VND 12,000/kg indicated in the above table.

The eating quality of meat does not appear to have any influence on prices at present.

3.4 Quality Perceptions

In highly developed cattle/meat markets, prices are dependent on quality perceptions as well as the estimated yield of saleable meat. However, quality perceptions differ markedly between markets as indicated below:

Market	Preferred Product
Australia	Young steers or heifers (<12 months) with light carcasses and tender meat with moderate amount of visible fat.
USA	Lean manufacturing beef suitable for hamburger manufacture – must be less than 10% fat. Any cuts from all types of animals acceptable.
Japan	Very fat beef from heavy but young carcasses and strong preference for the taste and appearance of meat from grain fed animals. Only selected high quality cuts accepted.
Korea	Mature steers with heavy but lean carcasses.
Taiwan	Shin and shank meat (from the lower leg) suitable for soups and stews.
Viet Nam	Lean meat with no visible fat and little differentiation according to the age and size of the animal.

In beef exporting countries the meat from a single animal may be sold in three or four different markets according to where the best prices can be obtained. This makes it very difficult to obtain an overall measure of the quality of an animal or carcass.

In Viet Nam however, quality perceptions are similar across all market sectors, and there is little differentiation in retail prices between different cuts of meat. This makes valuation relatively simple since it is primarily related to lean meat yield. A number of studies have failed to identify any relationship between meat prices and the age, sex, or condition of the animal. It is only the quantity of meat that matters. At retail level only the sirloin cut (longissimus dorsi) attracts a small price premium with most other meat selling for the same price regardless of its origin on the animal.

This is typical of a meat market in the early stages of development. However as the economy grows, consumers will become more discriminating and food tastes will evolve and diversify. Therefore over time quality considerations will become more important in determining the value of live animals. However in the immediate future, the value of cattle for slaughter will be more-or-less proportional to the estimated weight of lean meat in the live animal.

3.5 Composition and Value of Live Cattle

It is useful to have an appreciation of the composition of live animals and the value of their various components. Table 3 below shows these estimates for local cattle types in a range of conditions from a light, poorly muscled animal of 200 kg LWT to a heavily, well muscled animal of 300 kg LWT. The table shows the value of meat in three categories, plus the value of the hide, bones, offals and other components.

Table 3: Body Composition and Value for Cattle of Different Size and Muscularity

	Muscle Score	Size Live Weight (kg)	Small	Medium	Large							
			Low = 1 200.0	Med = 2 250.0	High = 3 300.0							
Body Composition						Value of Body Components						
						Small (200 kg LWT)		Medium (250 kg LWT)		Large (300 kg LWT)		
						Muscle Score = 1		Muscle Score = 2		Muscle Score = 3		
					Value (VND/kg)	Value (VND'000)	% of Value	Value (VND'000)	% of Value	Value (VND'000)	% of Value	
Lean Meat	% LWT	kg	30.0	35.0	40.0							
Bones	% LWT	kg	13.0	12.5	12.0							
Skin	% LWT	kg	8.0	9.0	10.0							
Other	% LWT	kg	49.0	43.5	38.0							
Total	% LWT	kg	100.0	100.0	100.0							
Lean Meat	% of Meat	kg	60.0	87.5	120.0							
Of which:												
Sirloin	13.6%	kg	8.2	11.9	16.3	55,000	449	15.0	655	15.4	898	15.8
Leg Meat	64.8%	kg	38.9	56.7	77.8	40,000	1,555	51.8	2,268	53.4	3,110	54.7
Other Meat	21.6%	kg	13.0	18.9	25.9	30,000	389	13.0	567	13.4	778	13.7
Bones		kg	26.0	31.3	36.0	7,000	182	6.1	219	5.2	252	4.4
Hide		kg	16.0	22.5	30.0	13,500	216	7.2	304	7.2	405	7.1
Offals	% of Other											
Heart	1.04	kg	1.0	1.1	1.2	20,000	20	0.7	23	0.5	24	0.4
Liver	3.77	kg	3.7	4.1	4.3	10,000	37	1.2	41	1.0	43	0.8
Kidney	0.74	kg	0.7	0.8	0.8	15,000	11	0.4	12	0.3	13	0.2
Spleen	1.77	kg	1.7	1.9	2.0	7,000	12	0.4	13	0.3	14	0.2
Lungs	2.87	kg	2.8	3.1	3.3	1,000	3	0.1	3	0.1	3	0.1
Blood	7.62	kg	7.5	8.3	8.7	1,000	7	0.2	8	0.2	9	0.2
Gut and contents	58.33	kg	57.2	63.4	66.5	0	0	0.0	0	0.0	0	0.0
Fat	4.80	kg	4.7	5.2	5.5	5,000	23	0.8	26	0.6	27	0.5
Uterus	2.91	kg	2.9	3.2	3.3	1,000	3	0.1	3	0.1	3	0.1
Total Offals	83.86	kg	82.2	91.2	95.6		117	3.9	130	3.1	136	2.4
Other												
Feet	4.06	kg	4.0	4.4	4.6	1,000	4	0.1	4	0.1	5	0.1
Head	11.11	kg	10.9	12.1	12.7	7,000	76	2.5	85	2.0	89	1.6
Tail	0.98	kg	1.0	1.1	1.1	14,000	13	0.4	15	0.3	16	0.3
Total Other	16.14	kg	15.8	17.6	18.4		94	3.1	104	2.4	109	1.9
Total		kg	200.0	250.0	300.0		3,001	100.0	4,246	100.0	5,688	100.0

Source: Adapted from data provided by M. McLean, World Bank Agricultural Diversification Project

Table 3 shows that 80-84% of the value of an animal is meat, about 7% is the hide, 4-6% is bones, 2-4% is edible offals and 2-3% is other components. The value of live animals is about 85% of the total value of the body components and roughly equal to the value of the meat. The table highlights the importance of muscularity or meat yield in determining live animal value. The small lightly muscled animal realises about VND 15,000/kg of live weight, whereas the heavily

muscled one realises almost VND 19,000/kg. Feeding strategies which can transform animals from low to high muscle scores at the same time as increasing total body weight offer great potential to increase total animal value.

In most beef markets there is an optimum degree of fatness with very lean or very fat animals discounted. However in Viet Nam any fat is regarded as a negative and there is a strong preference for lean, but heavily muscled animals. This presents some challenges in livestock valuation since distinguishing between fatness and muscularity in the live animal requires a degree of expertise (see following Section).

Factors such as age, sex and breed appear to have little effect on the value of slaughter animals. However there is a preference of large animals because transport and slaughter costs tend to be similar for animals of different size.

3.6 Muscularity and Fatness

‘Fattening’ is an inappropriate term as the purpose of intensively feeding livestock is to produce more muscle, not fat. In Viet Nam farmers are penalised twice for producing fat: first because it takes twice as much feed to produce fat as it takes to produce muscle, and second because the market discounts animals perceived to have a high percentage of fat in the carcase.

Distinguishing between muscularity and fatness in the live animal is not easy since heavily muscled and fat animals both have a rounded or convex profile. However, it is important to be able to tell the difference between the two for several reasons:

- to help identify suitable animals to purchase for the purpose of finishing;
- to identify when animals begin to deposit fat – this is a sign that the optimum feeding period is coming to an end; and
- to help estimate the sale value of finished animals.

Muscularity is the thickness and convexity of muscle relative to frame and size after discounting for fatness. It can only be accurately assessed after first estimating fatness. Animals tend to look better muscled when they are also fat, but in fact the reverse is true. The main things to look for when assessing muscularity and fatness are as follows:

Heavily Muscled Cattle	Lightly Muscled Cattle
• High percentage of meat	• Low percentage of meat
• Wide stance, especially through the lower hind quarter and feet well apart	• Narrow stance through lower hind quarter standing with feet close together
• Bulging, rounded thighs	• Flat or concave thighs
• Rounded, cylindrical outline with gut not visible from behind	• Prominent gut that this the widest point of the animal when viewed from behind
• Bulging forearms and convex shoulders	• Flat forearms and shoulders
• Wide, well developed loins, level with or slightly above the backbone	• Narrow, poorly developed loins, sloping down from the backbone

Lean Cattle	Fat Cattle
• Absence of soft lumpy fat deposits	• Lumpy deposits of fat in the brisket and tail head
• Slightly prominent tail head	• Smooth tail setting with mounds of fat either side of tail head
• Ribs and short ribs clearly visible	• Ribs not visible and short ribs cannot be seen or felt
• Underline tapering up towards the flank	• Level underline and deep body
• Muscle seams clearly visible	• Smooth general appearance with muscle seams not visible
• Hard feel	• Soft, spongy feel

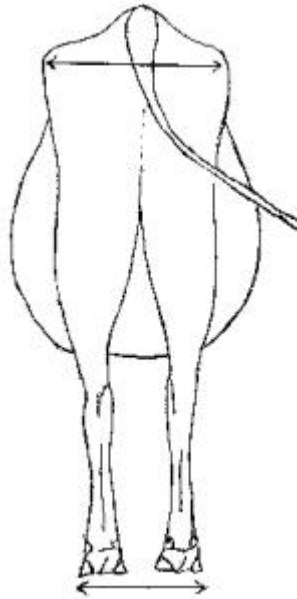
3.6.1 Muscle Scoring

Fat cattle are rarely seen in Quang Ngai province. Therefore it is possible to value animals on the basis of weight and **muscle score**, provided the observer is aware of how the degree of fatness can distort muscle scoring.

Muscle score measures the shape of an animal independent of fatness and is a good predictor of lean meat yield. It reflects the thickness and convexity of the animal, relative to its size, discounting for sub-cutaneous fat. Muscle score is best estimated from a rear-end view of the animal and relies primarily on the thickness or volume of the hind quarter muscles. The loins and forearm also give additional information to assess muscularity.

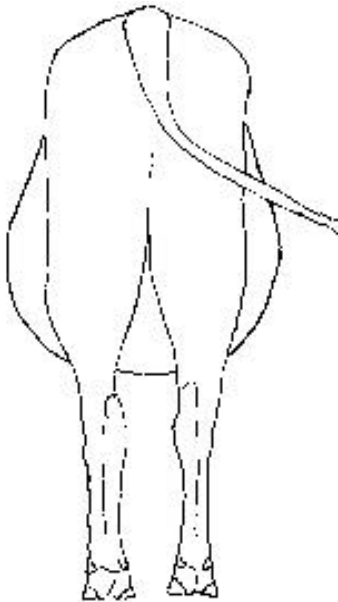
The Australian muscle scoring system uses a ranking of 1-5 and covers a very wide range of muscularity across numerous breeds and production systems. In Quang Ngai there is less variation in the muscularity of cattle and a ranking of 1-3 is appropriate. The following illustrations will assist in classifying local cattle according to muscle score.

Muscle score is also heritable so that heavily muscled bulls and cows tend to produce progeny with higher muscle scores and also lower fatness. Muscle scoring is therefore useful in the selection of breeding stock.

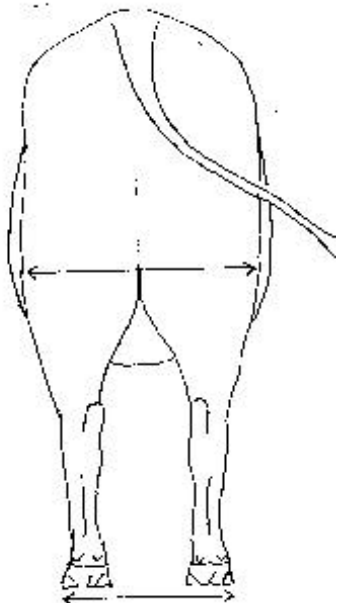


MUSCLE SCORE 1: MEAT CONTENT 30-32%

Angular, concave profile
Wide across hips
Hip bones prominent
Feet close together



MUSCLE SCORE 2: MEAT CONTENT 34-36%

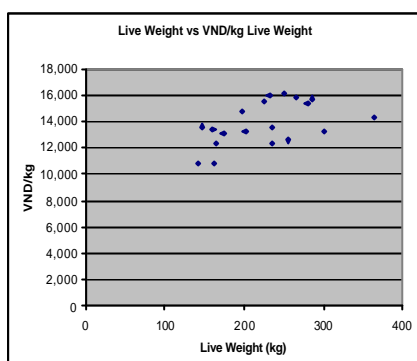


MUSCLE SCORE 3: MEAT CONTENT 38-40%

Rounded, convex profile
Wide across thighs
Hip bones not visible
Feet wide apart

3.7 Indicative Price Grid

The previous discussion demonstrates that there are two main factors affecting the value of live cattle – meat yield and live weight. Meat yield can be estimated in terms of muscle score.



The chart shows the prices paid for cattle purchased and sold during the pilot cattle finishing activities undertaken by QNRDP during the last quarter of 2002. There is a clear uptrend in prices vs live weight reflecting the general preference for heavier animals. There is also a range of prices for cattle of similar weight which reflects the premiums paid for muscularity or meat yield. The price data used in this chart have been used to formulate a cattle price estimation procedure based on live weight and condition

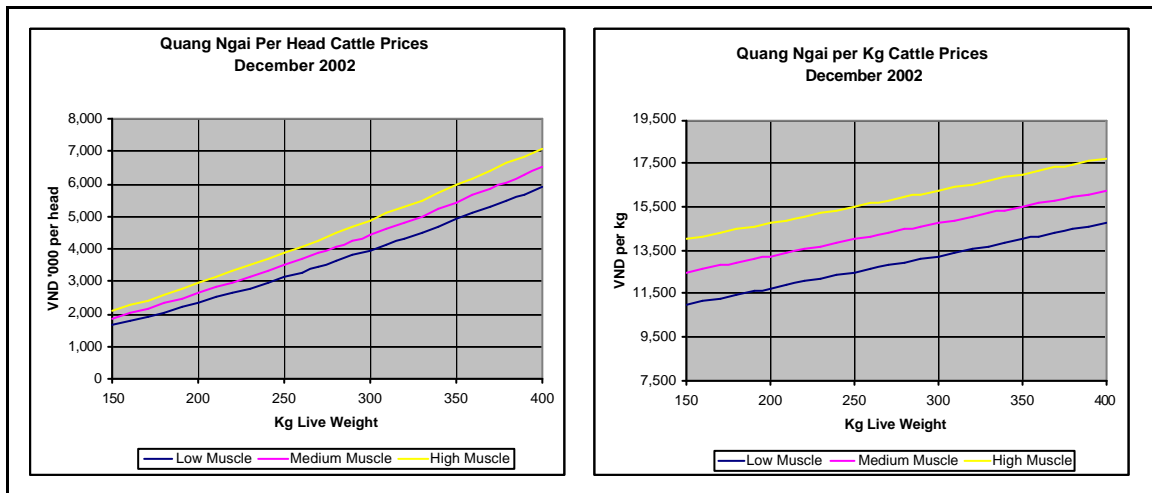
score, and the VND 40,000/kg “rule of thumb” as shown in the Table 4. According to this table a 250 kg animal with a muscle score of 2 would be worth VND 14,000 per kg or VND 3.50 million. A 200 kg animal in the same condition would be worth VND 13,250 per kg (14,000 – (50 x 15)) or VND 2.65 million.

Table 4: Estimation of Cattle Price Based on Live Weight and Muscle Score

	Muscle Score →	Low = 1	Med = 2	High = 3
Live Weight (kg)		250.0	250.0	250.0
Meat/Liveweight %		30.0%	35.0%	40.0%
Retail Meat Yield (kg)		75.0	87.5	100.0
Retail Meat Value @ 40,000 VND/kg		3,000,000	3,500,000	4,000,000
Live Weight Price (VND/kg)		12,500	14,000	15,500
Live Weight Price (VND/head)		3,125,000	3,500,000	3,875,000
Live Weight Price % of Retail Meat Value		104%	100%	97%
Premium/discount for Live Weight = 15 VND/kg above/below 250 kg LWT				

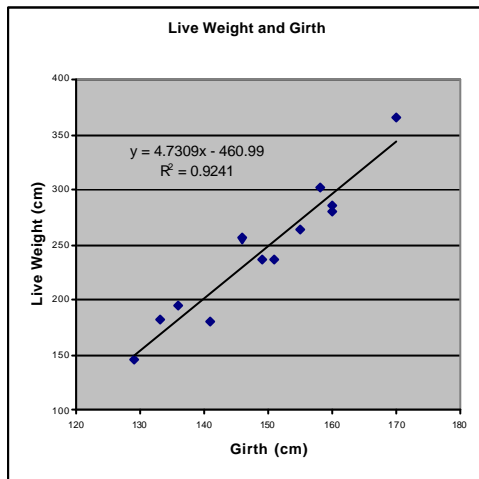
Table 4 has been used to produce a price grid or ready reckoner showing the estimated value of live animals of different muscle scores and live weights. This is shown in tabular and graphic format on the following page with the two examples highlighted in the table.

kg Live Weight	Price Grid: Live Weight x Muscle Score					
	VND'000 per head			VND/kg Live Weight		
	Muscle Score			Muscle Score		
	Low	Med	High	Low	Med	High
150	1,650	1,875	2,100	11,000	12,500	14,000
160	1,784	2,024	2,264	11,150	12,650	14,150
170	1,921	2,176	2,431	11,300	12,800	14,300
180	2,061	2,331	2,601	11,450	12,950	14,450
190	2,204	2,489	2,774	11,600	13,100	14,600
200	2,350	2,650	2,950	11,750	13,250	14,750
210	2,499	2,814	3,129	11,900	13,400	14,900
220	2,651	2,981	3,311	12,050	13,550	15,050
230	2,806	3,151	3,496	12,200	13,700	15,200
240	2,964	3,324	3,684	12,350	13,850	15,350
250	3,125	3,500	3,875	12,500	14,000	15,500
260	3,289	3,679	4,069	12,650	14,150	15,650
270	3,456	3,861	4,266	12,800	14,300	15,800
280	3,626	4,046	4,466	12,950	14,450	15,950
290	3,799	4,234	4,669	13,100	14,600	16,100
300	3,975	4,425	4,875	13,250	14,750	16,250
310	4,154	4,619	5,084	13,400	14,900	16,400
320	4,336	4,816	5,296	13,550	15,050	16,550
330	4,521	5,016	5,511	13,700	15,200	16,700
340	4,709	5,219	5,729	13,850	15,350	16,850
350	4,900	5,425	5,950	14,000	15,500	17,000
360	5,094	5,634	6,174	14,150	15,650	17,150
370	5,291	5,846	6,401	14,300	15,800	17,300
380	5,491	6,061	6,631	14,450	15,950	17,450
390	5,694	6,279	6,864	14,600	16,100	17,600
400	5,900	6,500	7,100	14,750	16,250	17,750



3.8 Live Weight Estimation

Cattle traders and butchers who are continually buying and selling livestock become highly skilled in estimating live weights and meat yields. Farmers and advisors who are less frequently involved in this activity can make use of a simple girth measurement procedure to assist in making live weight estimates. Twelve cattle involved in the pilot finishing programme were weighed and girth measured in order to estimate a formula for live weight prediction in the type of cattle found in Quang Ngai. The results are summarised in the following chart:



This formula provides reasonable estimates of live

$$\text{Live Weight (kg)} = \text{Girth Circumference (cm)} \times 4.73 - 461$$

weights for cattle over a wide range of weights and body conditions. Some estimates will be too high and others too low, but most will be within +/- 5% which is much more accurate than inexperienced persons can achieve by observation alone. When averaged over a group of animals the under and over estimates balance out and total live weight estimate becomes

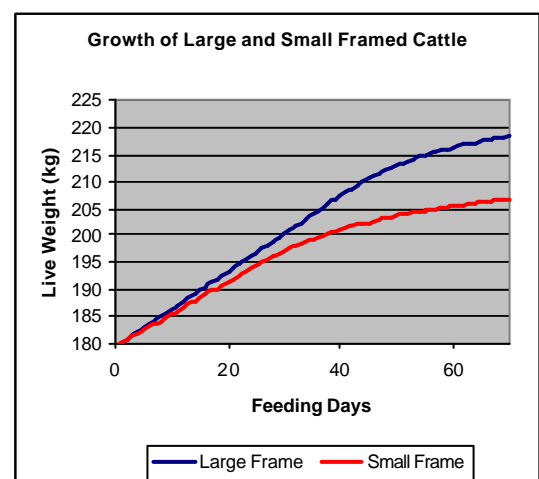
very accurate. The method can be used to assist in the purchase or sale of animals and in the monitoring of performance. Measurements on the same animal during the feeding period should provide very good estimates of live weight gain.

Over time it may be possible to refine this formula to improve its accuracy by including adjustment factors for measures of animal condition such as muscularity and fatness.

3.9 Frame

Frame is an important consideration in the selection of animals for finishing. Animals with a large skeletal volume (known as frame) are able to produce larger amounts of meat than those with small skeletons. As shown in the chart, large framed cattle also maintain faster growth rates and continue to produce muscle at higher body weights, whereas smaller framed animals produce slower growth and more fat as they become heavier.

Frame is easy to assess visually from the height of the animal at the hips and its width across the chest and hips.



The aim is to select animals with a skeletal structure which is tall and wide as well as with good muscularity and a low degree of fatness.

3.10 Financial Risks and Returns from Cattle Finishing

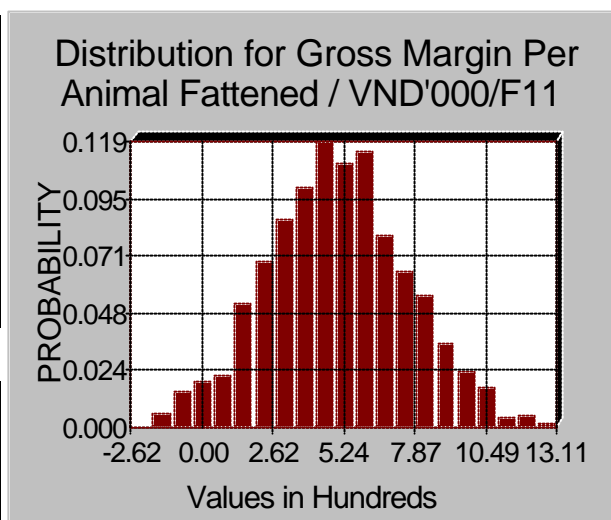
Purchasing cattle and feed is a big shift away from the normal methods of cattle raising and involves significant financial risk, particularly in relation to the buying and selling activities. The pilot finishing program has shown that if feeding recommendations are followed all types of healthy cattle will gain weight and value. The following table shows that the expected gross margin from finishing of one animal purchased at 180 kg x VND 12,000/kg and sold at 220 kg x VND 14,000/kg, with expenditure of VND 420,000 on feed, is about VND 500,000. The analysis also includes a risk assessment to assess the impact of variations in the key parameters in the shaded cells, with the minima, maxima and modal values of these parameters shown in the lower part of the table.

GROSS MARGIN FROM FATTENING ONE ANIMAL

	kg LWT	VND/kg	VND'000
Sale of finished animal	220	14,000	3,080
Variable Costs			
Purchase of animal	180	12,000	2,160
Cost of feed: 60 days @ VND 7000/day			420
Total Variable Costs			2,580
Gross Margin Per Animal Fattened			500
Labour Input (days)			30
Gross Margin per Labour day			17

RISK ASSESSMENT

Parameter	Min	Mode	Max
kg LWT Finished	210	220	230
VND/kg Finished	12,000	14,000	16,000
VND/Kg LWT for Purchase	10,000	12,000	14,000
Cost of Feed	380	420	460



When these variations are taken into consideration it can be seen from the chart that all but a few farmers are expected to make money from the exercise, but about a quarter will make less than VND 300,000 per animal and a quarter will make more than VND 750,000. This is a much higher degree of financial risk than is normally associated with cattle raising and farmers need to be made aware of the range of possible outcomes and the reasons behind them. In this exercise the buying and selling prices have a far greater impact on the outcome than the cost of feed or the actual weight gain.

4 Production and Marketing Systems

Most of the material included in this Section is drawn from a joint Australian-Viet Nam study of the national beef industry funded by ACIAR³.

4.1 Overview

Beef can be bought fresh, processed or prepared in almost any Vietnamese village or city on any day of the year. The amount eaten per capita is small relative to pork and poultry but will inevitably rise as incomes grow, especially in urban areas.

There are some farms which specialise in cattle rearing but, for most, the animals can almost be classed as "scavenging ruminants", which:

- utilise some labour (often older people or children, for herding);
- are grazed on waste lands, crop residues, marginal areas, roadsides and the like;
- grow slowly;
- have a reasonably lengthy calving interval; and
- are easy to sell, whenever this is required.

A well-established market structure exists, to move cattle from the village farms through to final consumption points. Almost all cattle in Viet Nam will eventually enter the marketing chain - often at the end of a long working or reproductive life. Most are raised at a fairly low level of productivity but on a relatively low-input, low-maintenance basis. To produce cattle for income generating purposes requires a deliberate shift of resources and management skills towards the cattle enterprise to raise productivity and efficiency. Farmers will do this if they believe that they will receive an adequate reward for the increased effort and risk.

The current domestic marketing system does not meet the requirements of the high-value market (mainly larger hotels and restaurants) and is most unlikely to meet these needs for some time.

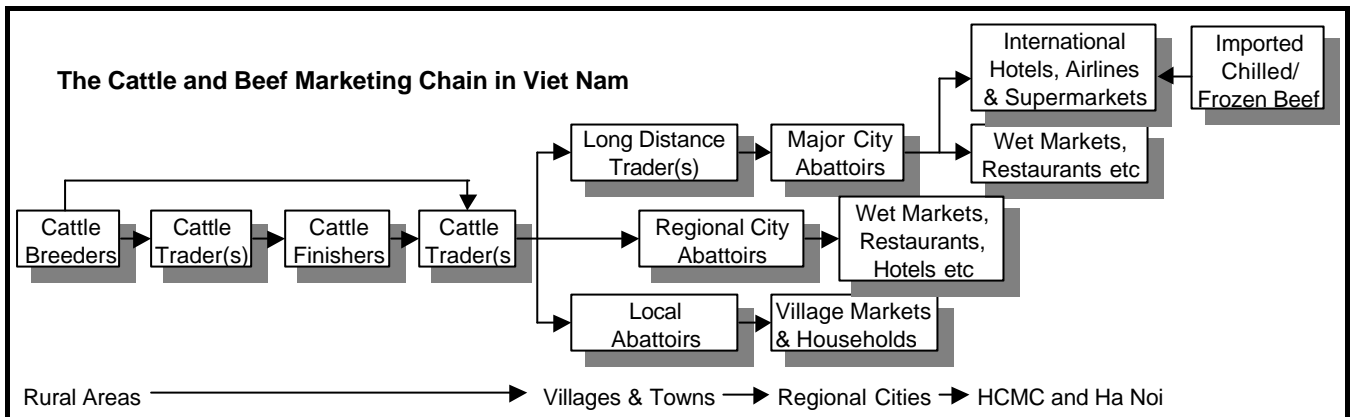
The market is price responsive. Prices rise for seasonal events (eg Tet) and the supply increases in anticipation. Supply also increases in spring/summer because of better availability of feed, so prices fall. Supply declines in the wet season because of transport and collection problems, so prices rise.

4.2 The Cattle and Beef Supply Chain

The concentration of consumer demand in HCMC and the South, and to a lesser extent in the Ha Noi/Red River Delta area, has created a very long cattle and beef marketing chain. The

³ See: "Profitable Beef Cattle Development in Viet Nam: Project Review and Final Workshop, Hanoi, May 2002 and "Mapping the General Structure and Dynamics of the Vietnamese Market for Cattle and Beef" Pollard V. and Perkins J., ILFR, University of Melbourne, Australia.

general direction of movement is from North to South, although there is some movement in the opposite direction near Ha Noi and the major regional cities. Virtually all of the long-distance movement is in the form of live animals, in some cases from the far North East to HCMC. Cattle are slaughtered in peri-urban abattoirs during the night with hot meat delivered to wet markets, restaurants and hotels during the early morning, and is consumed the same day. This accounts for the bulk of the market from villages and towns through to the two main cities. However there is a small but growing sector of the meat market in HCMC and Ha Noi supplying international hotels, airlines and modern supermarkets with packaged and refrigerated product. Imported chilled and frozen beef is also used to supply this sector.



There is an extensive informal network of dealers, traders abattoir operators and retailers engaged in the beef marketing chain. Most transactions are by personal negotiation, paid in cash and un-documented. There are no formal quality standards, very little product differentiation, and animal welfare and hygiene standards are low. However, the system is reasonably efficient in connecting remote rural livestock owners with consumer demand in far distant markets. As expected there are allegations of collusion amongst players in the system, but there is also evidence of strong competition for animals and livestock prices have risen in line with retail prices.

Buffaloes and buffalo meat are traded in a similar way, but with a stronger North-South movement. About half of the bovine meat produced is buffalo, much of which is understood to be sold as beef. Buffalo meat does not usually enter the modern refrigerated market sector and is rarely imported.

4.3 Other Key Features of the Beef Market

Viet Nam's beef market is dominated by supply from domestic production. Exports and imports are negligible, although small numbers of live cattle are imported and there is some importation of high quality frozen and chilled beef for the hotel and tourist market. Some of the key features of the market are as follows:

- Beef, whether fresh or processed, is presented in very small serves and is usually a small part of a meal which is based on rice and vegetables and may include other types of meat and fish.
- In addition to being a small individual serve, the meat is usually presented as small slices, chipped, minced or ground, or part of a soup or stew. Large cuts or serves (eg steaks, roasts, burgers) are very unusual.

- Most meat is consumed or processed very fresh, within 18 hours of slaughter and is not refrigerated at any stage.
- About half bovine meat consumption is of buffalo origin, although it may be sold as beef.
- The marketing system is effective in moving animals and meat from the production to the consumption areas such that beef is readily available wherever the demand exists.
- There is a steadily increasing demand for beef and a wide range of byproducts which are sold mainly in wet markets with little differentiation according to quality criteria.
- Wet markets are well supplied with a wide range of animal protein sources so beef and buffalo must compete with pork, chicken, duck and seafood products.
- As the product is differentiated in the market place mainly on the basis of cost to the consumer, it follows that price is the key information requirement sought by participants in the market chain.
- Individual trading enterprises in the market chain tend to be opportunistic in their management focus. Very few records are kept and there is little sharing of market information, particularly towards the production end of the chain.
- The low value, localised nature of production and processing means that most animals are slaughtered by household-based slaughterers or at village slaughterhouses for local household and village consumption. However, with the growth of large urban populations, where demand for beef is increasing more rapidly, inter-regional movement of cattle are becoming of increasing significance.
- The marketing chain comprises very high numbers of participants at all stages. The supply chain boundaries tend to be ill-defined because many participants have a role which is local and transitory and relatively few specialise in cattle and beef marketing to the exclusion of other economic activities.
- The system operates with little regulatory intervention. National, Provincial, District and Commune authorities may impose fees and taxes on trading and transport activities, and veterinary examinations and certification may be required at the abattoir and retail market levels. However, it is questionable whether these activities are effective in achieving the intent of overall public health policy.

The main participants in the system (some may have multiple roles) are as follows:

- **Non-specialised cattle raising households:** this is the primary source of supply for live cattle. The majority of cattle are located in the more populous intensive farming areas and are integrated into, and supplementary to, intensive farming systems. Participation in cattle trading by these households is relatively infrequent. Animals are produced and managed, usually with minimal labour input, to meet a number of needs including draft and transport work, a source of manure, and a means of wealth accumulation and saving for times of need.
- **Semi-specialised cattle raising households:** these include larger holdings of cattle (5-15 head or more) which tend to be located in the more remote upland and marginal areas. Cattle are reared under extensive, low input systems grazing in rough lands and forest fringes. There are some semi-specialist farmers in the more intensive agricultural areas, who have chosen to raise a few cattle for finishing and sale, usually through stall feeding/cut-and-carry systems.

- **Village intermediaries** facilitate transfer of animals in and beyond villages, between farmers and farmers, or farmers and traders. Their major strength is information about who wants to buy and sell, and current market conditions. These intermediaries generally work for a fee and are not involved in the actual sale transactions.
- **Market intermediaries** play a role in price formation at live cattle markets by bringing together sellers and buyers and brokering and exchange price. These also usually work for a fee.
- **Traders** buy and sell cattle to other farmers, traders or abattoirs. They are directly involved in the transfer and transport of animals. They may also purchase animals on their own account for speculation, buffer stock holding or finishing. They are the major conduit for cash payments to primary sellers.
- **Specialist slaughter households/low-grade abattoirs** buy live cattle and buffaloes for slaughter and distribute meat and byproducts for sale. They are the source of most of the working capital to finance the operation of the market. They often hold small buffer stocks of live animals to smooth demand and supply peaks and troughs. Most operate rudimentary premises without refrigerated or other storage facilities.
- **Meat and byproduct buyers** purchase the output from abattoirs for onward sale or their own use.
- **Retail sellers and consumption points** include retail market operators who lease stalls in the wet markets, street vendors, food stalls, food processors, restaurants and hotels. They are the final contact point with consumers.

Because there are a large number of small participants operating independently, the marketing system is generally very competitive. There are no large companies or oligopolies dominating the trade, although local trades and slaughterhouses hold strong positions in some more remote areas. This leads to complaints from small cattle producers and small traders about inequalities in bargaining power. Farmers only sell animals occasionally, and sometimes need to sell quickly which places them in a weak bargaining position. Some village-level intermediaries may hold local monopolies and farmers are under strong pressure to deal locally. However experience in the QNRDP pilot finishing program has shown that it is possible, with project support, to deal directly with abattoir operators or larger traders and thereby circumvent any local monopolies which may exist.

4.4 Market Information

There are no formal livestock or meat market information systems currently operating in Viet Nam⁴ and no standard livestock descriptive language that allows animals to be un-ambiguously described and valued. Market information is primarily exchanged by word-of-mouth or by telephone using the expanding mobile phone network.

The large number of participants engaged in all parts of the marketing system ensures that information is continuously circulated and updated, particularly for those involved on a daily basis. Farmers are less well informed about market conditions and rely heavily on the opinions

⁴ For details of a very sophisticated livestock market information system refer to the Australian National Livestock Reporting System (NLRs) www.nlrs.com.au

and advice of other farmers, intermediaries and traders. The balance of negotiating power therefore favours the buyers rather than the farmers, but there are limits as to how strongly this power can be wielded. Most farmers are aware of how traders value cattle but may not appreciate the subtleties of yield and weight estimation.

Whilst the establishment of a national livestock market information system is some way off, QNRDP is in a position to assist with the gathering and dissemination of market information within the province, and in training farmers how to interpret and use that information for their own benefit.

4.5 Transport of Animals and Animal Products

Cattle may be collected from the seller by small truck or pickup or walked to a point where vehicle access is easier. Those animals which enter the long distance transport system are carried on large trucks holding about 24 animals. Cattle moved to the major cities may be in transit for up to a week and are likely to lose a large amount of live weight during this period. Lack of adequate feed and water supplies may also result in considerable stress and loss of meat yield.

After slaughter the meat and edible offals are delivered in un-refrigerated vehicles to the wet market stall-holders and restaurants. Hides are collected by tannery operators.

4.6 Future Development of the Market

The ACIAR study considered that the following trends are likely to emerge in the cattle and beef markets in the years ahead:

- Increases in urban income will shift some demand to higher quality and more expensive meat.
- Higher education levels will rise and will raise interest in food safety issues.
- Growing urban populations and increased public awareness of health issues will gradually push abattoirs away from city areas.
- Gradual introduction of storage and refrigeration facilities, as abattoirs become more distant from large urban markets.
- Change in abattoir operations: licensing and inspection will be gradually become a requirement of the industry, as changes in trading conditions become apparent.
- Any attempt to compete with imported beef will require a business decision to install abattoirs with full handling, storage, quality and inspection facilities, probably in conjunction with feedlot production and a large retail chain. Existing abattoirs will not change their general practices to accommodate such change, due to severe competitive and cost constraints. Moreover, consumers are unlikely to pay the same premium for this "import substitute" beef as it lacks the preferred brand image.
- Any action by Governments and Communes to foster this import replacement sector of the market will boost the business interests involved (feedlots, specialist abattoirs, meat handlers, livestock importers) but will have little direct impact on smallholder farmers, who will be largely treated as possible suppliers of feeder cattle for the finishing industry.
- Most changes will be driven by necessity, to conform with shifts in market requirements. Legislative change will not be readily accepted or heeded.

- Increasing the number of days and locations at which cattle can be sold may improve competition and price information in the production areas. The Government may assist by providing small areas of land and publicising market days.

4.7 Conclusions

The marketing system for cattle and beef is typical of a country in Viet Nam's current stage of development. It is entirely informal, with un-documented cash transactions, numerous intermediaries, little product differentiation, no effective regulation, low animal welfare and hygiene standards, no quality assurance systems, limited market information, and imbalances in bargaining power between buyers and sellers. Transmission of consumer preferences down the marketing chain is hindered by the multiple transactions and lack of any grading or product description protocols.

However, the system works remarkably well, and provides a ready market for finished cattle anywhere in the country, at prices which broadly reflect the transaction costs down the long marketing pipeline from rural areas to the big cities where most of the meat is consumed. The system presents no overriding constraints to profitable cattle finishing in Quang Ngai, although there are a number of initiatives which could be taken (see Section 6.2) to ensure that QNRDP beneficiaries obtain the best possible financial returns.

Based on the experiences of other rapidly growing Asian countries, Viet Nam's cattle and beef marketing system is likely to evolve quite rapidly during the next decade. This process should be monitored so that adjustments can be made to the changing demands of the market. As consumers become more affluent the supply chain will become more differentiated and more responsive to end-user requirements. Perceptions of quality (especially tenderness) and hygiene will become more important and the market will develop a number of distinct segments with different product requirements. The small premium beef sector currently supplied mainly by imports will expand, and create opportunities for specialist beef producers, processors and distributors. This is likely to be accompanied by the emergence of a chilled meat market, processed in modern and hygienic abattoirs more distant from the big cities.

In the immediate future QNRDP should watch for the emergence of a high quality beef sector within the existing informal marketing system. This is likely to offer premium prices for younger, well-finished animals within a specified range of live weight, muscularity and fatness. QNRDP beneficiaries who are experienced in cattle finishing will be in a strong position to benefit from this trend.

5 Markets for Input Supplies

The main inputs needed for livestock production are animals, feed and veterinary supplies. Markets for all of these are reasonably well developed, and present no insurmountable constraints.

5.1 Feeder Cattle

The most important input for cattle finishing is the supply of feeder animals, since this represents around 80% of total costs of production. Quang Ngai has a cattle population of 224,000 and the provinces immediately North and South contain a further 451,000 head. Together these represent 16% of the national herd and provide a cattle population large enough to supply the expected demand for feeder stock.

However, identifying the best locations to buy feeder cattle does present a challenge for QNRDP. There are no regular livestock markets in Quang Ngai or the adjoining provinces and experience in the pilot finishing program has shown that procuring feeders can be a time consuming exercise. With an accessible cattle population of 675,000 from which feeders can be sourced there should be no absolute supply constraints particularly if farmers can be persuaded to procure cows in poor condition. The likely size of the finishing programme in the next few years should not be large enough to significantly influence prices for feeder stock.

5.2 Pigs and Poultry

Pig and poultry raising has not yet been undertaken on a pilot basis but is likely to be initiated early in 2003. The local pig types are not suitable for intensive feeding as they tend to become over-fat. It will therefore be necessary to identify a suitable source of weaner pigs for distribution to project beneficiaries. These should be capable of producing a heavy, lean carcass under semi-intensive conditions.

There is at least one supplier of week-old local breed chicks in the adjoining Binh Dinh province. These are likely to be suitable for semi-intensive village chicken production but need to be tested on a pilot basis. It would also be desirable to locate a source of local or improved local chicks within Quang Ngai.

5.3 Livestock Feeds and Veterinary Supplies

The ration used for cattle finishing in the pilot program consists of rice straw, ground maize, molasses and urea. Rice straw is abundant throughout the lowland areas, and there are suggestions that significant amounts are burned to dispose of the surplus. Ground maize is readily available from a local mill, molasses from the sugar factory near Quang Ngai city, and urea from fertiliser suppliers. There is also potential to use other low-cost feeds for cattle finishing such as elephant grass, tree legumes, cane tops and cassava leaves.

Compounded feeds suitable for pig and poultry raising are also readily available in bagged form, although there are questions about quality. Several multi-national companies are investing in the feed milling industry and the availability and quality of compounded feeds can be expected to improve.

Most veterinary supplies are readily available from local farm shops.

6 Conclusions and Recommendations

6.1 Overview

The market for cattle and beef in Viet Nam is strong and will continue to develop as the national economy grows. Real prices are expected to be firm or increase due to the strong preference for what is regarded as a luxury food item, and the limited rate at which supply can be expanded from the existing bovine herds. Buffalo meat (the nearest substitute for beef) production will eventually decline as the sell-off of draft animals takes effect. Beef will retain a small but lucrative niche in the national meat market, and farmers in Quang Ngai province are in a good position to profit from this through carefully formulated marketing strategies which are focussed on the evolving needs of the market.

Pork is the dominant meat with 75% market share, and production is expanding rapidly. However pork producers have only been able to achieve this large market share by reducing real prices. The pork industry will continue to meet expanding consumer demand but will come under increasing competitive pressure from an emerging industrial chicken industry. In all countries (there are no known exceptions) where a modern vertically integrated chicken industry has been established it has been successful in winning a large share of the meat market on the basis of price and the versatility/popularity of the product.

QNRDP beneficiaries have little chance in competing with the industrialised poultry industry which will soon be delivering cheap and hygienic poultry products throughout the country. There is a possibility that some could become contract outgrowers for the large poultry integrators, but it is more likely that these will be clustered around the main centres of demand. However the local live bird will remain in demand for some time to come, especially in the less developed provinces such as Quang Ngai. There may be profitable opportunities for QNRDP beneficiaries to supply this market, although no firm recommendation can be made until a pilot program has been carried out.

Breeding, growing and finishing pigs is a traditional activity which could also be used in modified form generate income for Program beneficiaries. The main requirement for commercial success will be production of a heavier but leaner pig which will attract a price premium. Most pigs currently produced in this part of Viet Nam are small and very fat, and it will be necessary to identify a source of feeder stock which is capable of producing a heavier and leaner carcass. As with poultry, a pilot pig finishing program should also be undertaken to develop a replicable production and marketing strategy.

6.2 QNRDP's Role in Marketing

Marketing is often considered the same as selling. But selling is just the final stage in a sequence of activities which are collectively known as marketing. Marketing begins with decisions on what to produce, how much, when, with what specifications, and for which customers. As the production process nears completion marketing involves the negotiation and finalisation of sales and delivery of the product to the buyer. Inadequate attention to marketing strategies is a common reason for entrenched poverty in rural communities where there is a tendency to

produce an item and hope that a someone will buy it at an attractive price. QNRDP can be involved in supporting a wide range of marketing initiatives from the beginning to the end of the production process to give the best possible chances of improving incomes.

The essence of QNRDP is the consultative process through which beneficiaries identify the income-generating activities they wish to pursue. The Program is then expected to furnish the necessary financial and technical support to ensure that these activities deliver the desired outcome. Marketing is an important part of the technical support package, since decisions on what to produce and how to market it can be critical to success. Marketing support can include a wide range of activities such as:

- helping activity groups to investigate the market potential for items they may be interested in producing including product specifications, prices, seasonality, market channels, transport requirements, grading and packaging, quantities required etc;
- assisting groups to negotiate marketing arrangements with customers including dealers, traders, agents or end users;
- assisting groups to procure the inputs needed for efficient production;
- developing systems for product description, grading, quality assurance and valuation (such as the one recommended for cattle marketing in this report);
- gathering and disseminating market information so that the bargaining position of beneficiaries will be more evenly balanced with the dealers;
- providing training for farmers in marketing skills;
- analysing the reasons behind the success or failure of income generating activities and how marketing can be improved; and
- warning groups against the pursuit of activities where marketing is likely to be very difficult or where the necessary marketing infrastructure is not present.

QNRDP should resist the temptation of trying to “pick winners” by identifying commodities or markets where prospects are seen to be favourable, and persuading activity groups to pursue them. This is contrary to the underlying philosophy of the Program. It is preferable for the beneficiaries to make their own selections, with the help of information provided by the Program, and to then provide the support needed to ensure that marketing is conducted in the best possible way.

6.3 General Conclusions on Cattle Marketing

The market for cattle and beef in Quang Ngai presents no fundamental barriers to profitable beef production by QNRDP beneficiaries. However, it is clear from the results of the pilot finishing trials that good marketing decisions, both buying and selling, are critical factors affecting profitability. Fortunately there are a number of marketing policies and strategies which the Program can adopt in order to obtain the best possible financial outcomes.

Cattle finishing is first and foremost a trading activity. Purchase of the animal is the most important single decision in the whole exercise. The aim is to increase the value of the animal by increasing its weight and increasing its muscle score. The trials have shown that with good animal

selection, and the use of urea in the ration, bulls and cows can gain weight at the rate of 0.6-0.7 kg/day or 35-40 kg over a two month feeding period. However this does not guarantee profitability. Profitability is only assured if three other conditions are met:

- The animal is purchased at the right price and with a low muscle score.
- It increases in muscularity during the feeding period, not fatness.
- The sale price represents fair value relative to the current price of meat.

6.4 Strategies for Buying and Selling Cattle

Both cows and bulls can be finished profitably. However observations suggest that it will be difficult to procure regular supplies of bulls in suitable condition for entering the finishing program. Cows which are lactating or have recently weaned a calf are often seen in poor condition and will gain weight and muscle rapidly under intensive feeding. Such animals are much more abundant than bulls in poor condition.

Where possible animals should be purchased with muscle score 1 or 2 and a low level of fatness. This means that the ribs and short ribs must be clearly visible. Where this is not the case or where signs fat can be seen around the tail head or the brisket the animal should not be purchased as its weight gain will be disappointing and the sale price will be discounted for over-fatness.

Table 5 gives examples of **recommended trading strategies** for bulls and cows of differing weights. Buying and selling prices are estimated from the price grid shown in Section 3.7.

Table 5: Recommend Trading Strategies

	Cows		Bulls	
	Min	Max	Min	Max
Purchase LWT	160	200	220	270
Muscle Score	1	1	2	2
VND/kg	11,150	11,750	13,550	14,300
VND/head (m)	1.78	2.35	2.98	3.86
Weight Gain	35	35	40	40
Sale LWT	195	235	260	310
Muscle Score	2	2	3	3
Sale VND/kg	13,200	13,800	15,650	15,800
Sale VND/head (m)	2.57	3.24	4.07	4.90
Trading Margin (m)	0.79	0.89	1.09	1.04
Trading Margin (%)	44	38	36	27

For cows the aim is to buy between 160 and 200 kg LWT/muscle score 1, at a cost of VND 1.78-2.35 million/head. Over a 60 day feeding period these cows can be expected to gain about 35kg in weight and one level in muscle score. This is sufficient to produce a trading margin (before accounting for feed costs) of 38-44%.

For bulls the aim is to buy at 220-270kg LWT/muscle score 2 (muscle score 1 would be better but such animals will rarely be found) and sell at 260-310 kg/muscle score 3. This is sufficient to produce a trading margin (before feed costs) of 27-36%.

This analysis shows that bulls and cows over a range of weights can be traded profitably provided they gain both weight and muscle score. However when we consider the percentage return on the capital at risk (ie the purchase price of the animal) it is clear that cows are a better proposition than bulls and that light animals are better than heavy ones of both sexes. This has also been observed in the pilot finishing program where some of the cows have generated extremely good profit margins.

The above calculations are based on meat values only. However in some cases, finished animals may attract a premium based on their breeding value. A cow bought in very poor condition with low muscle score will generally be regarded as unlikely to conceive and will usually be valued at less than VND 2.0 million. After two months of feeding the same cow will be looking much better as a breeding proposition and could be considerably worth more than her meat value, thereby generating a very attractive trading margin.

Breeding value considerations can also have the opposite effect if breeding value is incorporated in the purchase price. This is most likely to be the case where the animal has a degree of fatness and has muscle score 2 or 3. Reference to the price grid, which is based on meat values only, will tell whether or not the price of an animal includes a premium for breeding value. If it does, the animal should not be purchased at that price.

6.5 Livestock Procurement Procedures

The population of cattle in Quang Ngai and the provinces immediately north (Quang Nam) and south (Binh Dinh) totals some 675,000. This represents three quarters of the cattle population of the South Central Coast. It is one of the largest concentrations of cattle in Viet Nam which produces an offtake of around 100,000 head per year, and therefore offers good prospects for procurement of feeders for the finishing program.

The challenge is to identify suitable animals and purchase them at the right price. Most farmers sell cattle occasionally and know how to go about bargaining to get a reasonable price. However they generally have little experience in buying cattle, do not have a good understanding of the best type of animals to purchase for finishing, do not know where to go to find them, or how to assess their value.

There are three possible strategies for procuring feeder cattle for the finishing program:

1. QNRDP provides finance through the activity funds, trains group members in livestock selection, and leaves them to procure animals through whatever means they choose;
2. QNRDP provides the finance and plays an active role in assisting farmers to locate and procure suitable supplies of animals and transport them back to the village for finishing; or
3. QNRDP provides the finance and helps the group to make an agreement with a cattle dealer to purchase the type of animals they require.

The third of these options is recommended. It will require the farmers to surrender some of the margin to a dealer, but this is well worth doing if it succeeds in sourcing the right type of animals. Dealers know where to go to procure feeder stock and have indicated that they would be interested in providing this service, provided of course that it is profitable. The detailed arrangements between the group and the traders would need to be negotiated case-by-case and could include an agreed fee per animal procured, a percentage of the purchase price, or the agent may buy and on-sell the animals himself. Whatever method is chosen, a procurement cost of VND 50,000-100,000 per head would be worth investing to get the right animals without spending too much time and money in the procurement process.

6.6 Sale of Finished Animals

Experience with the pilot finishing program has shown that it is possible to obtain fair value for finished animals through the existing informal marketing system of dealers and abattoir operators. Two conditions are necessary for successful sales through these channels.

First, the seller must have a reasonable understanding of the value of the animal. The price grid incorporating weight estimation and muscle scoring provides a practical means of estimating value. Weight estimation can be aided by using the girth measurement method, although direct weighing is better.

Second, the seller must be patient and seek offers from a range of buyers. QNRDP can assist by taking potential buyers to inspect the cattle produced under the Program. In the pilot finishing trial initial offer prices were improved significantly by patient negotiation and seeking additional offers over a 2-3 week period.

As is the case in other countries, dealers and abattoir operators are interested in the volume of turnover and are keen to purchase large numbers of animals. Activity groups engaged in finishing can use this to their advantage by dealing directly with some of the larger abattoir operators from Da Nang or Binh Dinh who have indicated keen interest in procuring full truckloads of slaughter cattle (20-24 head) in a single locality. This greatly reduces their procurement and transport costs and ensures that the animals reach the abattoir without too much weight loss and bruising.

Collusion between dealers no doubt exists although it is difficult to prove. Its effects can be minimised by following the recommendations given here – understanding livestock valuation, seeking alternative offers, patience in negotiation, and direct dealing as a group with abattoir operators from outside the immediate vicinity.

6.7 Market Information

Markets only operate efficiently and fairly if there if the parties have equal access to accurate information about value. Traditionally farmers are disadvantaged in this regard, especially when there is an urgent need to sell livestock to raise cash for family emergencies.

However “the price of cattle” is a rather meaningless concept since there is so much diversity in the nature of the product. This is not so for more homogenous products like eggs or rice where a price can be quoted for an objectively measurable grade. With livestock it is therefore necessary to introduce the concept of “**indicator prices**” which refer to a specific type of animal. Buyers and sellers can then modify the indicator price according to how a particular animal varies from the standard. The price grid enables this to be done very easily.

Under QNRDP four cattle indicator prices are recommended:

Indicator	LWT (kg)	Girth (cm)	Muscle Score (1-3)	VND/kg	VND/head
Feeder Cow	180	134	1	11,450	2.06 m
Feeder Bull	240	147	2	13,850	3.32 m
Finished Cow	210	141	2	13,400	2.81 m
Finished Bull	290	158	3	14,600	4.23 m

The indicator prices are based on market conditions in mid December 2002. To be useful as a guide for buying and selling the indicator prices and the price grid should be updated monthly, or more often if market conditions alter markedly. The indicators can easily be updated by checking retail prices for meat and by telephoning a few dealers or abattoir operators to determine their current offer prices.

In the future, specifications for indicator prices of pigs (weaner piglet and finished slaughter pig) and chickens (live bird 1.5 kg) should be developed.

The accumulation of monthly indicator prices over several years will provide valuable background on price seasonality which can be used to fine-tune trading strategies for maximum profits.

6.8 Descriptive Language for Livestock and Meat

The only attributes of live cattle which can be objectively measured are age (by dentition), sex and live weight. Of these only live weight is an important determinant of value in Viet Nam. However it is rarely measured directly and is usually estimated by observation.

There is a need to develop a standardised vocabulary⁵ for describing live animals so that all parties know exactly what is meant. This helps to reduce the considerable ambiguities and uncertainties in describing and valuing livestock. The following list details the main descriptive terms for cattle and beef.

English Term	Explanation/Definition	Vietnamese Term
Breeding Value	Price of a live animal based on its value for breeding purposes – for young animals this is usually greater than meat value.	
Byproducts	All saleable products incorporated in a live animal other than meat.	
Carcase Weight (CWT)	Weight of fresh hot carcase excluding head, tail, viscera and edible offals (heart, kidney etc).	

⁵ In Australia there is a standardised descriptive language known as “AusMeat” which is used throughout the country.

English Term	Explanation/Definition	Vietnamese Term
Condition	General descriptor of the shape of an animal which incorporates both muscularity and fatness. “Good” condition = rounded, “poor” condition = angular. This term is vague and does not provide a good indication of value.	
Edible Offals	Edible material other than meat including heart, liver, kidneys, tongue, pancreas, spleen etc.	
Emaciated	Animal in very poor condition with severe muscle wastage and bones very prominent.	
Fat	Adipose tissue – may be sub-cutaneous, intramuscular, intermuscular or peritoneal.	
Fat Animal	Animal with a high proportion of fat tissue in the carcass – assessed by visibility/prominence of the ribs and short ribs. Fat animals are not necessarily heavily muscled.	
Feeder Stock	Livestock purchased for the purpose of feeding to increase weight and muscle score (also known as store stock).	
Finished Stock	Livestock which have reached optimal condition for slaughter – often referred to as fattened stock, although this is an inappropriate term.	
First Grade Meat	Meat from the longissimus dorsi muscle which runs along the back of an animal (also known as sirloin or striploin).	
Frame	Skeletal size of an animal – indicated by height at the hips and width across the hips and shoulders.	
Girth	Circumference of an animal (cm) measured immediately behind the front legs. Used as an aid to estimating live weight.	
Hide Weight	Weight of fresh hide immediately after removal from the carcass.	
Indicator Prices	Prices of livestock of specified live weight, sex and muscle score.	
Lean Animal	Animal with a low proportion of fat tissue in the carcass – assessed by visibility/prominence of the ribs and short ribs. Lean animals may be heavily or lightly muscled (see muscle score).	
Lean Meat Weight	Weight of saleable meat removed from the carcass excluding bones and fat.	
Live Weight (LWT)	Weight in kg of animal taken directly from the feeding stall - live weight declines rapidly during transport of animals to the abattoir due to dehydration and emptying of gut fill.	
Meat Value	Value of an animal based entirely on its estimated content of meat and byproducts (hide, bones, offals etc).	
Muscle Score	Index (range 1-3) reflecting the muscularity (not fatness) of a live animal and hence the percentage of lean meat which can be cut from it.	

English Term	Explanation/Definition	Vietnamese Term
Price Grid	Schedule of prices for animals of different live weights and muscle scores.	
Second Grade Meat	Meat from the shoulder and thigh trimmed of fat and connective tissue.	
Third Grade Meat	Meat from the legs and other fatty or sinewey trimmings.	
Yield %	Percentage of lean meat in a live animal.	

6.9 Next Steps

The present marketing study has highlighted the need to undertake a thorough marketing assessment before launching income-generating activities on a pilot basis. This will enable production and marketing systems to be more closely attuned to the needs of the market and give the best possible chances of commercial success.

During the first half of 2003 it is likely that QNRDP will undertake some pig production activities on a pilot basis, using procedures similar to those used for the pilot cattle finishing program. The planning of the pig programme should involve a **pig marketing study** to address the following key issues:

- Long-term pig and pork production trends and influences
- Long-term pork consumption trends and influences
- What is the product? Do we understand the basis of value?
- What type of pork do consumers want and how do they define quality?
- Who are the competitors - what are their strengths?
- How is the market structured and who are the key participants?
- What regulations or laws apply to the production and marketing of pork?
- How “deep” is the market and will QNRDP be likely to influence prices?
- Pig and pork price trends (real) and cycles
- Quality/price relationships
- How is the pig and pork market evolving? Where will the future opportunities be?
- Which markets/sectors and products present the most attractive targets?
- Pricing strategy
- Is Quang Ngai competitive in terms of price and quality?
- How can QNRDP add value?
- What are the information and training needs

During 2003 a marketing study should also be undertaken for poultry products using an approach similar to the one outlined here.

Annex 1

Workshop on Cattle and Beef Marketing

Annex 2

Training Workshop on Market Analysis