Back to Ngo Thuy Bao Tran content

Surveys on small-scale urban and peri-urban livestock production in Chau Doc Town

Ngo Thuy Bao Tran, R. Brian Ogle *

Department of Animal Husbandry and Veterinary, Agriculture and Natural Resources Faculty, Angiang University, 25 Vo Thi Sau, Long Xuyen City, Vietnam.
** Department of Animal Nutrition and Management, Swedish University of Agricultural Sciences P.O.Box 7024, S-750 07 Uppsala, Sweden.*

Abstract

A survey on urban livestock production in Chau Doc town was carried out in three wards and one commune: Chau Phu A, Chau Phu B, Nui Sam ward and Vinh Nguon commune. In total 120 households were interviewed to get information on: details about the characteristics of the household, such as manpower, household activities, income, capital, management and husbandry techniques and reasons for keeping livestock. Also there were questions on livestock production, such as the number of livestock, rearing systems, animal housing, feeds, breeds, veterinary inputs and sale of animal products. In addition the owners were asked to comment on constraints in keeping livestock and the effects of floods and avian influenza on livestock production in the areas.

The results showed that the pig was the dominant species reared in the town, followed by chickens, ducks, cattle, goats and buffalo. Most producers kept livestock to get extra income (45%), to provide employment (34.2% were unemployed), while 11.7% of them aimed to utilize cheap waste feed to increase profitability. Around 60% of those mainly responsible for the livestock were women. Most owners were aged from 31 to 50 (54.2%) and their level of education was low with 55% only having elementary school education, and 15% were illiterate.

The most important problem was lack of capital (63.3%), and then feed for the animals; flooding was the third most important problem for animal production in the town. Although 58.3% of animal owners did not have a cesspool and only 21.6% used manure, only 1.7% of producer admitted that they had conflicts with their neighbours. In their opinion 50% of them felt avian influenza was not particularly dangerous, 5.8% considered it to be "very dangerous", 41.7% "dangerous" and 54.2% thought that they could continue keeping poultry in spite of the outbreaks of the disease.

Key words: Chau Doc, Urban, Peri-urban, Livestock production, Livestock keeper, Reason, Species, Systems, Environment, Constraints, Avian influenza

1. Introduction

Chau Doc Town is located at the top of the Long Xuyen quadrangle. It is contiguous in the East with the Hau River and in the North with Cambodia. The town has abundant and diversified natural resources (land, water, aquatic products etc.), has a convenient geographical position with a good land and river transport network, facilitating both domestic and internationa

l trade. In addition, the Sam Mountain, a mountain emerging in the middle of the market town, is well known as a pilgrimage and tourist attraction in the Mekong Delta. With these potential advantages, Chau Doc Town is one of two important urban areas in Angiang Province, and is now developing rapidly.

2. Background information on Chau Doc Town

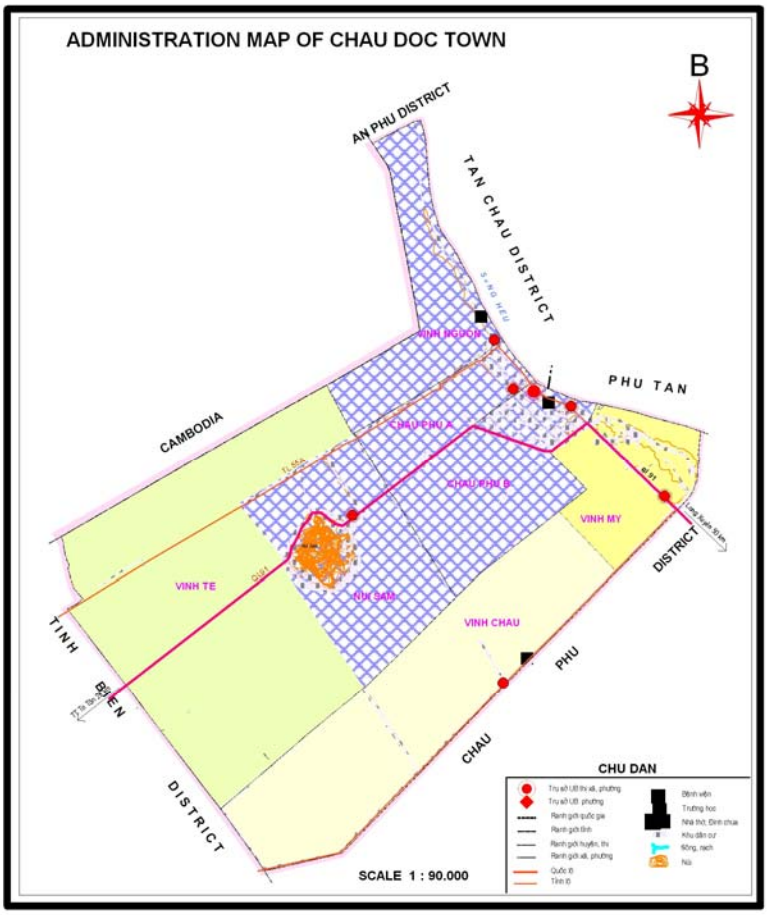

Figure 3.1. Administration map of Chau Doc Town

Located in the northwest of Angiang Province, Chau Doc has more than 112,000 people living on an area of 100.59 km^2 that is divided into seven communes and wards: Chau Phu A, Chau Phu B, Nui Sam and Vinh My wards; and Vinh Nguon, Vinh Te and Vinh Chau communes (Figure 3.1.) The labour force of working age is more than 72,000 people, which is about 64.5% of the total population of the town.

The economy of the town is based on commerce and services, with a growth rate of 10.9%/year, including agriculture-forestry-aquaculture, which is growing at 4.6%/year, and industry-construction, which is growing at 4.6%/year (Consulting and rural development Company).

Located at the source of the Hau River, periodic flooding is also a factor that affects the economy of Chau Doc Town, especially agricultural production. The flooding season starts from July to the end of August, becomes highest from September to October and then declines from November to December. However, food production is also an important part of the economy of Chau Doc Town, especially agricultural production, although this is affected by the annual floods.

3. Materials and methods

3.1. Selection of sites and responsible households

Three wards and one commune of the seven wards and communes in Chau Doc Town were selected. Of these a total of 120 households were chosen, in Chau Phu A, Chau Phu B, Nui Sam ward and Vinh Nguon commune. Chau Phu A, Chau Phu B and Nui Sam include a proportion of the town, and have a population density of 6,164, 2,486 and 1,616 capita/km^2, respectively.

Chau Phu A and Chau Phu B are considered to be the major urban districts in Chau Doc Town. They have been established and developed for a long time and they also influence surrounding areas and have developed as a base for commerce and services.

Nui Sam ward, that includes Sam Mountain, is the second most important urban area in Chau Doc Town, with development based on commerce and services. This area includes several tourist sites such as the Mother Saint Xu's Pagoda, Thoai Ngoc Hau Mausoleum, Tay An Pagoda, Bach Van Hill and the Victoria Tourist Village. Each year these attract over 2 million visitors for pilgrimages, sightseeing and periodically for the Mother Saint Xu's Festival Day. The population density becomes higher during pilgrimage times.

Vinh Nguon is contiguous to Cambodia, has a market near the Vietnam-Cambodia border, and is affected by flooding every year. Although the main activities of people are agriculture, the natural usable surface area is low and as it is affected by flood every year, the inhabitants have to transport goods to get income.

Table 3.1 Land area and population of Chau Doc Town, 2003

	Area (km^2)	Agricultural land (km^2)	Residential land (km^2)	Pop.* (head)	Population density (head/km^2)
Chau Doc Town	100.59	76.28	5.30	112,155	1,115
Chau Phu A	4.84	3.25	0.80	29,835	6,164
Chau Phu B	11.59	8.99	0.64	28,816	2,486
Nui Sam	13.97	8.52	1.00	22,569	1,616
Vinh My	7.80	4.38	1.00	15,725	2,016
Vinh Nguon	8.95	6.29	0.41	6,555	732
Vinh Te	32.05	27.19	0.79	5,105	159
Vinh Chau	21.39	17.66	0.66	3,550	166

Source: Chau Doc Statistic Yearbook, 2003
Pop.: Population*

The total of households that was interviewed was 120 (30 households in each ward or commune). Respondent families were selected from the lists provided by the ward leader and based on the number of livestock kept (small-scale with <25 pigs or < 200 chickens or ducks, or < 10 cattle) and farms where the producers and their animals stay, as some producers are not allowed to keep livestock near their residence.

3.2. Data collection

Data were collected on:

- Household information, such as manpower, activities and income and capital
- Livestock producer: age, education and gender of main livestock producer; source of information on new management techniques and experience in livestock production
- Number of livestock kept and reasons for keeping livestock
- Livestock production: animal housing and livestock systems; breeds and species; cesspool and use of manure; feeds and feeding systems; veterinary services and vaccination; sale of livestock products and effects of floods on livestock production
- Producer problems; support and future plans
- Opinions on location of farm; on avian influenza and it consequences

3.3. Research methods

3.3.1. Collecting general data

General data were collected by two methods: collecting information from the administrative authorities of the town and local officers, and Participatory Rural Appraisal methods (PRA).

3.3.2. Primary data

Primary data were gathered from interviewing livestock producers. The questionnaire is based on discussions with the ward leaders, the characteristics of the environment-economy-society of the sites and the questionnaire used to interview households in Long Xuyen City.

The interviewers included both staff of the Agriculture and Natural Resources Faculty of Angiang University and local leaders. The students of Angiang University could not participate in the interviewing because they were taking examinations at the time.

4. Results and discussion

4.1. Characteristics of livestock owners, Chau Doc Town

4.1.1. Household members

Table 3.2. Household (hh) members

	No. of hh	Min	Max	Total	Mean
No of people in hh	120	1	11	564	4.7
Total of available workers	120	1	8	396	3.4
Agricultural workers	120	1	8	322	2.7
Female workers	114	0	5	154	1.3
Male workers	108	0	5	168	1.4
Child workers	16	0	3	22	0.2

A total of 120 households were studied in Chau Doc town, with in total 564 capita with a mean of 4.7 per family. The total of working age was 396, with a mean of 3.4 per family. The total number of agricultural workers was 322 and included 154 females, with a mean of 1.3 per family, and 168 males, with a mean of 1.4 per family. Though the number of women working in agriculture (154) was lower than men (168), the total number of households that had female workers was higher than male workers (114 and 108, respectively). Only 16 households used their children to help in taking care of their livestock.

4.1.2. Age and education of person mainly responsible for livestock keeping

Table 3.3. Age and education of person mainly responsible for livestock keeping

	Gender					
	Female		Male		Total	
	No. of hh	%	No. of hh	%	No. of hh	%
Total	72	60.0	48	40.0	120	100.0
Age						
<30	8	6.7	8	6.7	16	13.4
31-40	23	19.2	9	7.5	32	26.7
41-50	21	17.5	12	10.0	33	27.5
51-60	9	7.5	13	10.8	22	18.3
>60	11	9.2	6	5.0	17	14.2
Education						
No schooling	11	9.2	7	5.8	18	15.0
Elementary	39	32.5	27	22.5	66	55.0
Secondary	13	10.8	11	9.2	24	20.0
High school	9	7.5	3	2.5	12	10.0

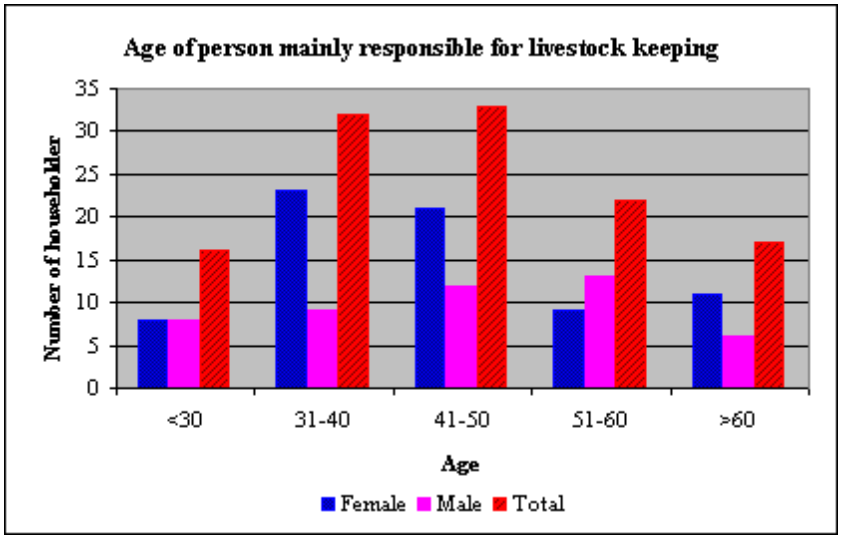

Figure 3.2. Age of person mainly responsible for livestock keeping

Although the number of men working in agriculture was higher than the number of women (Table 3.2), the proportion working with livestock production (60.0%) was higher than of men (40%). As in Long Xuyen City, the reason for this

gender disparity between men and women is that men are at an advantage compared with women where it concerns finding paid employment outside the home. Women have to do all of the housework and earn regular income, mostly in and around their house.

However, the number of livestock producers in each age group was different between women and men (Figure 3.2). While the number of men engaged with livestock was highest from 30-60 years old and then decreased for those over 60 years old, the proportion of females was highest in the under 31 years old category, then decreased (51-60) before increasing again from 60 year old onwards. Only in the age category 51-60 years was the number of men working with livestock higher than the number of women. The reasons for these gender differences in comparison with Long Xuyen are that the major economic activities in Chau Doc town are trade and services, with limited industrial and construction activity (Table 3.4). This means that the available labourers in the town, especially male workers, have few opportunities for wage employment, and are forced to work in agriculture. On the other hand, in a few instances household economic activities also affected the allocation of work within the household. For instance, women were nearly always most active as traders, and so in this case the men had to manage the housework and look after the livestock.

Table 3.4. Proportion of income from different economic sectors in Chau Doc Town.

Unit, %

Economic sector	1999	2000	2001	2002	2003
Agriculture, Forestry and Fishing)	40.86	32.66	28.07	26.76	21.16
Sector 2 (Industry and Construction)	15.69	13.47	14.60	15.73	18.05
Sector 3 (Trade and Services)	43.45	53.87	57.33	57.51	60.79

Source Chau Doc Statistic Yearbook, 2003

The level of education of the person mainly responsible for the livestock in Chau Doc Town was low, although the level education of female livestock producers was higher than of the men. Around 55% had elementary school education only, and 15% were illiterate (9.2% women, 5.8% men). Only 10% had high school education (7.5% of women and men only 2.5%) and 20 % secondary school education (10.8% women, 9.2% men). The explanation for this might be that the women responsible for the livestock were younger than the men and so they had more chances to go to school. (Figure 3.3)

The proportion of producers who started keeping livestock less than 5 years ago (2000-present) was highest (44.2%), followed by those who started from 6-10 years ago (23.3%), 11-15 years ago (10.8%), 16-20 years ago (8.3%), 21-25 years ago (4.2%) and finally more than 26 years ago (9.2%) (Table 3.5 and Figure 3.3). The reason for this distribution is that most of the people mainly responsible for the livestock were under 50 year old. The fact that, almost half of those questioned had less than 5 years experience with livestock indicates that this is a sector that is

expanding and is economically attractive, as consumption and demand for livestock products is still increasing steadily.

However, another factor behind the recent increase in the number of people raising livestock is the employment situation. The number of available workers in the town is increasing by more than one thousand every year, while the area of land for agriculture and the number of companies offering work are limited. The high level of unemployment in the town was evident, especially for young people with a low education level. Therefore going into livestock production is one of the few available income generating activities.

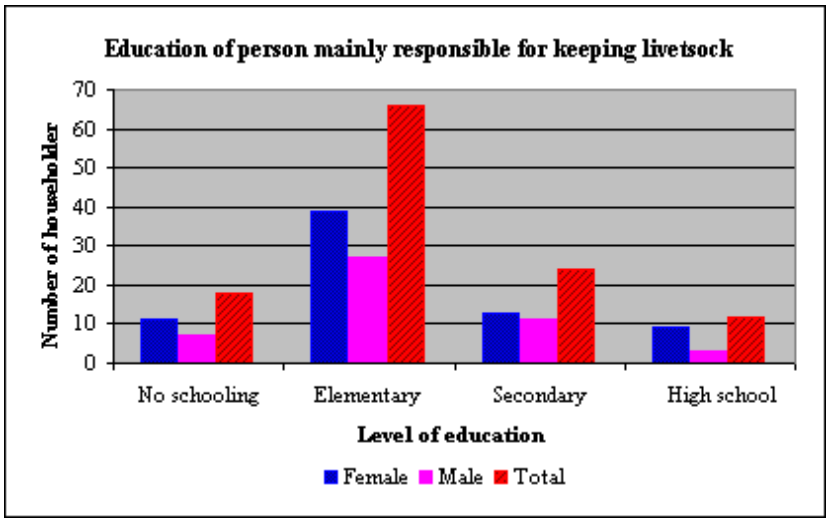

Figure 3.3. Education of person mainly responsible for keeping livestock

Photo 3.1. Livestock owners in Chau Doc Town)

4.1.3. Years of experience of keeping livestock

Table 3.5. Years of experience of livestock keeping

Year of experience	No. of hh	%
=<5 years	53	44.2
6-10 years	28	23.3
11-15 years	13	10.8
16-20 years	10	8.3
21-25 years	5	4.2
>=26 years	11	9.2

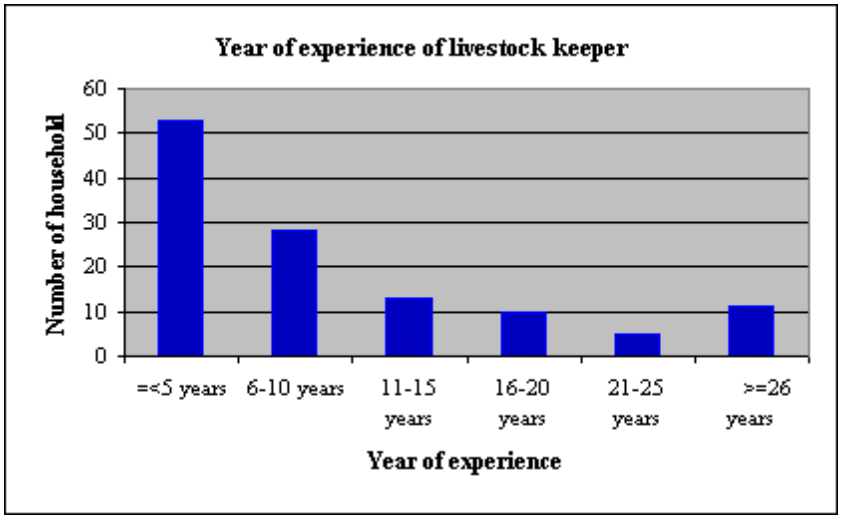

Figure 3.4. Year of experiment of livestock keeper

4.1.4. Sources of information on new management techniques

As in Long Xuyen city, most producers (91.7%) learnt about new techniques through their own experimentation, followed by other farmers (28.3%), the mass media and extension services (15%), and finally by attending workshops (only 12.5%). (Table 3.6 and Figure 3.5)

Although the local government organized training courses on new husbandry techniques, and in addition offered loans, few producers attended the courses. Most said that at that time they did not have any free time because of the need to earn money for their family, while other producers said they wanted to learn about improved management techniques but they did not know where they could find out about the courses.

Table 3.6. Sources of information on new management techniques

Sources of information	No. of hh	%
Own experiments	110	91.7
Other farmers	34	28.3
Mass media	18	15.0
Workshops	15	12.5
Extension services	18	15.0

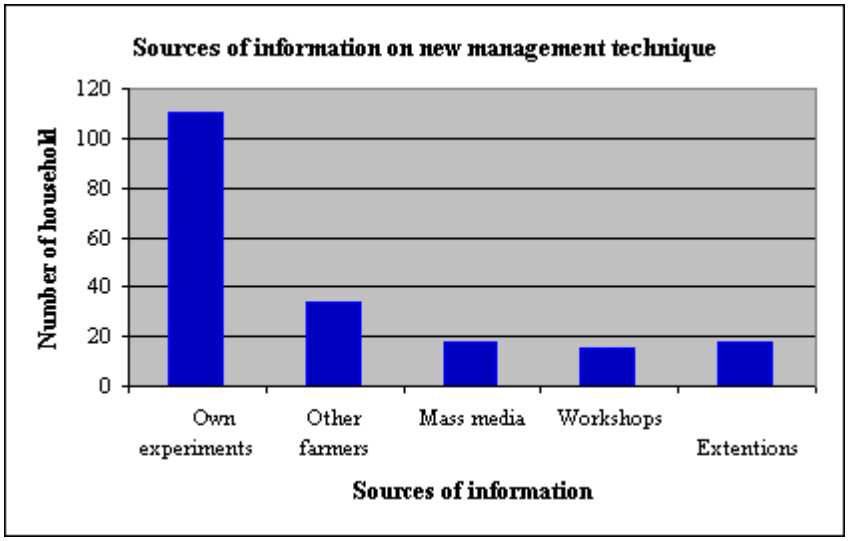

Figure 3.5. Sources of information on new management technique

4.1.4. Household activities besides animal production

Besides livestock production, other activities varied between households, and included both agricultural and non-agricultural activities. Rice is considered the main force of agricultural activities, particularly in the areas that are flooded or can not grow others crop (Anh, V.T, 2004). Thus, the majority, 56.7%, cultivated rice, followed by trade (28.3%), agricultural labour (27.5%), services (21.7%), non-agricultural labour (18.3%), fishery and wage employment (9.2%), cultivation of other crops (4.2%) and a few were engaged in small-scale processing (0.8%).

Although Chau Doc town is the second urban area in Angiang province, agricultural land still accounts for 75.8 % of the total land area of the town (Table 3.1) and the value of the GDP from agriculture, forestry and fishing (21.16%) (Table 3.4) was second in terms of the contribution to the total GDP of the town. This explains why the number of workers in agriculture is still high.

Chau Doc is well known as a pilgrimage and tourist area, the main attraction being Mother Saint Xu's Shrine (Angiang People committee, 2003). A festival is held on the 24th of April every year, and the shrine attracts more than 2 million visitors per year. In addition Chau Doc also has markets on the border with Cambodia in Vinh Nguon commune, and this contributes to trade, services and labour in non-agricultural activities, providing many jobs.

Table 3.7. Household activities in addition to animal production

Activities	No. of hh	%
Rice	68	56.7
Other crops	5	4.2
Fishery	11	9.2
Services	26	21.7
Agricultural labourer	33	27.5
Non-agricultural labourer	23	18.3
Trade	34	28.3
Small-scale processing	1	0.8
Employee	11	9.2

4.1.6. Reasons for keeping livestock

Table 3.8. Reasons for keeping livestock

Reason	No. of hh	%
Income	54	45.0
Profitable way of using cheap waste feed	14	11.7
Unemployed	41	34.2
Like rearing animals	10	8.3
Was encouraged	1	0.8

Because of the annual floods most arable lands can only produce two crops per year, although some small areas protected by high-dykes can cultivate 3 crops per year. In order to avoid the effects of the floods, the farmers seed intensively, shortening the period to 10-15 days per crop. This has meant that they have more free time and are underemployed. In order to get additional income, some engage in fishing in the flood season, work in transport of goods or go to find work in other provinces. However, these jobs are casual and income is insecure, and many reason that keeping livestock would be a better alternative, offering a more secure, year round source of income without them having to move from their house. In addition, the market in Chau Doc means that livestock products are easy to sell, especially

around the time of the New Year Festival and in April when many tourists and pilgrims visit and offer sacrifices to Mother Saint Xu, which is normally roast pork.

When interviewed, 45% of the livestock producers said that the main reason for keeping animals was for income, 34.2% for providing employment, 11.7% because of the availability of cheap waste feed, and 8.3% replied that they simply liked to rear animals. One respondent, who was an old and unemployed man, said that he was encouraged to keep cattle by a local extension officer.

4.2. Livestock systems in Chau Doc Town

4.2.1. Number of households keeping livestock and livestock species

Table 3.9. Number of household keeping livestock, and livestock species kept

Species	All species		Main species		Breeding female		Total	Female
	No. of hh	%	No. of hh	%	No of hh	%	No. of hh	No. of hh
Pig	90	75.0	84	70.0	48	40.0	641	85
Buffalo	7	5.8	7	5.8	1	0.8	29	1
Cattle	16	13.3	14	11.7	3	2.5	40	6
Goat	9	7.5	7	5.8	7	5.8	67	42
Chicken	18	15.0	2	1.7	16	13.3	354	137
Duck	15	12.5	6	5.0	12	10.0	2304	1439

As in other parts of Vietnam, the pig is the most common species of livestock, kept by 75% of households with livestock, followed by chickens (15%) and ducks (12.5%). However, only 2 of 18 livestock producers who kept chickens and 6 of 15 who kept ducks considered their poultry as their main livestock species. A higher proportion reared cattle (13.3%), buffalo (5.8%) and goats (7.5%) in Chau Doc than in Long Xuyen City. Chickens and ducks are mainly reared in scavenging systems, and search for food in the backyards or on the fields, particularly after the rice harvests. Normally, cattle are kept for fattening and sold after several months (3-6 months, depending on their condition). Buffalo are kept for mainly for draught, rather than meat. Because parts of the town are mountainous and slopes are steep, and other areas regularly flooded, it is very difficult to use machines to prepare the land for cultivation, and so buffalo are the only alternative. Goats have been kept for many years by grazing along the mountain slopes, and numbers have been increasing in recent years.

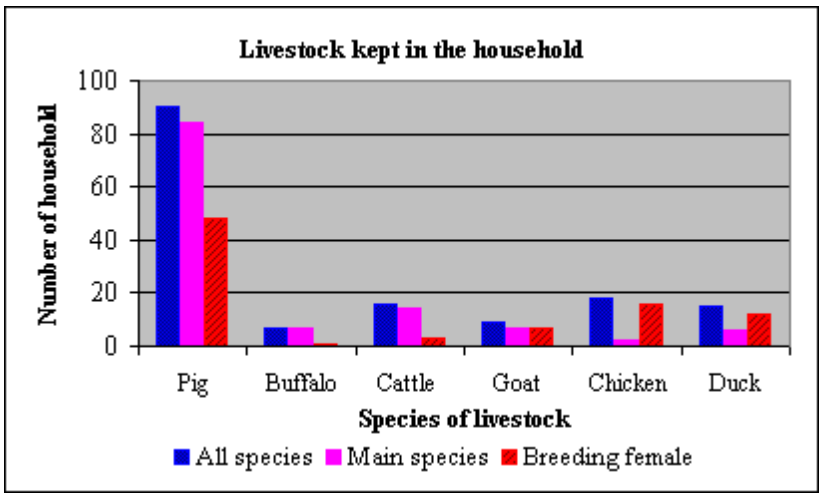

Figure 3.6. Livestock kept in the household

4.2.2. Rearing systems and animal housing

Table 3.10. Rearing systems and animal housing

	Rearing system			Housing	
	Scavenging/grazing	Confined	Combined	Temporary	Permanent
	No. of hh	No. of hh	No. of hh	No. of hh	No. of hh
Pigs	1	87	2	37	53
Buffalo	1	1	5	4	3
Cattle	-	6	10	11	5
Goats	-	6	3	5	4
Chickens	14	-	4	12	6
Ducks	6	-	9	15	-

The rearing systems in the town vary according to species. Pigs are almost entirely confined (96.7%), with only 2.2% in combined systems and 1.1% are allowed to scavenge. For buffalo, 5 of 7 households (71.4%) used a combined system, 1 grazed (14.3%) and 1 confined (14.3%) their buffalo. For cattle combined systems (grazing and confinement) were most common (10 households) followed by confinement only (6 households). Six households confined their goats and only 3 households used a combination of confinement and grazing. Poultry were also reared in either scavenging or combined systems, with most chickens kept in scavenging systems, while ducks were mainly reared in combined systems (scavenging and confinement). The reason for this is that ducks can be kept in large numbers to utilize

paddy rice left in the field after harvesting, but must be confined after the rice has flowered.

(Photo 3.2. Scavenging pigs)

(Photo 3.3. Goat house)

The number of producers that constructed temporary houses for their animals was high, with 37 of the pig houses, 4 buffalo houses, 11 cattle houses, 5 goat houses, 12 chicken houses and 15 duck houses being temporary structures. The reasons given for making temporary houses for animals were: the high cost of construction (37.5% of the producers who made temporary houses for their animals); animals grazed or scavenged a lot of the time (25%); the house would be damaged by floods (14.8%); they had borrowed land from their neighbours (12.5%); they only owned a few animals (5.7%); pilot production (3.4%) and they intended to stop keeping animals in the near future (1.1%).

In addition, in some parts in Chau Doc Town that are affected by flooding every year, residents have put their house on stilts, and keep their animals under their house.

4.2.3. Cesspools and manure disposal

Table 3.11. Cesspools and manure disposal

	No. of hh	%
Have cesspool	50	41.7
Use of manure for:	26	21.6
Biogas	4	3.3
Sale	7	5.8
Fertilizer	11	9.2
Feed for fish	3	2.5
Burn to repel mosquitoes	1	0.8

Only 41.7% of livestock keepers had a cesspool, and even fewer (21.6%) used the manure produced. Depending on the livestock species, manure was used in different ways: pig manure was used as feed for fish (2.5% of total) and biogas production (3.3%), while cattle and buffalo manure was sold (5.8%) or burnt to repel mosquitoes (0.8%). Manure from cattle, buffalo, goats, chickens and ducks was used as fertilizer (9.2%). Some livestock producers who did not have cesspool said that they put the manure into plastic containers that the garbage collector would dispose of, while others put the manure into plastic bags that they threw away, and a few put their animal wastes directly into the river.

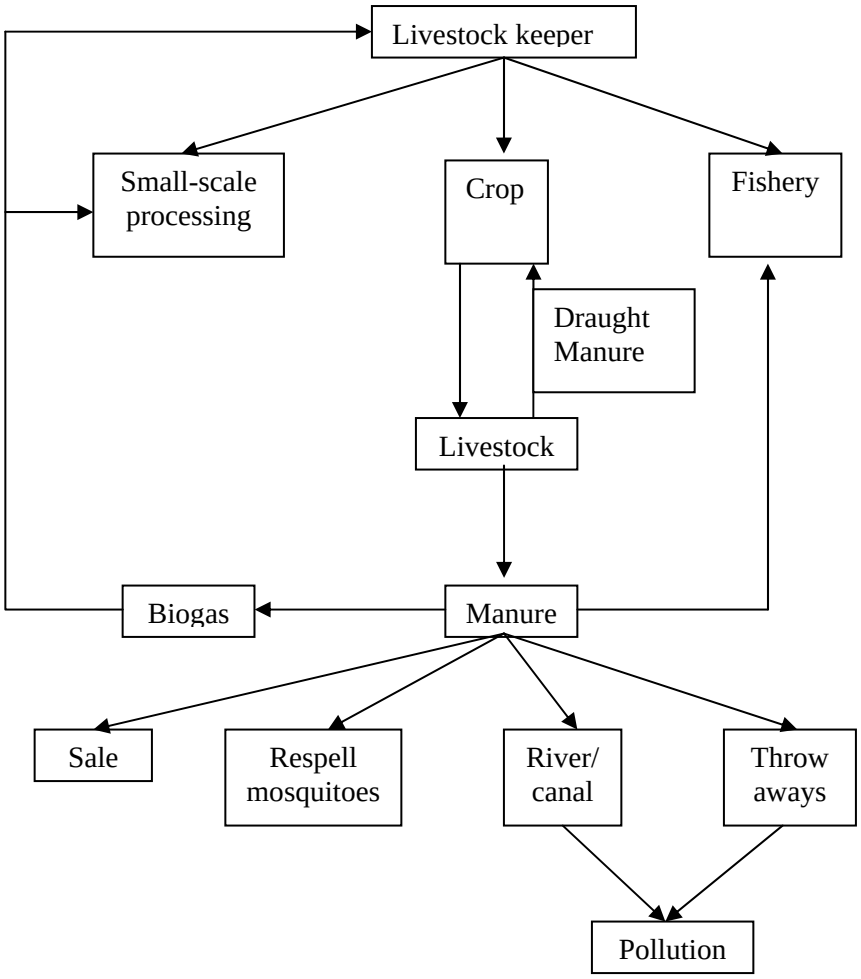

Figure 3.7: Manure disposal in Chau Doc Town

4.2.4. Animal feed

Animal feeds used in Chau Doc Town depend on factors such as social categories, animal species, household income, available household labour and location.

Monogastrics. The main feedstuffs for pigs were rice bran (82 households), broken rice (79 households) and commercial feed (63 households). Kitchen waste was used by only 15 households and even fewer pig producers used waste from processing industries, such as soybean waste (5 households) and brewer's grains (only 2 households). However, 28 households used water spinach as one of the main components of the pig feed, by cutting it into small pieces, mixing with broken rice and then boiling the mixture.

Most poultry producers fed their poultry with rice (14 households with chickens and 14 with ducks). Six households fed commercial feeds to their duck flocks, while only 1 household purchased commercial feed for their chickens. Only 3 households fed their chickens with broken rice and rice bran. (Table 3.12)

Table 3.12. Feeds for monogastrics

Feed	Pigs	Chickens	Ducks
	No. of hh	No. of hh	No. of hh
Rice bran	82	2	-
Broken rice	79	1	-
Commercial feed	63	1	6
Kitchen waste	15	-	-
Soybean waste	5	-	-
Brewer's grains	2	-	-
Water spinach	28	-	-
Rice	-	14	14

Photo 3.4, 3.5. Feed for pigs

Table 3.13. Feeds for ruminants

Feed	Buffalo	Cattle	Goats
	No. of hh	No. of hh	No. of hh
Natural grass	7	16	7
Rice straw	2	1	-
Rice bran	-	2	1
Water spinach	-	-	4
Leaves of trees	-	-	2

Ruminants. Natural grass was the main feed for ruminants, with 7 households using it for their buffalo, 16 for their cattle and 7 for goats. Rice straw was also used for buffalo and cattle (2 households used it for buffalo and 1 for cattle). Usually rice straw was stored and fed later when the owner did not have any free time to cut and collect grasses, or it was fed in the night-time. Goats were given natural grass (7 households), water spinach (4 households) and leave trees (2 producers). In particular rice bran was used as a supplement when the animal had to work hard, or in the fattening period (2 cattle and 1 goat producers).

(Photo 3.6, 3.7. Feed for Ruminants)

4.2.5. Veterinary services, vaccination and breeding systems

Table 3.14. Use of veterinary services, vaccination and breeding system

	Veterinary services used		Vaccination		Breeding*	
	Yes	No	Yes	No	AI	NM
No. of hh	100	20	86	34	6	67
%	83.3	16.7	71.7	28.3	8.2	91.8

* Only for pigs and cattle.

Only pig producers used all of these services, while owners of chickens very rarely used them. Of the producers interviewed, 83.3% used veterinary services and

71.7% used vaccination, mostly for pig and ducks. However, only 8.2 % (6 households) that kept sows and cows used artificial insemination to breed their animals, the reason given being the high failure rate when using this technique.

4.2.6. Advantages and disadvantages of livestock production in Chau Doc Town

Advantages

- There were some support progammes from the local government to create jobs and income for the livestock farmers based on production, such as the "Poverty eradication" and "Closed high-dyke" programmes. The People's Committee of the ward (or commune) would coordinate with the agriculture and economics bureau and the veterinary station in the town to train farmers in the use of new techniques and to arrange loans to the farmers (usually around 2-3 million VND per household).
- The Government helped poultry keepers to expand their production by giving supporting capital (5000 VND per head of poultry).
- Environmental officers helped producers to protect the environment, such as by digging a cesspool, installing biogas digesters, or propagandizing and mobilizing them to protect the environment. However, they only supported biogas techniques through advice, except for very poor farmers for whom the price would be reduced by 200-300000 VND / biogas unit.
- Producers in the town also had an opportunity for increasing livestock production due to the steady, year-round demand for livestock products by tourists.

Table 3.15. Livestock production problems

Problems	No. of hh	%
Lack of capital	76	63.3
Animal feed	72	60.0
Floods	26	21.7
Poor management techniques	22	18.3
Labour sources	19	15.8
Market	16	13.3
Poor quality breeds	11	9.2
Lack of veterinary treatment	4	3.3
Neighbour	2	1.7

Disadvantages and problems

Lack of capital was the most frequently given problem of livestock production in Chau Doc Town, with 63.3% (76 households) mentioning it, although only 50 households (41.7%) loaned capital, of which 44 loaned from the bank, 5 borrowed from private sources and 1 household loaned money from the local union. The reasons given as to why producers did not take loans from the bank were high interest rates (1 household), red tape (1 household), too short-term (2 households) and that they did not have anything to put forward as security (2 households).

The second most important problem was animal feed, cited by 72 households (60%). Of these, 71 households said that high feed cost was a problem and 1 household said it was difficult to find feed for their animals. Mainly pig and commercial poultry producers complained about the cost of feed, because the main feeds for pigs and poultry are rice bran, broken rice and commercial feeds, which are also in competition with fish farmers. In recent years, aquaculture in Chau Doc town has been developing strongly, and has increased the demand for rice bran and commercial feed, and so the cost of these has become higher. In addition, as rice production is affected by floods every year and most farmers only cultivate 2 crops annually, feed cost is only low in the relatively short time around harvesting. "Difficult to find" was a complaint about feeds used for ruminants, especially for cattle and buffalo, although of the 26.6% of producers that kept ruminants only 1 complained about the difficulty of finding feed. Some owners said though that in the dry season they had to find natural grass far from their home, but in the wet season grasses were easy to find. Some said that they went to Cambodia to cut or purchase natural grass, paying 5000 VND for two loads or 8000 VND for one small load of natural grass. However, they said that this cost was acceptable.

Flooding was the third most important problem of livestock production in the town (21.7%, 26 households: 12 in Chau Phu A and 14 in Vinh Nguon). Producers often had to move their animals into higher areas (mostly along the roads) because of flooding of the animal house. It was difficult to move large, or many, animals and this also led to complaints by neighbours. Thus, this was one of reasons that made producers reluctant to expand their animal herd.

The fourth major problem was poor management techniques (22 households, 18.3%). The reasons were that most of them got new techniques from their own experience (91.7%) (Table 3.6) and as the level of their education was low they considered it difficult for them to learn new techniques.

Labour was the fifth most common problem, with 19 households (15.8%), of which 2 cited poor health, 2 limited technological knowledge, and 15 households a general shortage of labour. Finally 16 households said that they used their children to help take care of their livestock.

Marketing the products however was not considered to be a major problem, cited by only 16 households (13.3%), of which 14 complained about the low price of their products and 2 households thought that were paid too little and were cheated on the weight. Selling their animals or produce however was not considered a problem

because middle-men would come and buy them. On the other hand, production of some livestock products, especially pork, was not sufficient to satisfy the demand in the town. According to the manager of the slaughter-house in Chau Doc Town, the consumption of livestock products in the town corresponded to 220-260 animals per day, but in fact they slaughtered only 170-220 pigs and 15-20 cattle or buffalo per day, although the number increased on Tet holidays and in connection with festivals when meat for sacrifices was purchased.

Another problem was poor quality breeds (11 households, 9.2%). The reason for this problem was that most producers bought breeding animals from other local producers, or bred replacement stock themselves. Thus, the breed quality deteriorated with time because of inbreeding. Lack of veterinary treatment was another problem that a few producers experienced (4 households, 3.3%) and the least important problem was conflicts with neighbours, usually about odours (2 households, 1.7%).

Photo 3.8. Pig house was flooded

Photo 3.9. Pig waste released into the river

Suggestions for improvements of livestock production

In order to develop livestock production in the town, producers had some suggestions, such as:

- The feed costs should be lower and stable
- The costs of production should also be stable
- Capital available for borrowing should be increased and be paid back over a longer period
- Producers should establish “livestock production associations” under a single manager. The purposes of these associations would be:
  - To supply capital to producers in the association from contributions from all members, and to help them to manage this capital suitably, effectively and ensure that loans are paid back on time.
  - To support new management techniques
  - To make sure the markets are stable with respect to price of products

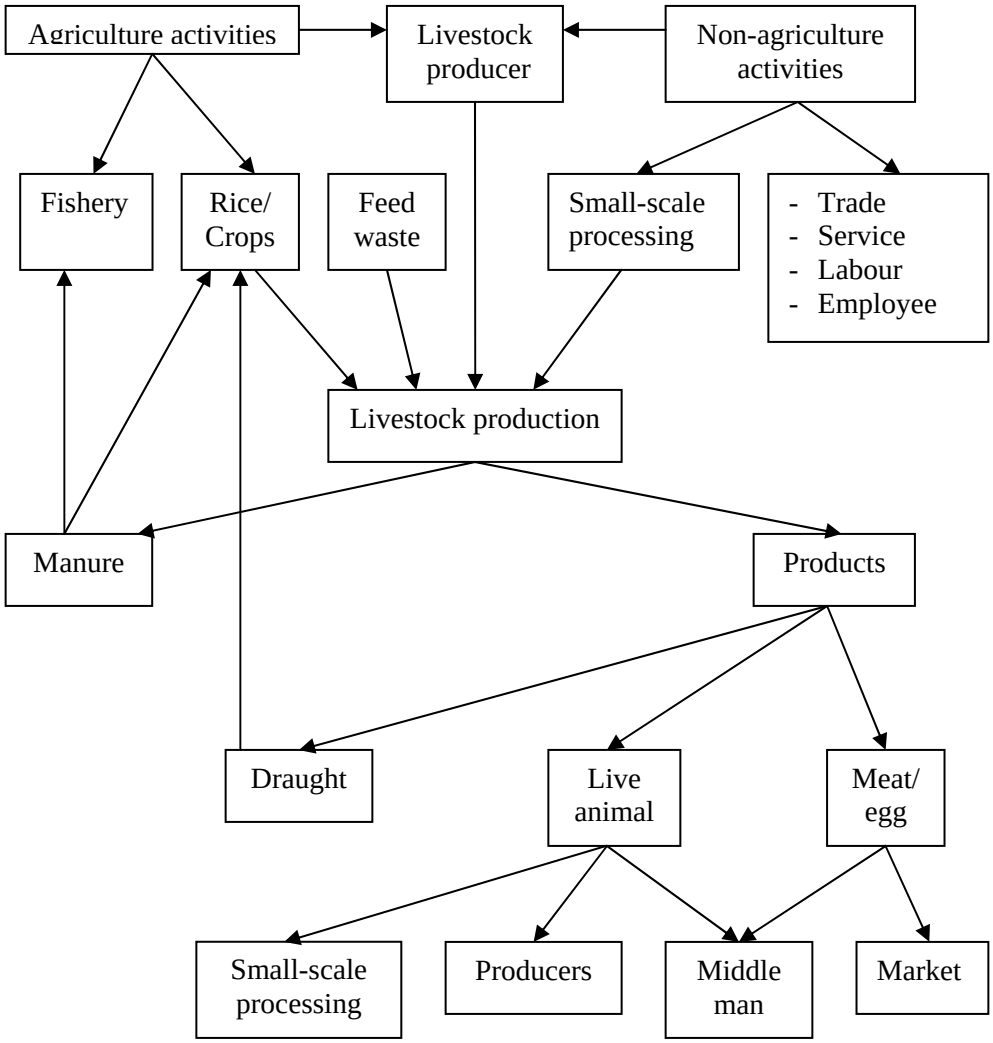

Figure 3.8. Livestock systems in Chau Doc Town

4.3. Opinions of livestock producers on other issues

4.3.1. Avian influenza and its consequences for them

Although avian influenza is generally considered to be a dangerous disease for both poultry and humans at present, surprisingly only 41.7% of livestock producers thought it was dangerous and only 5.8% considered it to be very dangerous. As many as 50.0% said it was not particularly dangerous and 2.5% said they did not know. Thus, 54.2% of producers thought that they would continue keeping poultry, while 35.8% thought they would probably have to stop keeping poultry, and 0.8% thought

they would change to other species. 9.2% of producers said they did not know whether they would stop or continue keeping poultry.

Table 3.16. Producer opinions on avian influenza and its consequences

Opinion	No. of hh	%
Avian influenza		
Very dangerous	7	5.8
Dangerous	50	41.7
Not particularly dangerous	60	50.0
Do not know	3	2.5
Poultry production		
Will stop keeping poultry	43	35.8
Will continue keeping poultry	65	54.2
Will change to other species	1	0.8
Do not know	11	9.2

4.3.2. Location of livestock housing

Table 3.17. Location of farm

Opinion	No. of hh	%
Far from residence	64	53.3
Near residence	49	40.8
No opinion	7	5.8

In contrast to Long Xuyen City, only 53.3% of livestock keepers wanted to keep their animals far from their residence, while 40.8% wanted to keep them near to the residence, and 5.8% did not know where they should keep their animals. The reasons that producers wanted to keep their animals near their residence were:

- Livestock housing was not usually located near the main streets or the inner-urban areas
- They did not have much land, and in any case the area was affected by floods for about 4 months per year
- It is more convenient for them to manage their animals
- Except for in Nui Sam ward, most producers keep their animals under their house (built on stilts).

4.3.3. Future plans

Table 3.18. Future plans for livestock production

Future plans	No. of hh	%
Intend to expand	57	47.5
Do not want to expand	50	41.7
Will change to other species	2	1.7
Will Stop production	1	0.8
Do not know	10	8.3

The most important factor for livestock producers in deciding to expand their production was profitability. If they thought their profits were likely to increase they would expand their production, but if the reverse was the case they would change to other species or even stop keeping livestock altogether. Of those interviewed 47.5% intended to expand, 41.7% did not intend to expand, 1.7% wanted to change to other species, 0.8% wanted to stop keeping livestock and 8.3% were unsure.

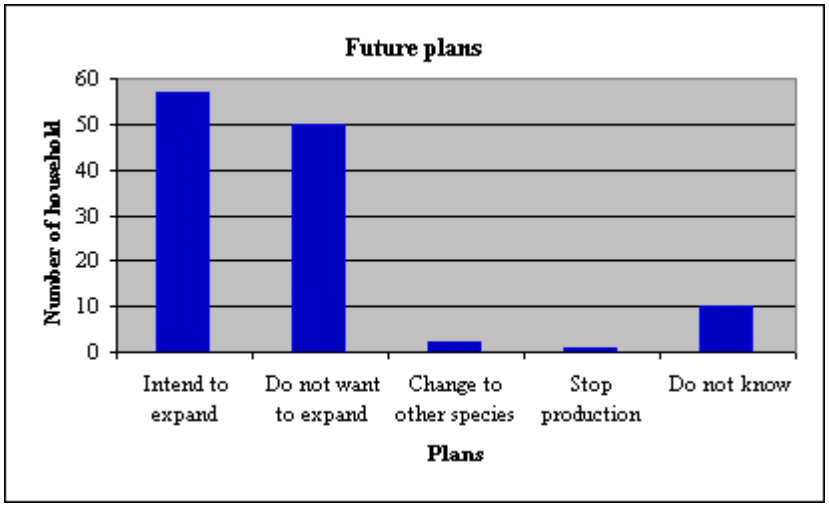

Figure 3.9. Future plans

5. Conclusions

Livestock production in Chau Doc Town at the moment plays an important role in creating job and income stable for farmers, in particular by utilizing available

by-products and labour sources in the town, increased the standard of living and reduced the gap in living standards between the center (where depended mostly on business, trade, services and tourism, and developed strongly in recent years) and the peri-urban areas of the town (where the major activity is still agriculture). Further development of livestock production will also improve the food security in the town, although uncontrolled animal imports make it more difficult to control animal diseases, especially Avian influenza. Flooding season and Avian influenza also affected the livestock production in the Town.

6. Acknowledgements

This survey was financially supported by Swedish International Development Co-operation Agency, Department for Research Co-operation (Sida-SAREC) through the regional MEKARN programme, and was carried out in Chau Doc Town, Angiang Province, Vietnam. We would like to thank the Office of Agriculture, Extension Station and slaughter-house of Chau Doc Town, and the 120 households involved in the interviews; the officers of Chau Phu A, Chau Phu B, Nui Sam ward and Vinh Nguon commune that gave us the information and made other contributions during the survey. Also thanks to my colleagues from the Agriculture and Natural Resources Faculty: Phan Ngoc Duyen, Cao Thi Luyen, Nguyen Thi Ngoc Giang, Tran Van Khai and Pham Xuan Phu for their great assistance in the interviews during the survey.

7. References

Angiang Government. http://www.angiang.gov.vn

Angiang People's Committee, 2003. Angiang Investment opportunity and prospect, 2003.

Angiang Statistics Yearbook, 2003.

Anh, V.T., 2004. Farmers making decision in transferring plant and animal structure in Angiang province. Agriculture and Natural Resources Faculty, Angiang University, Vietnam.

Chau Doc Statistics Yearbook, 2003.

Consulting and Rural Development Company. Project on Land use in Chau Doc Town from 2003-2010.