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LIVESTOCK MOVEMENT AND TRADE STUDY

FOR THE YEMEN AGRICULTURAL SUPPORT PROGRAM



FEBRUARY 2008

This publication was produced for review by the United States Agency for International Development. It was prepared by ARD, Inc.

ABSTRACT

The primary objective of this report is to improve the understanding of the domestic import and export movement of livestock in Yemen. The secondary objectives include the observation and methods of control of diseases, the determination of the current level of livestock trade and methods for monitoring trade, the locations of domestic markets, as well as the identification of potential export markets, and the evaluation of agricultural services including facilities. The information included in this report should supply the policy makers of the Government of Yemen (GOY), the Ministry of Agriculture and Irrigation (MAI), and the various USAID organizations with the basis to develop a Strategic Plan to improve the trade of Yemeni livestock.

ACKNOWLEDGEMENTS

The support of the Ministry of Agriculture and Irrigation, specifically the Deputy Minister Abdul Malik A. Al-Arashi and his director generals, was instrumental in the success of this report. The Ministry of General Works and Ways, General Corporation of Slaughterhouses and Meat Markets was also extremely supportive.

A large portion of the success of this report was due to tireless efforts of Drs. Najib Hammadi, Monsor M.A. Alqadasi, and Khalid Saed, as well as the twenty-one data collectors. Their understanding and knowledge of Yemeni livestock made the task of gathering data very efficient and extremely productive. Wadea Abdulsattar, Agriculture Specialist, USAID/Yemen, and Jeffrey Gray, ARD Senior Technical Advisor, were both extremely helpful in the completion of this report. The entire YASP support staff also deserves special mention.

All tables and figures are from the Livestock Movement and Trade Study, Yemen Agricultural Support Program (YASP), ARD, Inc., unless otherwise referenced. All photos are furnished courtesy of Dr. David Fleming, ARD Consultant, unless otherwise referenced.

COVER PHOTO:

These camels originated from Somalia and are being quarantined at Mukulla (February 2006). The photograph was furnished courtesy of Dr. David Fleming, ARD Consultant.

Prepared by ARD, Inc., under the USAID Global—Rural and Agricultural Incomes with a Sustainable Environment (RAISE) Indefinite Quantity Contract (IQC) Contract Number PCE-I-00-99-00001-00, Yemen Agricultural Support Program, Task Order 829.

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DISCLAIMER

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CONTENTS

- CONTENTSi**
- ACRONYMS AND ABBREVIATIONSiii**
- EXECUTIVE SUMMARYv**
- SUGGESTIONSvii
 - Immediatevii
 - Short-Termviii
 - Long-Term.....viii
- 1.0 INTRODUCTION 1**
- 1.1 Background..... 1
- 1.2 Methodology 2
- 2.0 QUESTIONNAIRE FINDINGS AND DISCUSSION 5**
- 2.1 IMPORT/QUARANTINE..... 5
 - 2.1.1 Results..... 5
 - 2.1.2 Discussion 8
- 2.2 OWNERS/HERDERS..... 10
 - 2.2.1 Results..... 10
 - 2.2.2 Discussion 17
- 2.3 MARKETS/TRADERS 19
 - 2.3.1 Results..... 19
 - 2.3.2 Livestock Movement Between Markets..... 23
 - 2.3.3 Discussion 33
- 2.4 SLAUGHTER FACILITIES..... 34
 - 2.4.1 Results..... 36
 - 2.4.2 Discussion 39
- 3.0 CONCLUSIONS 41**
- 3.1 LIVESTOCK MOVEMENT AND TRADE 41
- 4.0 SUGGESTIONS 43**

4.1 Immediate	43
4.2 Short-Term	47
4.3 Long-Term.....	48
ANNEXES	
ANNEX 1 REFERENCES	51
ANNEX 2 SCOPE OF WORK.....	53
ANNEX 3 QUESTIONNAIRES	57
ANNEX 4 COMPREHENSIVE LIST OF CONTACTS: OWNERS/TRADERS, MARKETS, SLAUGHTER, AND QUARANTINE FACILITIES.....	97
ANNEX 5 TANZANIA LEGISLATION.....	119
ANNEX 6 IMPORT/QUARANTINE CHARTS AND TABLES	143
ANNEX 7 OWNERS/HERDERS CHARTS AND TABLES.....	151
ANNEX 8 MARKET/TRADER CHARTS AND TABLES	159
ANNEX 9 SLAUGHTER FACILITY CHARTS AND TABLES.....	163

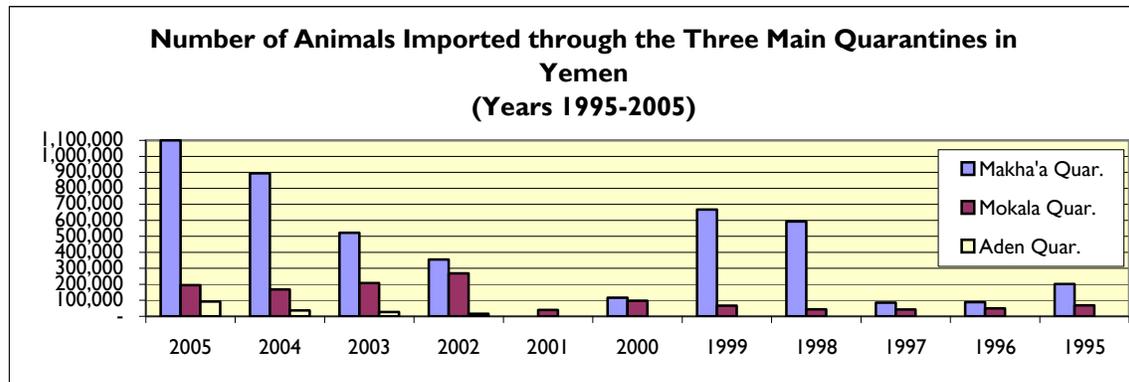
ACRONYMS AND ABBREVIATIONS

CCPP	Contagious Caprine Pleuro-Pneumonia
DC	Data Collector
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease
GOY	Government of Yemen
GPS	Global Positioning System
LMT	Livestock, Movement, and Trade
MAI	Ministry of Agriculture and Irrigation
OIE	Organization of International Epizooties
PPR	<i>Peste des Petits Ruminants</i>
RVF	Rift Valley Fever
RP	Rinderpest
TDN	Total Digestive Nutrient
USAID	United States Agency for International Development
VAMC	Veterinary, Agricultural, Marketing Centers
WTO	World Trade Organization
YASP	Yemen Agricultural Support Program
YR	Yemeni Rial

EXECUTIVE SUMMARY

The movement of Yemeni livestock can be traced back to the historic trade routes of the Arabian Peninsula, which connected the Far East, Eastern Africa, and the Mediterranean. The movement of livestock through these routes and the traditional markets that developed along them produced a marketing pattern that is still present today. Information about the movement, price, destinations, and ownership of livestock is closely held and only seldom recorded. The control of the livestock trade rests with a few families of traders, but the prices for livestock are heavily influenced by the price of imported Somali animals. There is little opportunity to add value to livestock due to the lack of monetary reward, high input costs, and limited exports. The majority of domestic livestock producers utilize traditional methods of livestock production that have a high labor demand but are low in productivity. The traditional pattern of livestock trade has served the Yemeni well for hundreds of years, but has unfortunately led to a high prevalence of disease and a heavy dependency on imported livestock. Access to international markets is greatly affected by the presence of specific diseases such as foot and mouth disease (FMD), brucellosis, *peste des petits ruminants* (PPR), Rift Valley fever (RVF), and rinderpest. High levels of official livestock exports cannot be achieved without major changes in the areas of disease control and domestic livestock production.

The majority of livestock imported into Yemen originate in eastern Kenya and Ethiopia. The livestock pass through the local markets in Somalia and end up concentrating around the ports of Berbera and Bosaso. Upon receiving orders from the Somali and Yemeni traders, the livestock are loaded onto ships bound for the ports of Mukha, Aden, or Mukulla. A few traders and veterinarians also indicated that some livestock are shipped to the western coast of Oman and then travel over land across the border into eastern Yemen. The majority of imported livestock are two- to five-year-old intact males, with a few intact females reported. Over the last ten years, the number of imported animals has increased by 643%. The rate of increase has been relatively constant except for 2000 and 2001 when there was a ban on imports associated with the RVF outbreak. During this ban, it is notable that the Mukulla facility continued to import livestock. It is also important to note that the port of Aden, according to authorities at the Yemen Ministry of Agriculture and Irrigation (MAI), is officially closed for the importation of livestock, but apparently the local governor has allowed importation to occur. This ban was established in order to decrease the potential of more livestock coming from Africa and introducing more RVF cases in Yemen. The important point about this outbreak is that the first cases were identified in Saudi Arabia. Through our questionnaires we were able to identify that there is routine livestock movement from Saudi Arabia southward to the central highlands of Yemen. In this particular outbreak, it is more likely that the indexed cases were in Saudi Arabia and that the southward movement of livestock carried it into Yemen. The importation ban was indeed not only unnecessary, but extremely detrimental to the domestic livestock population. In 2005, 1,414,282 head of livestock were imported into Yemen.



Upon being unloaded from the ships, the animals are either walked or transported to the port quarantine facilities where they receive a visual inspection by a veterinarian or veterinarian assistant. Blood samples are only intermittently drawn for disease testing and no vaccinations are given. Occasionally, an animal is treated for external parasites. Most facilities do not have complete isolation, thereby allowing newly-arrived livestock to mingle with those that have been present for days. The livestock are observed for anorexia and ataxia for 2 to 10 days before being released into the country. Only rarely are any animals condemned; usually the ones that appear ill are treated at the traders' expense before being released. The diseases most commonly observed are FMD, PPR, sheep pox, and pneumonia. The traders have to pay for the customs, quarantine, veterinarian care, feed, herders, and local counsel, which can add up to 20% of the animals' value at the Mukha quarantine and up to approximately 7% at Mukulla. Upon leaving the quarantine facility at Mukha, the majority of the cattle and sheep go to markets in Sana'a, Taiz, and Ibb. The camels and some cattle go to the markets in Hodeidah and on to Harad to cross over the Saudi border. The majority of livestock that enter through Aden are sold at the local markets and slaughtered at the local slaughter facilities. At Mukulla, the majority of cattle and goats/sheep are either consumed by the local population or are sent to the Hadramawt Valley for fattening before crossing the Saudi border. During peak demand periods associated with religious holidays, a substantial number of sheep and goats are sent to Aden. The majority of camels go to the Maharah Governorate and on to cross the border to Oman.

The majority of domestic livestock production occurs in the Tihamma, central highlands, and the Hadramawt Valley. The median cattle/camel herd size is 10 animals or less and the median sheep/goat herd size is 50 to 75. In the majority of cases, the tribes own the land utilized for grazing. The owners also indicated that greater than 50% of their animals originated from markets or were imported (i.e., were not reared by them). The owners' main consideration at market selection is the distance from their home. The traders at the markets are the main source of market pricing information, with other farmers second. The majority of owners indicated that over the last ten years they have decreased the number of camels and cattle in their herds. Approximately 48% of sheep and goat owners have increased their herd size, while 45% have decreased their herd size. Disease conditions observed in the flocks by owners are pneumonia, diarrhea, sheep pox, parasites, and mange. The main positive factors that affect the price of livestock in the market, according to the owners, are religious events and weddings; negative factors are imported livestock, disease, and increased number of livestock for sale. The most common responses the owners gave when asked in which areas they needed assistance to increase their herd size were: veterinary services, feed improvement, financial assistance, and water resources.

SUGGESTIONS

Immediate

Yemen livestock and agriculture has been the subject of several studies. It is apparent after discussions with members of the MAI that many of the people in decision-making positions are not familiar with these research documents due to communication barriers and other factors. In order to address this problem, **a committee of Yemeni experts in the main areas of livestock agriculture, veterinary medicine, marketing, economics, and horticulture needs to be established.** Utilization of international experts to assist this committee could also be extremely beneficial. This committee would be responsible for using published material, subject matter experts, livestock producers, and their own acquired knowledge **to develop a detailed agricultural action plan.** This plan will need to address the changes and programs necessary to develop a sustainable improvement in Yemeni agriculture. The plan must include all areas of livestock importation, production, husbandry, disease control, and marketing.

Another committee, made up of all of the director generals of MAI, the Deputy Minister of MAI, and representatives of various aid organizations, should be formed to develop methods for implementation and to identify policy changes and the amount of support necessary to assist in the implementation of the agricultural action plan. The program can then be submitted to the Minister of MAI and higher level authorities in the Government of Yemen (GOY). In order to truly affect sustainable change in the agriculture of Yemen, all levels of the GOY must be involved, especially if developing Yemen's export potential is to be an important goal.

Given Yemen's traditional role as the main point of convergence for livestock entering the Arabian Peninsula, there appears to be an excellent potential for establishing livestock exports. **Members of the ministries of agriculture, planning, export, finance, and marketing need to establish a committee to determine the feasibility of exporting livestock and livestock products.** The United Nations Food and Agriculture Organization (FAO) estimates that meat consumption in the Middle East will continue to increase from 3 to 8% per year for the next ten years. One possibility for addressing this goal is the establishment of disease-free zones for export. By utilization of Organization of International Epizootics (OIE) and World Trade Organization (WTO) standards (see www.oie.int/eng/normes/mcode/en_sommaire.htm) these zones will reduce the risk of contamination from animals being imported, as well as promote exportation of Yemeni livestock and livestock products. The existing ports of Mukha, Hodiedah, Salif, and the Free Trade Port of Aden could possibly be utilized but would require extensive expansion and establishment of effective strict quarantines.

A more immediate and practical approach to addressing both the need for increased imports, as well as to establish export markets, is to develop regional import/export agreements with the countries of Eastern Africa and the Middle East. The Red Sea Livestock Development Project was based on solid concepts consisting of utilization of regional agricultural resources, monetary assets, and demands to develop regional trade. Unfortunately, due to political pressures, it is no longer an active project. The GOY has the opportunity to exploit their existing position as the traditional point of entry of livestock onto the Arabian Peninsula to establish official trade agreements with the surrounding countries. There are numerous areas in Eastern Africa that, due to climate, are more suitable to cultivate crops than the arid areas of Yemen. Unfortunately, due to limited export potential, much of the cultivable land lays furrow. Many Arab countries are experiencing explosive growth in population and tourism, as well as prohibit the direct exportation of live animals from Africa. These factors have led to an increased demand for quality meat in the area. Yemen is in the position to take the lead to develop a livestock feeding and finishing business that could supply the area with much needed meat and meat products, but in order to do so it would have to be able to obtain adequate feed stuffs at an affordable price. Yemen would need to establish diplomatic ties and develop export/import agreements that could benefit all countries involved. In order to take advantage of this position, Yemen would have to aggressively attack their disease control problem in their livestock sector by increasing their

ability to adequately and effectively quarantine livestock. One way to take some of the pressure off of their own quarantine system would be to utilize the livestock quarantine structure built in Djibouti for the Red Sea Livestock Development Project.

Short-Term

In order to meet the ever-increasing pressure placed on livestock production, tremendous efforts must be directed to assist the livestock producers. Programs that disseminate improved methods of the production of livestock and forage being carried out by the World Bank and United States Agency for International Development (USAID) need to be expanded to include all of Yemen. An important aspect of the programs is veterinary assistance for the control and treatment of disease. **The most common request from the owners and traders in our survey was for the expansion of veterinary services.** The majority of GOY veterinarians are located in the areas of high animal and human population density. Unfortunately, the rural areas suffer from insufficient veterinary services. **One of the most critical strategies for meeting the veterinary needs of livestock producers is for the Government of Yemen and donors to encourage and promote the privatization of services in areas that can support veterinarians,** as well as the utilization of government-supported veterinarians in the rural areas.

The establishment of organized livestock markets is an important part of improving the livestock sector. **The majority of traders indicated that they would be willing to work with the GOY to improve the markets.** Organized competitive markets not only serve to allow more market opportunities for sellers, they also serve as an excellent location for testing and treating livestock disease. Disseminating market information is an integral part of organized markets, which allow sellers to make informed decisions. Posting market prices discovered through this study and updated prices on the new MAI Web page (<http://www.MAI-yemen.org>) would be an excellent place to start this effort.

The establishment of an effective quarantine system for imported livestock is essential to increase the efficiency of livestock production by decreasing imported diseases. The three most important aspects of an effective quarantine, in this author's opinion, are the testing for disease, strict enforcement of isolation protocols, and proper disposal of diseased animals. In order to accomplish these tasks, veterinary and health officials must have the authority and unwavering support of the government. The government must also commit to the use of all necessary resources to improve quarantine facilities and prevent the smuggling of non-quarantined animals, or the quarantine system will not be effective in controlling disease.

In order to effectively meet the needs of producer education, market modernization, and disease control, MAI needs to establish veterinary, agricultural, marketing centers (VAMCs) that house veterinarians, extension specialists, and market inspectors. These centers should be located at the 49 major and secondary markets identified in this study. Since the markets have traditionally been the points of livestock concentration, MAI could quite easily and cost-effectively turn these markets into centers for education and disease control. The markets could also be utilized in the rural areas as the centers for mobile veterinary services for the surrounding population. In the more populous areas, the MAI could contract with the private sector veterinarians to perform the testing at these markets and thereby allow the MAI veterinarians to take care of the more rural markets.

Long-Term

Yemen has been the receptor of many successful aid programs in the past; unfortunately, after the programs ended the benefits were soon lost. In order for a truly sustainable improvement in the livestock sector to occur, the GOY must strive to support livestock services. The MAI must take a leadership role to provide cost-effective programs of extension, marketing, and disease control as well as direct aid organizations to assist in the most appropriate areas. **Producer education is the key to addressing the issue of increasing pressure placed upon livestock production** and it must be an ongoing effort. In Yemen, as well as in other

developing countries, women are the main providers of care for the livestock. In order to truly affect change in the husbandry and production of livestock in Yemen, the MAI must gear its extension efforts to the education of women. In Islamic countries, it is normally not appropriate for men not in the immediate family to directly work with the women. This is a drawback in the current system since most of the extension agents are men. In order to address this situation it is imperative that properly trained women extension agents be utilized to conduct the majority of producer education. The current agricultural extension system is non-productive and desperately needs to be restructured. Performance-based pay is a good method to increase worker productivity. Extension and research personnel should be rewarded for hard work with better pay. **Research facilities need to be updated and managed by individuals who are knowledgeable in the areas of management and agriculture.** This report gives the current state of the movement and trade of Yemeni livestock. It is apparent that there is increasing pressure for the livestock sector to provide food, fiber, exportable products, and jobs for the growing Yemeni population. In order for Yemen to meet the needs placed upon the livestock sector, more efficient and sustainable methods of livestock production must be applied.



Yemeni livestock eating sorghum at a government research facility in the spring of 2005.

I.0 INTRODUCTION

The Livestock Movement and Trade Study's (LMT) main objective is to evaluate the routes of livestock movement in the areas of importation, domestic trade, and exportation as well as to determine the current level of, and the potential for, future livestock exports. The secondary objectives are to evaluate the availability of veterinary care, disease prevalence, quarantine facilities, domestic market locations, slaughter facilities, pricing trends, feed stuff availability, and marketing factors. The movement of Yemeni livestock can be traced back to the historic trade routes of the Arabian Peninsula, which connected the Far East, Eastern Africa, and the Mediterranean. The movement of livestock through these routes and the traditional markets that developed along them produced a marketing pattern that is still present today. Unfortunately, these traditional patterns have allowed for the spread of disease and have resulted in a high prevalence of diseases that greatly hinder the potential of exporting livestock and livestock products from Yemen.

I.1 BACKGROUND

Yemen is located on the southwest coast of the Arabian Peninsula and for hundreds of years has been the major point of entry for livestock from Africa onto the region. Livestock importation has been associated with multiple disease outbreaks within the country. In September 2000, an RVF outbreak occurred in which, according to the Yemeni Ministry of Agriculture and Irrigation (MAI), 6,653 head of livestock died and 21,862 aborted. Also during the Rift Valley fever (RVF) outbreak, approximately 800 humans were infected, resulting in 109 deaths. Multiple outbreaks of foot and mouth disease (FMD) have been attributed to imported livestock, including in 1979, 1995, and 2002. Lab results that included DNA analysis linked the FMD strains to those normally found in African outbreaks. Numerous other diseases, including tuberculosis, brucellosis, sheep pox, *peste des petits ruminants* (PPR), and CCPP, are also believed to be associated with imported livestock.

The trading and rearing of livestock has traditionally been an important source of jobs and income for many Yemeni. The livestock sector contributes 30–33% of the agricultural output and accounts for 20% of the national income. A majority of the rural Yemeni population recognizes livestock as their main source of income with production agriculture employing approximately 67% of the employed population.

The production of livestock is mainly limited to grazing areas along the coast and in the highlands due to the arid nature of the country. Many constraints such as the lack of water, fodder, financial resources, education, and veterinary services, as well as an increased prevalence of disease, greatly hinder domestic livestock production in the country. The average owner has a few head of livestock, which graze the stubble that remains after harvesting their crops, to supply milk, meat, and fiber. In some cases, the livestock owners have no land and feed their livestock by following the seasonal rains. Yemeni women are heavily responsible for the livestock production and often own many of the livestock. The men, however, mainly perform the marketing and trading of livestock.

The Yemeni livestock markets are loosely organized into areas of the different classes of livestock and often take place on the narrow streets of Yemeni villages. The markets often occur only one day a week and in some of the rural areas only occur during cool months of the year. The main markets, which handle large numbers of livestock, are located near large population centers or are on the traditional routes on which livestock move to other countries. The land where the large markets occur is owned by families or Government of Yemen (GOY) departments, and the traders pay a fee to rent space. A substantial amount of

the trade is by barter, especially in the rural markets. Somali traders often take payment in the form of supplies and use their ships to transport them back to Somalia for resale. The rural poor of Yemen, estimated to be 75% of the total poor in the country, use livestock as a form of currency and protection, especially in time of financial difficulty, due to the lack of financial institutions in the rural areas. Livestock are also utilized as a source of fertilizer, and the trading of draught livestock with other countries is only conducted illegally, due to the presence of FMD and other diseases. Table 1.1 lists the estimated number of livestock per species for cattle, sheep, goats, and camels.

SPECIES	NUMBER OF HEAD
Cattle	1,397,607
Sheep	7,754,856
Goats	7,667,547
Camels	347,440

Source: 2004 Statistical Data, Ministry of Agriculture and Irrigation.

I.2 METHODOLOGY

The methods utilized in this study were designed to meet the objectives presented in the scope of work in a four-week period. The preliminary background work, which was performed by Dr. David Fleming and the Yemeni Livestock Specialists, consisted of a review of published material, working papers, and proposals on Yemeni livestock and trade. The areas of livestock marketing and trade appear to be relatively understudied due to a lack of available material. Several studies have been completed on Yemeni agriculture production and veterinary services.

In order to obtain as much information as possible in a short amount of time, we chose to concentrate our focus on the locations of maximum livestock concentration: local livestock markets, quarantines, and slaughter facilities. The four questionnaires for quarantines, market/traders, owner/herders, and slaughters facilities, as well as the Data Collector Training Syllabus, were developed by Dr. Fleming and reviewed by Dr. Hammadi.

The field portion of the study was completed in a two-week period. The initial phase consisted of the selection of the Yemeni personnel needed to carry out the work. The Yemen Agricultural Support Program (YASP) Deputy Chief of Station, Dr. Najib Hammadi, selected two Livestock Specialists, twenty-one Data Collectors (DCs), three Data Entry Specialists, and one Geographic Information Specialist. The majority of the personnel were veterinarians or veterinarian assistants, chosen because of their level of education, experience in completing studies, ties to the community, and knowledge of their assigned study area.

The second phase of the field portion of the study consisted of DC training. The DCs received training on the questionnaires, including the intent of each question, the desired level of information for each question, and proper recording procedures. The DCs were also trained on the proper use of the Etrex Global Positioning System (GPS), which was used to mark the locations where the questionnaires were completed. During the training sessions, the team utilized the DC's knowledge to determine which locations within each district were best for obtaining data.

The next phase of the study consisted of the collection of the data. The DCs traveled to their assigned areas and began their location visits. The Livestock Specialists, Dr. Monsor M.A. Alqadasi and Dr. Khalid Saed, supervised the DCs by performing field visits and through daily phone contact. Drs. Fleming and Hammadi made visits to multiple locations including the main ports, quarantines, slaughter facilities, markets, and northern checkpoint at Harad.

The final phase of the fieldwork consisted of collecting the completed questionnaires, downloading the GPS data, and debriefing the DCs. During the debriefing sessions, the team reviewed the questionnaires for accuracy and completeness. The DCs collected data from three quarantines, one checkpoint, eighty-eight markets, seventy-five slaughter facilities, and one hundred eighty-four owners, for a total of three hundred fifty-one completed questionnaires (see Map 1.2).

Three Data Entry Specialists, utilizing Microsoft Excel, completed the data entry portion of the study. Due to the large amount of data obtained, fourteen days were needed to complete the task, which was made more difficult because the questionnaire answers were recorded in Arabic and had to be entered in English. Upon completion of the data entry, the team had fifty-nine individual sheets of data.

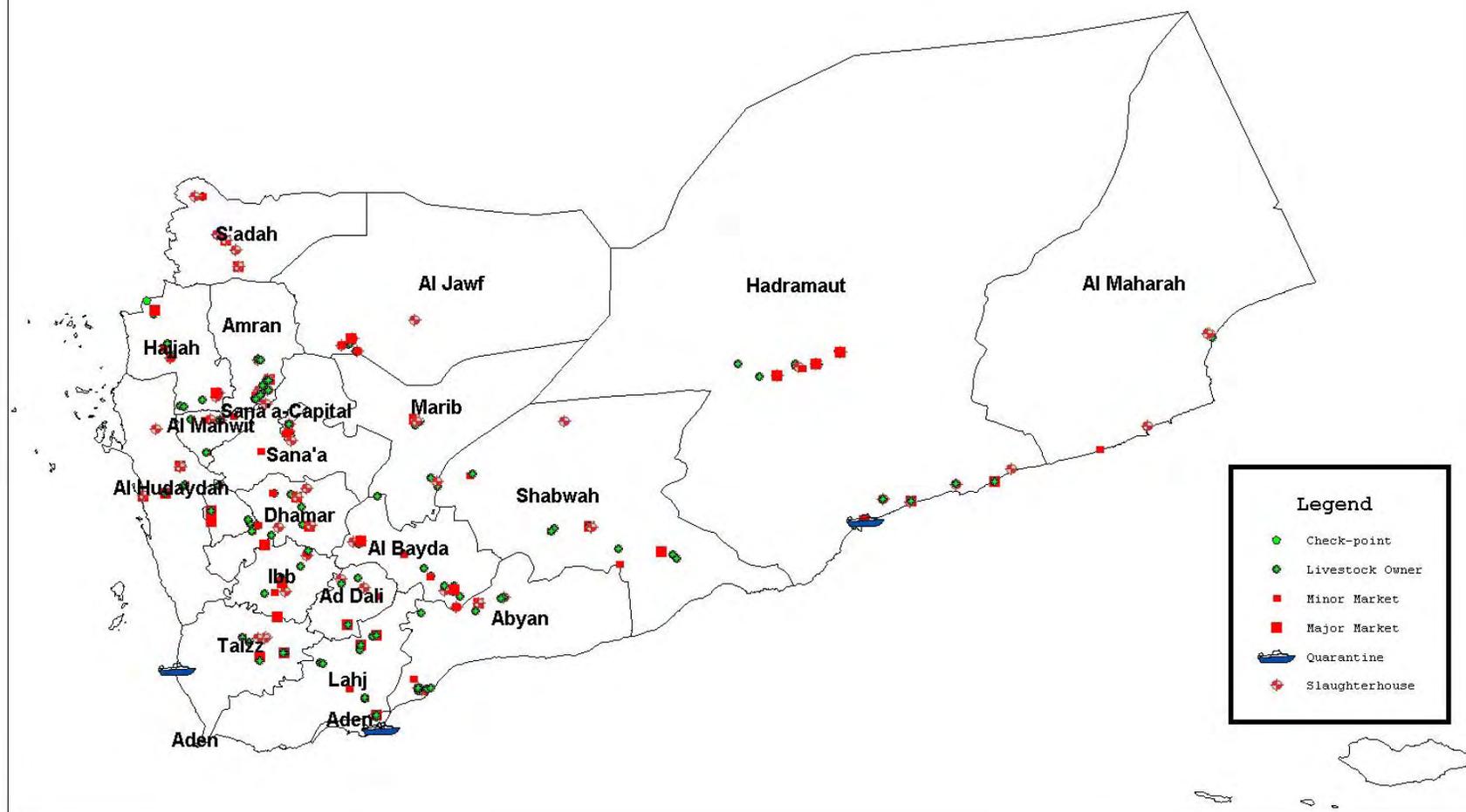
The final phase of the study consisted of analysis of the raw data, review of field notes and background material into a compilation of results, and suggestions. Two briefings on the preliminary findings were conducted for USAID and MAI. A first draft was authored in March 2006.

The final report, which required a significant amount of time to produce, was completed and submitted in February 2008. The YASP program worked with a local geographer who assisted in the preparation of a series of maps based on the GPS coordinates obtained during the data collection phase. Compiling and configuring these maps was Herculean task, but the final product was worth the effort as illustrated in this report.

MAP 1.2 LIVESTOCK MOVEMENT AND TRADE STUDY



Map Information for LMTS (Livestock Movement and Trade Study)

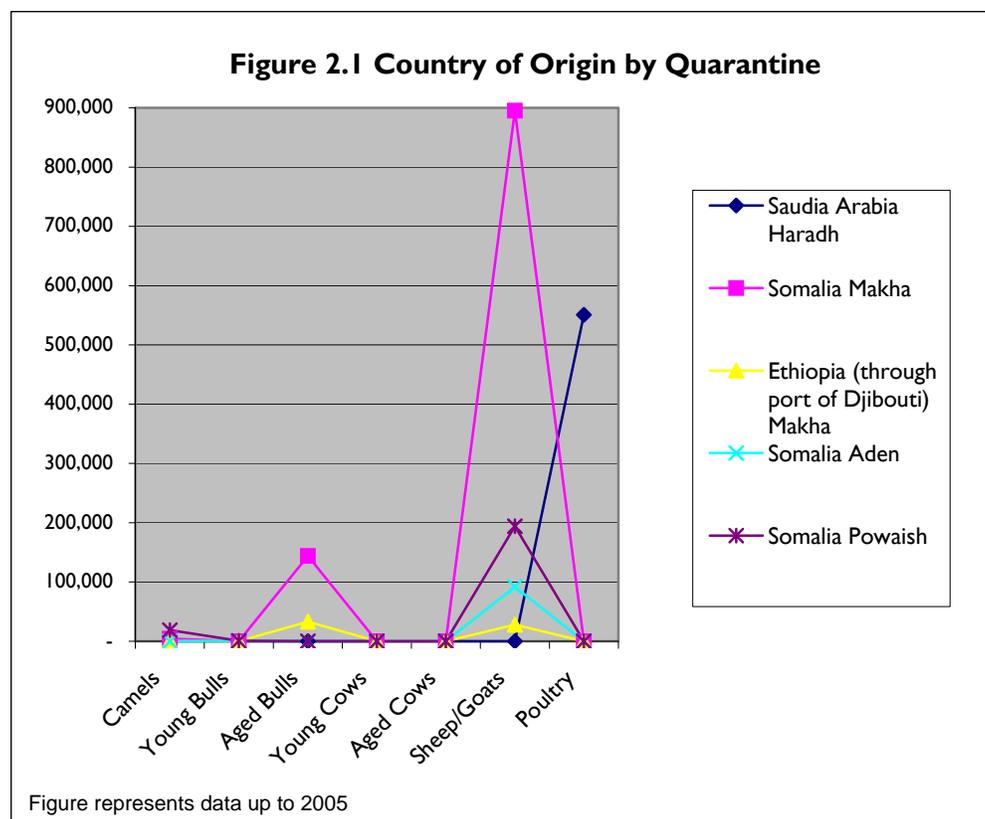


2.0 QUESTIONNAIRE FINDINGS AND DISCUSSION

2.1 IMPORT/QUARANTINE

2.1.1 Results

The majority of livestock imported into Yemen originates from the Somali ports of Berbera and Basaso, with the greatest number entering Yemen through the port of Mukha (1,106,031 head in 2005). The port of Mukulla is the second-most-used port (213,786 head), and the port of Aden is a distant third (92,497 head). A small number of livestock originates from the port of Djibouti and is imported through the facilities at Mukha (80,000 in 2005). Imported poultry mainly originates from Saudi Arabia and enters through the checkpoint at Harad (Figure 2.1).



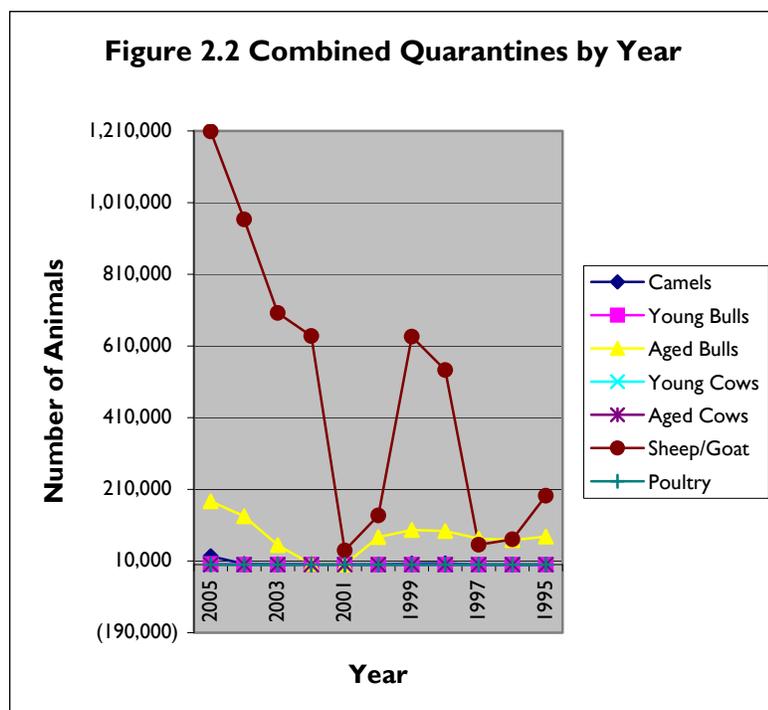
Most of the livestock that is quarantined at all three facilities are sheep and goats (1,212,815 head in 2005). Bulls that are 2 to 5 years of age make up the next largest group (176,724 head in 2005). Over the last two years, the number of camels imported to Mukha (4,386 head in 2005) and Mukulla (18,818 head in 2005) have increased. During the period of 1995 to 2005, there has been a 643% increase in the number of imported

livestock into Yemen, from 220,000 head imported in 1995 to 1,415,082 head imported in 2005. In 2000 and 2001, importation of livestock halted, except at the port of Mukulla, due to the RVF outbreak in Yemen and Saudi Arabia (Figure 2.2). The number of imported livestock varies substantially during the year. The main peaks for cattle and sheep occur in October (159,944) due to the fall wedding season and in December (239,689) and January (214,410) due to religious observances. Minor peaks occur in May and August. The major troughs are in March, June, and September (Annex 6, Figure 3). The major peaks in the number of camels imported occur in September (4,232) and December (7,487) (Annex 6, Figures 4–6).



These are intact male sheep and goats at the Aden Quarantine facility in January 2006.

The livestock are quarantined for 2 to 10 days, depending on the time of the year and the number of animals being imported (Annex 6, Table 2). The main diseases seen at the quarantine facilities are pneumonia, diarrhea, PPR, and sheep pox. The owners have to pay for any treatment of the livestock as well as provide watchmen to keep the sick animals away from the healthy ones. Sick animals are released when they have begun to eat normally. The traders and workers at all the quarantine facilities indicated that the main problem

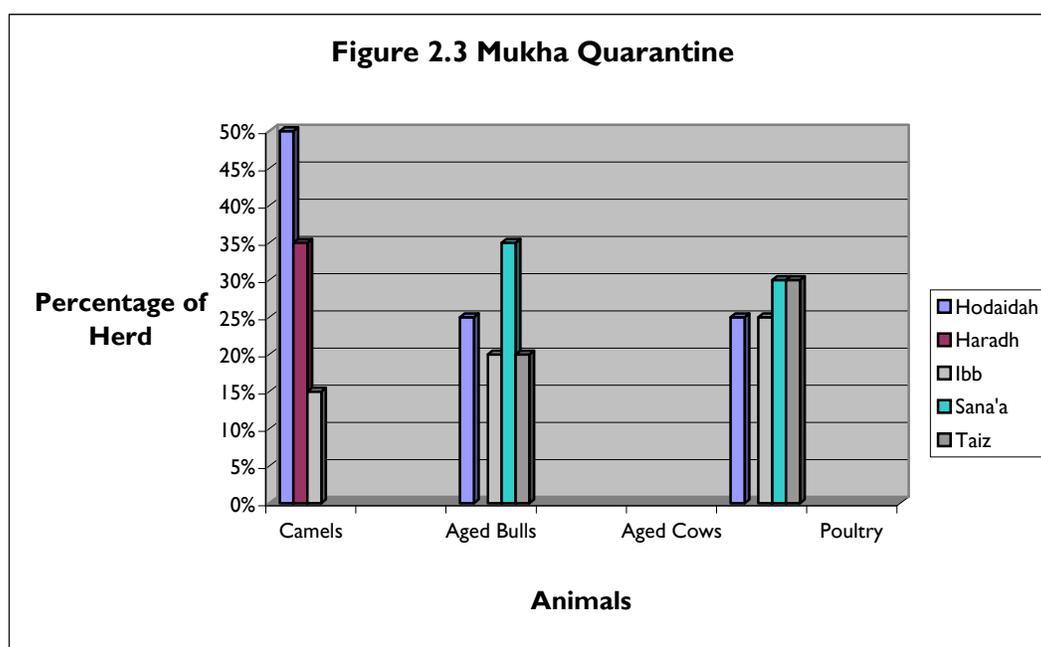


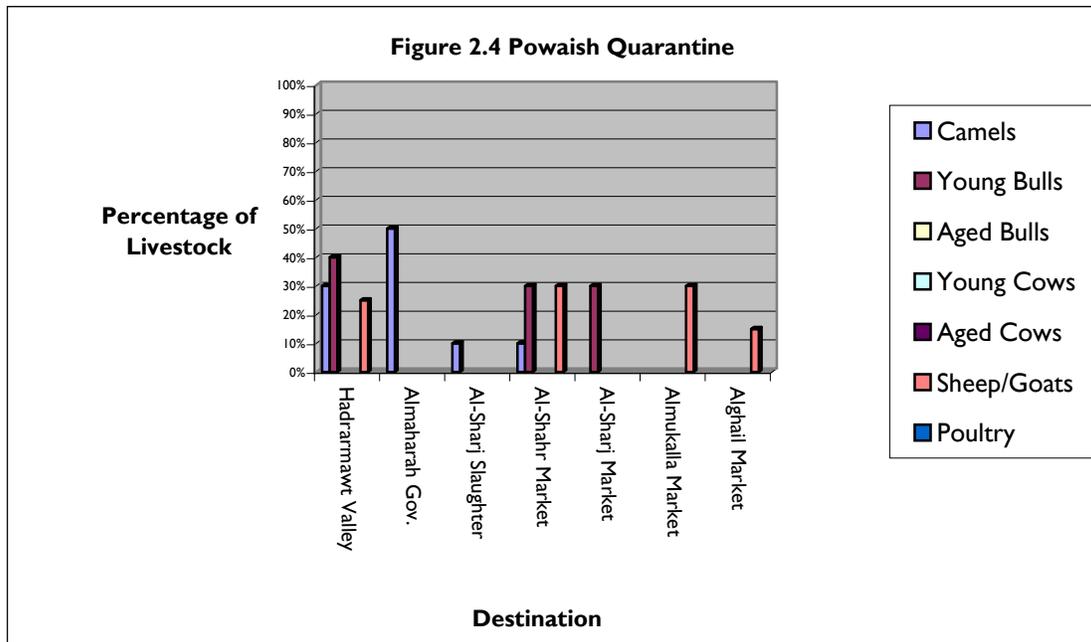
they face is the lack of adequate facilities to handle the livestock. The average charge for customs, health services, quarantine, local counsel, and an agent is 10,000 Yemeni Rial (YR), or US\$53.19 at Mukha for cattle/camels. At Mukulla, the average charge is 6000YR (\$31.91). For sheep/goats, the average charge is 2500YR (\$13.29) at Mukha and 1450YR (\$7.71) at Mukulla. The average price for cattle at the point of origin is \$150–300, and the average Yemeni retail purchase price is \$282–410. The price for camels is \$180–250 and the average selling price is \$275–307. Sheep/goats cost \$27–30 and sell for \$41. The prices listed are for local traders; the purchase price for the Yemeni consumer can be substantially higher (Table 2.1).

TABLE 2.1 LIVESTOCK PRICE AT POINT OF ORIGN AND YEMENI END USER

Quarantine	CAMELS		YOUNG BULLS		AGED BULLS		YOUNG COWS		AGED COWS		SHEEP/ GOATS		POULTRY	
	Orig.	End	Orig.	End	Orig.	End	Orig.	End	Orig.	End	Orig.	End	Orig.	End
Haradh Quarantine	—	—	—	—	—	—	—	—	—	—	—	—	3.10 \$	3.10\$
Mukha Quarantine	250\$	307\$	170\$	282\$	300\$	410\$	—	—	—	—	30\$	41\$	—	—
Aden Quarantine	—	—	—	—	—	—	135\$	275\$	—	—	27\$	50	—	—
Powaish Quarantine	180\$	275\$	150\$	265\$	—	—	—	—	—	—	32\$	50\$	—	—

Upon leaving the facility at Mukha, 30% of the sheep/goats and 65% of the cattle travel to Sana'a. The next two destinations, which receive approximately the same number (25%) of cattle and sheep/goats, are Taiz and Hodeidah. The smallest amount, 15–20%, travels to Ibb. The majority of camels are sent to Hodeidah (50%) with the next largest percentage (35%) going to Harad. The smallest percentage, approximately 15%, travels to Ibb (Figure 2.3). At Mukulla, the majority of sheep/goats go to the markets of Shahr and Mukulla (30% each). Twenty-five percent go to the Hadrarmawt Valley along with approximately 40% of the cattle. The remaining 30% of the cattle goes to the markets of Shahr and Sharj. The majority of camels (50%) are sent to the Maharah Governorate. Approximately 30% of the camels move to the Hadrarmawt Valley with the remaining 10% going to the market at Shahr and the Sharj slaughter facility (Figure 2.4). The livestock imported into Aden is taken to local markets and sold for local slaughter.





2.1.2 Discussion

The countries of origin for a substantial number of imported livestock are Kenya, Ethiopia, Sudan, and Somalia (FAO, Dire, 2005). While Dr. Fleming was treating livestock in the eastern areas of Kenya and Ethiopia, the livestock had the same characteristics observed during this project at multiple locations in Yemen. The source of the imported livestock is very important from an epidemiological standpoint. There are multiple diseases endemic in these areas, such as FMD, PPR, and rinderpest, as well as infrequent diseases, including RVF. These diseases and disease conditions pose a significant threat to the domestic Yemeni livestock as well as to the human population. The presence of these diseases at the point of origin greatly underscores the need for an effective quarantine system for imported livestock. All the livestock being imported that were observed by Dr. Fleming were intact, breeding-age males, contrary to previous publications (Cooperazoine, 2000). These intact males serve as a potential source of sexually transmitted diseases for the Yemeni domestic livestock.

Due to insufficient funding, lack of support, and failure to enforce existing regulations, the current Yemeni quarantine system is in disrepair and is completely overwhelmed during the peak import months. The current MAI personnel are performing to the best of their abilities in what is in effect an impossible situation. There is no testing for livestock illness, especially for zoonotic diseases. During the peak periods, livestock is often observed for only two days before being released into the country. There is very little or no isolation of the animals, so that newly-arrived animals readily commingle with livestock that are soon to be released. At the Mukha facility, the livestock no longer utilize the quarantine compound. Instead, they are housed in pens constructed out of poles and other materials built by the livestock owners or are allowed to roam around the area. The livestock owners must supply food and pay for water, medicine, watchmen, and various other services to the point that it is expensive for them to quarantine their livestock. In order for a quarantine to be effective to any degree, the livestock must be isolated and contained for a period of no less than 21 days. The OIE Terrestrial Animal Health Code requires up to 64 days and full testing for specific diseases (see www.oie.int/eng/normes/mcode/en_sommaire.htm). There appears to be very little communication between the MAI and the quarantine facilities as demonstrated by the fact that the quarantine at Mukulla continued to allow importation of livestock during the RVF ban. This is also demonstrated by the discovery that the port of Aden has been importing livestock since 2000 without the MAI having any knowledge of the situation. There is also little or no communication between the MAI's veterinary diagnostic lab and the

quarantine facilities. At one quarantine facility (Aden), we were informed that the last blood tests performed took place two years previously and that the veterinary staff paid for them out of their own pockets. There was also a second time that the staff personally paid for blood tests but unfortunately these results were not received.



We observed several head of imported livestock at various Yemeni slaughter locations in February 2006.



While working in Eastern Kenya in December 2004, we treated several head of livestock.

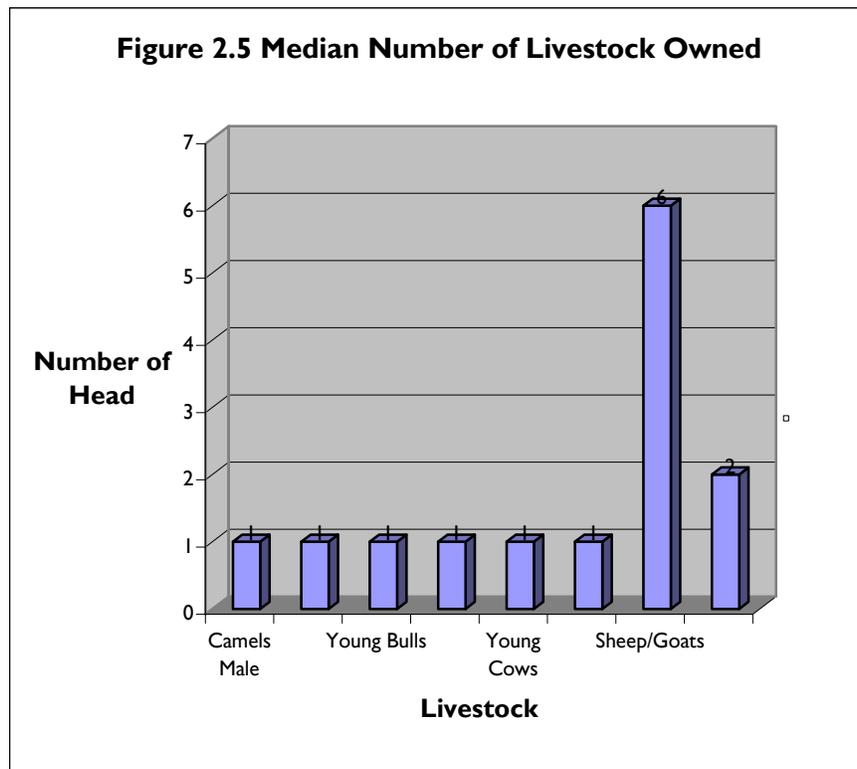
The market forces behind the increased demand for imported livestock appear to be complex and multifaceted in nature. With a sustained human population increase of 3.5% (FAO), there is an increasing demand for food and fewer people are raising their own meat due to continued urbanization. There have also been an uncountable number of livestock unofficially exported to Saudi Arabia, a country that has legally banned direct imports from African countries. The price of domestic livestock also plays a part in the demand for imported livestock. Traders can purchase imported livestock at a lower cost than domestic livestock, increasing their profit margin if they can keep the importation expenses to a minimum. Apparently, the desire to keep these costs down has encouraged some traders to utilize small boats to haul livestock from Somalia to the coast west of Aden. According to Aden authorities, a substantial number of livestock could be imported in this manner. From the author's understanding, this manner of livestock smuggling was one of the reasons for reopening the port of Aden. Another source of smuggled livestock is apparently Oman. The study team was told that livestock are unloaded along the coast of Oman and are then brought across the border into Yemen, especially during peak demand periods.

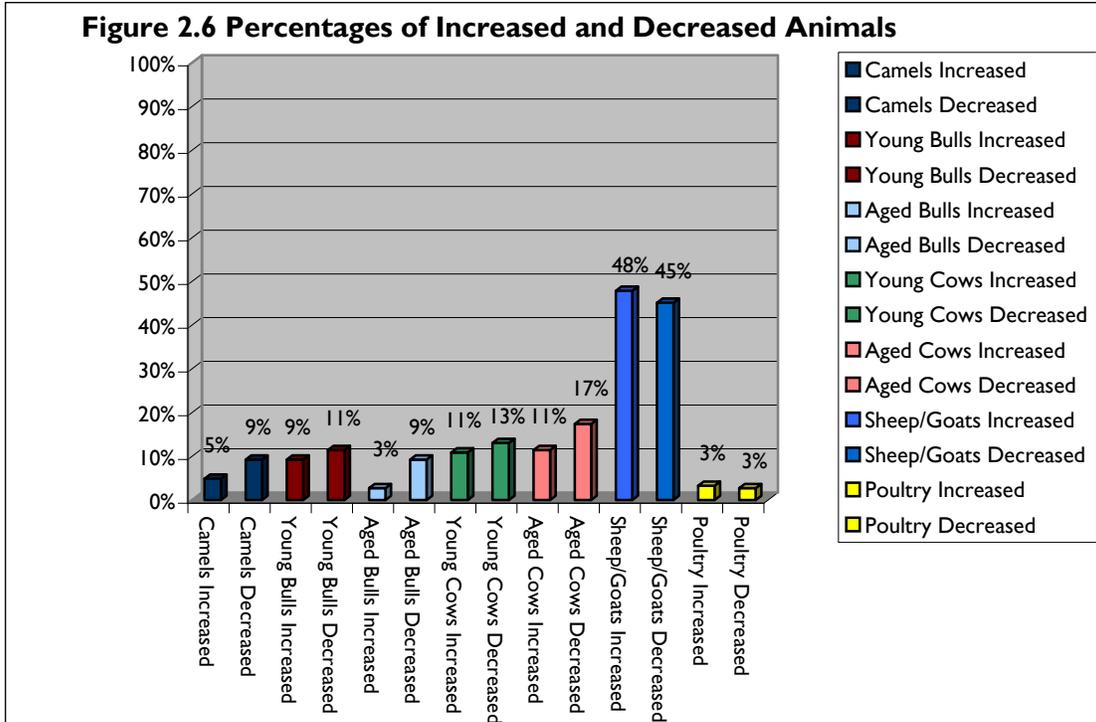
Upon leaving the importation centers, the livestock appear to follow three different paths. The majority of the livestock are taken to markets serving large population centers where they will be slaughtered. A smaller group of imported livestock is sent to grazing or feeding areas in an attempt to add value. At the Mukulla port, a significant number of animals are sent to the Hadramawt Valley for grazing. The third path of an undetermined number of animals is unofficial exportation to Saudi Arabia and Oman. The increased number of imported camels is a good example of this type of trade. The traders have determined that the camels are better suited to endure the harsh conditions associated with crossing the border without losing body conditioning and so are more profitable. There is a number of livestock that move through the Harad area after leaving the quarantine for unofficial crossing into Saudi Arabia. There are also a significant number of camels that move through the Maharah area and on into Oman.

2.2 OWNERS/HERDERS

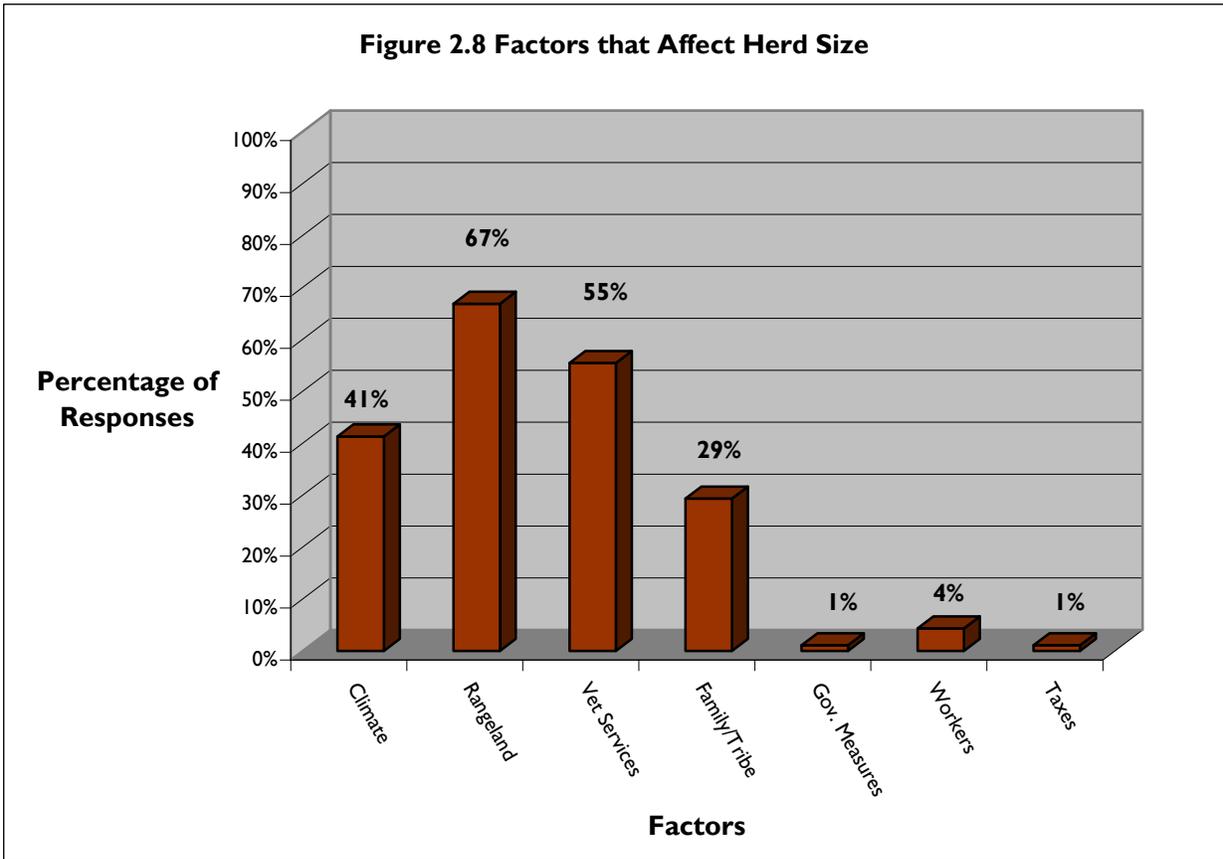
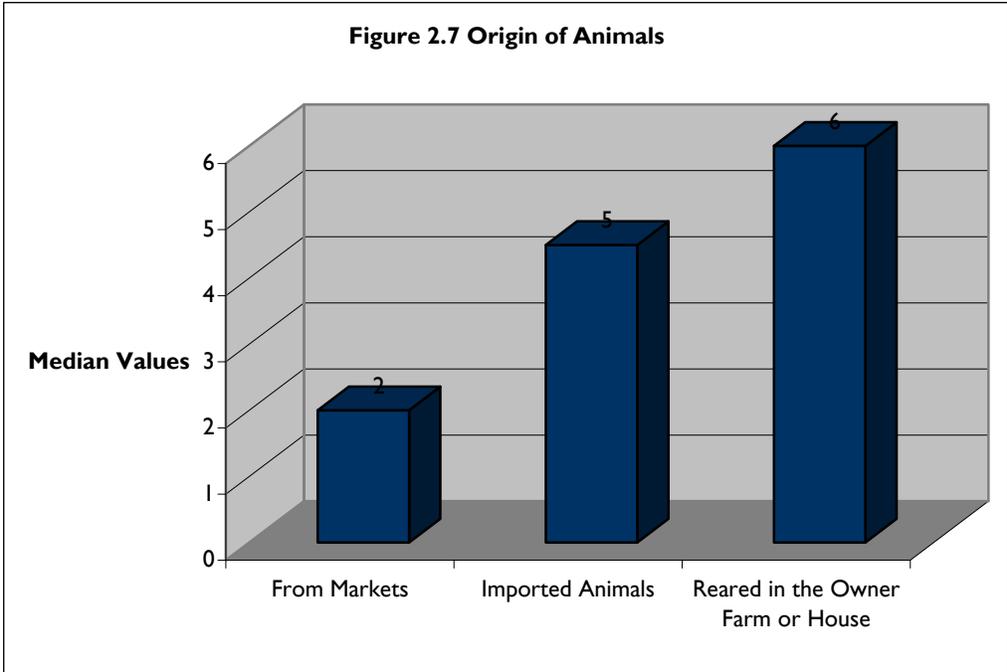
2.2.1 Results

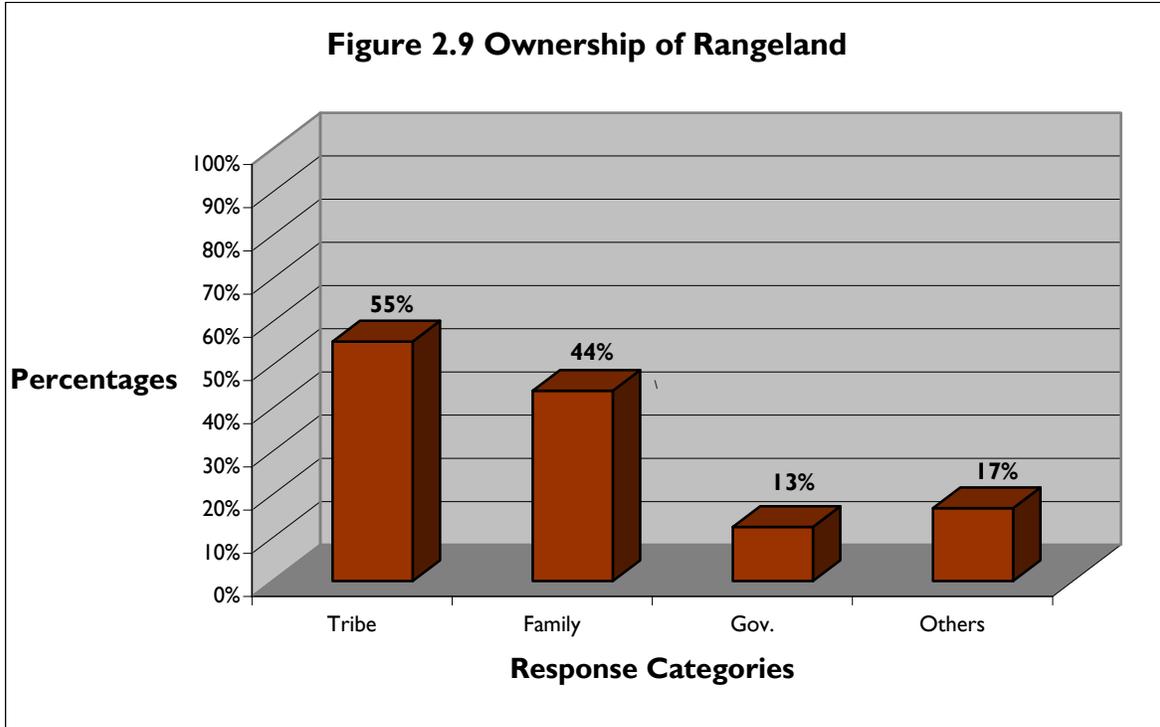
Yemeni livestock owners indicated that the median number of cattle and camels owned is 10 or less. The median number of sheep/goats is 50–75 and poultry is 10–20 (Figure 2.5). When asked about the size of their herds over the last ten years, 59% of owners indicated that the number of cattle/camels has decreased, while 39% indicated that they had increased their herd size. Sheep/goat owners indicated that 48% of them had increased their herd size and 45% had decreased their herd size. Poultry owners indicated that very little change has occurred in their flock size (Figure 2.6).





According to the owners, more than 50% of the livestock they own originated from markets or are imported, while less than 50% are raised on their land (Figure 2.7). The three main factors that limit or affect the size of their herds are the amount of rangeland, availability of veterinary services, and climate. They also indicated that government programs, available labor, and taxes had very little effect on their herd size (Figure 2.8). Owners indicated that 55% of the land they utilized for grazing is owned by their respective tribes, while 44% indicated that their families owned the land (Figure 2.9).





The most common disease conditions observed in their livestock are internal/external parasites, pneumonia, and diarrhea (Figure 2.10). Sixty-eight percent of the owners purchase their livestock feed from markets (Figure 2.11). Areas in which owners need assistance to increase the size of their herds are veterinary services, the type and amount of feed, financial assistance, increased water supply, and improved markets (Figure 2.12). The factors that affect the number of animals being sold by the owners were drought conditions, financial difficulties, the price of feed, availability of rangeland, and impact of diseases (Figure 2.13).

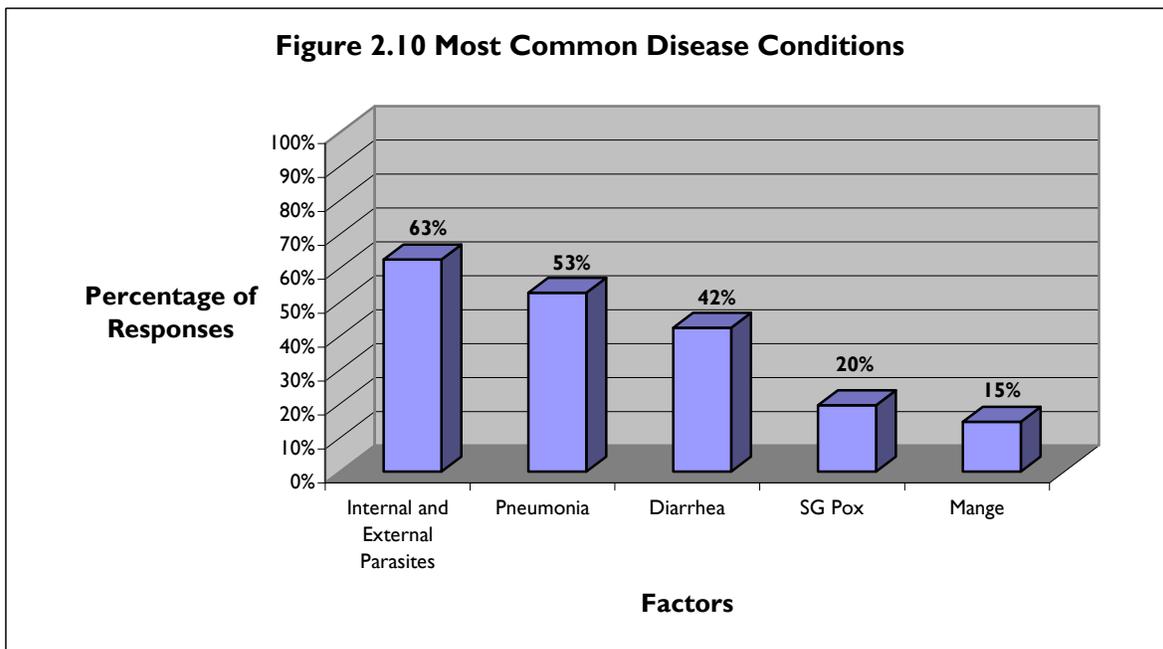


Figure 2.11 Feed Origin

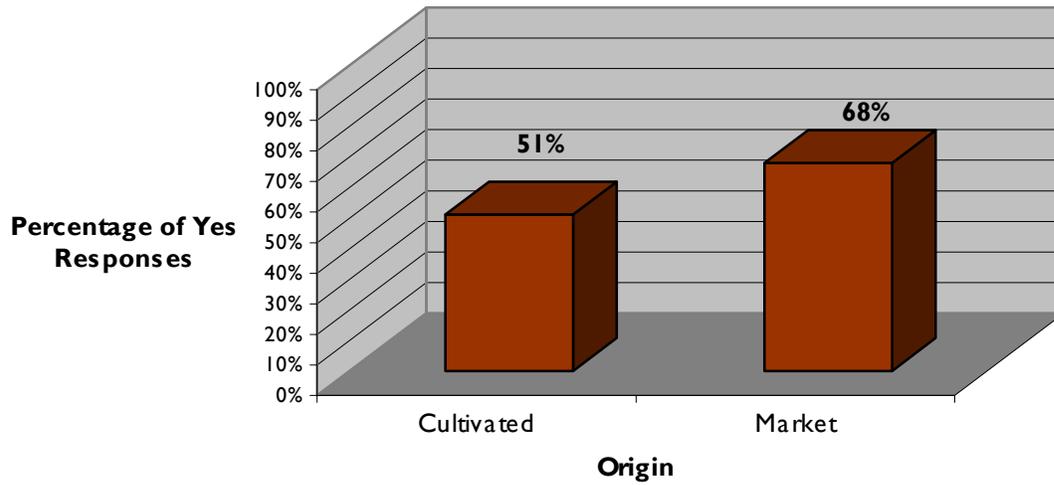


Figure 2.12 Government Aid

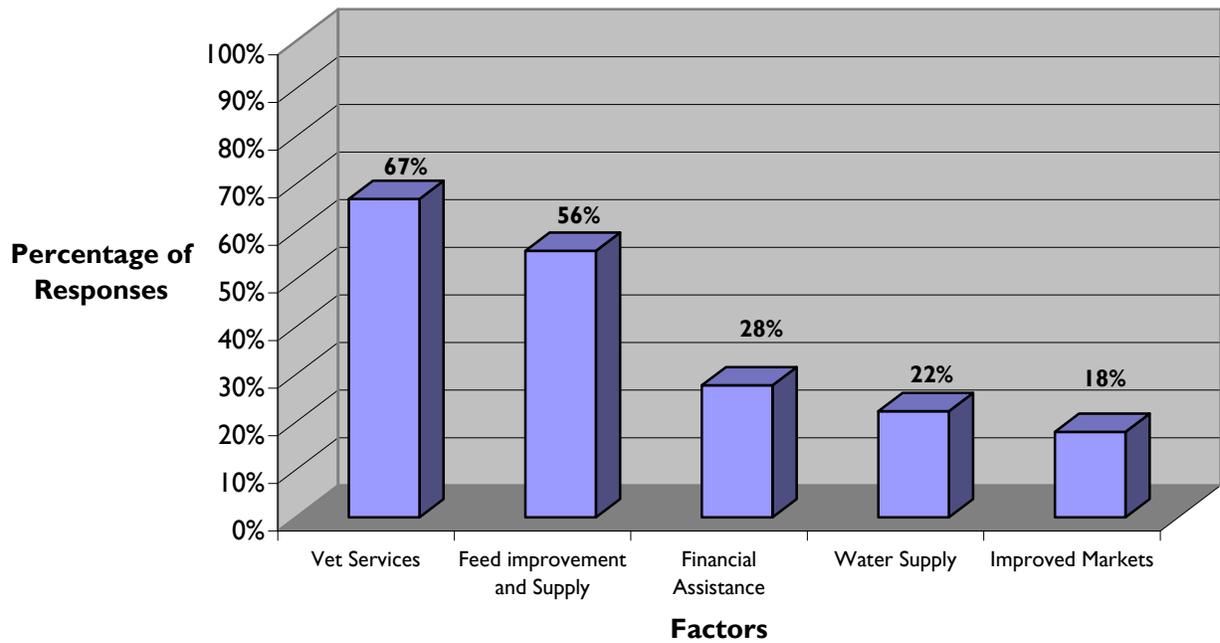
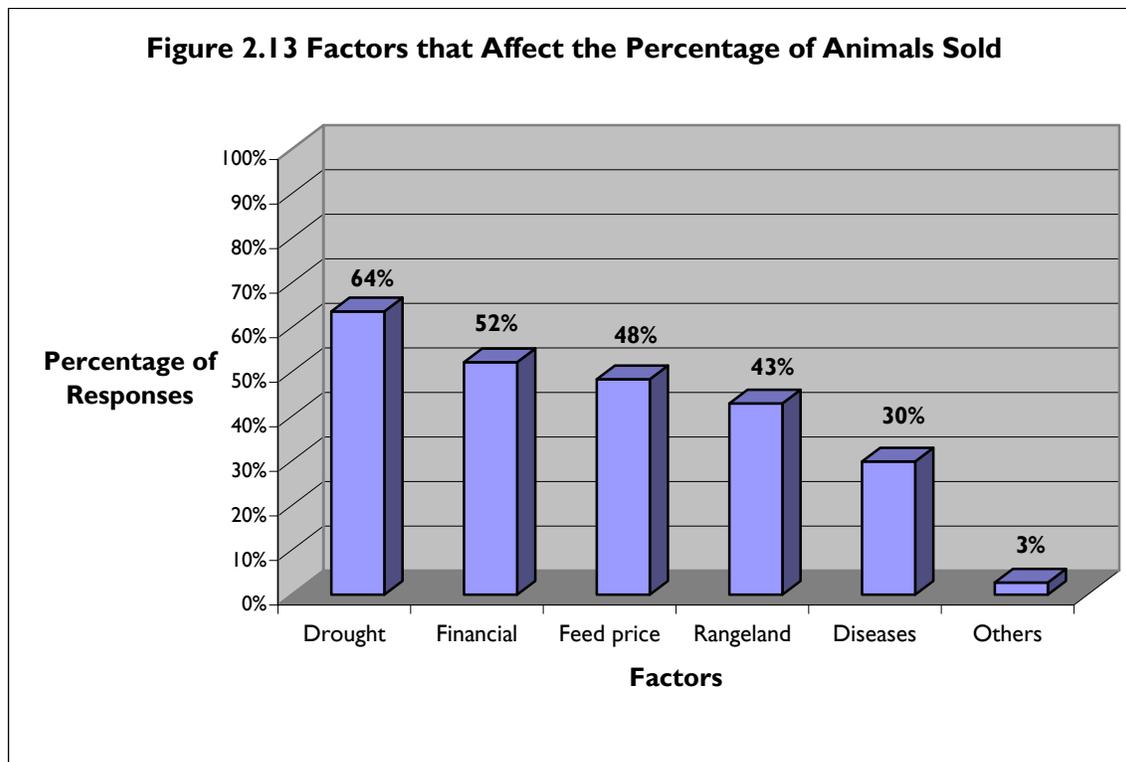


Figure 2.13 Factors that Affect the Percentage of Animals Sold



The median percentage of female camels, young bulls, young cows, sheep/goats, and poultry sold per year by the owners is 10–20. The median number of male camels, aged bulls, and aged cows sold per year is 0–10 (Figure 2.14). The two most important factors indicated by owners to select a market for selling their livestock were market distance from the herd and the price of the livestock (Figure 2.15). In the opinion of the owners, the four most important factors affecting the price of animals are the time of year, impact of imported livestock, drought, and religious events (Figure 2.16). Sixty-four percent of the time, owners obtain their livestock pricing information from traders and 38% of the time from other owners. Only 1% of the owners obtain their pricing information from government sources (Figure 2.17).

Figure 2.14 Median Percentage of Animals Sold

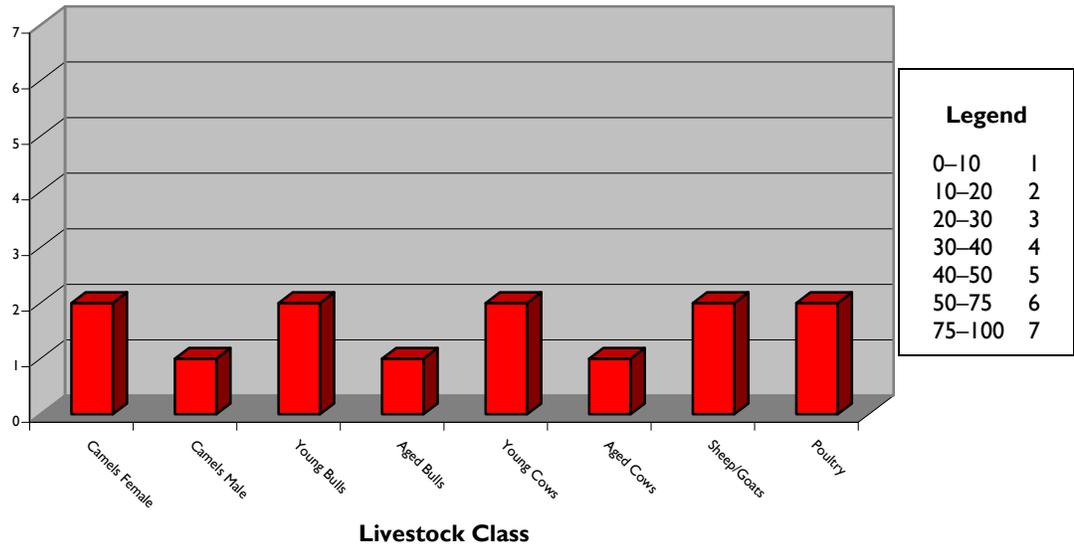
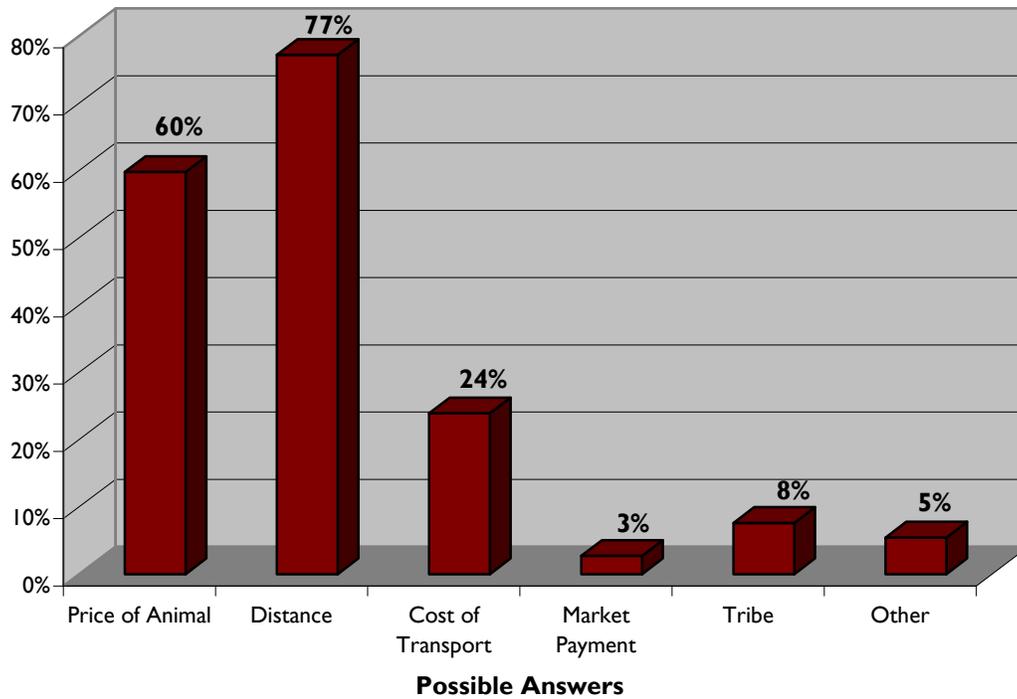
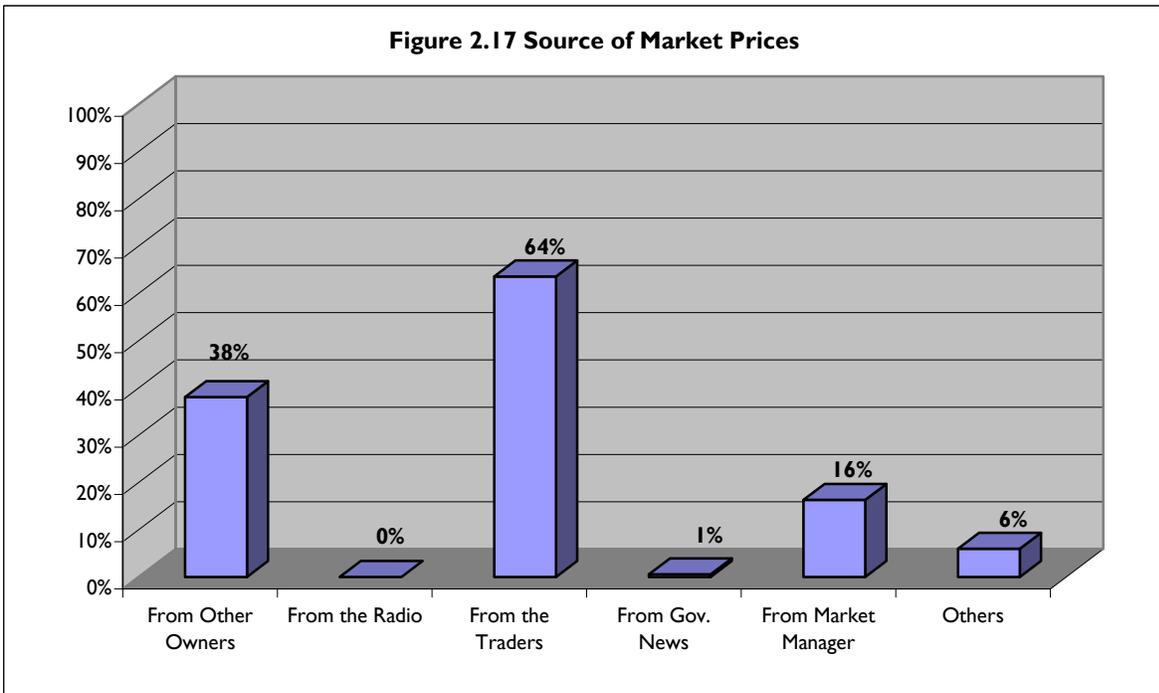
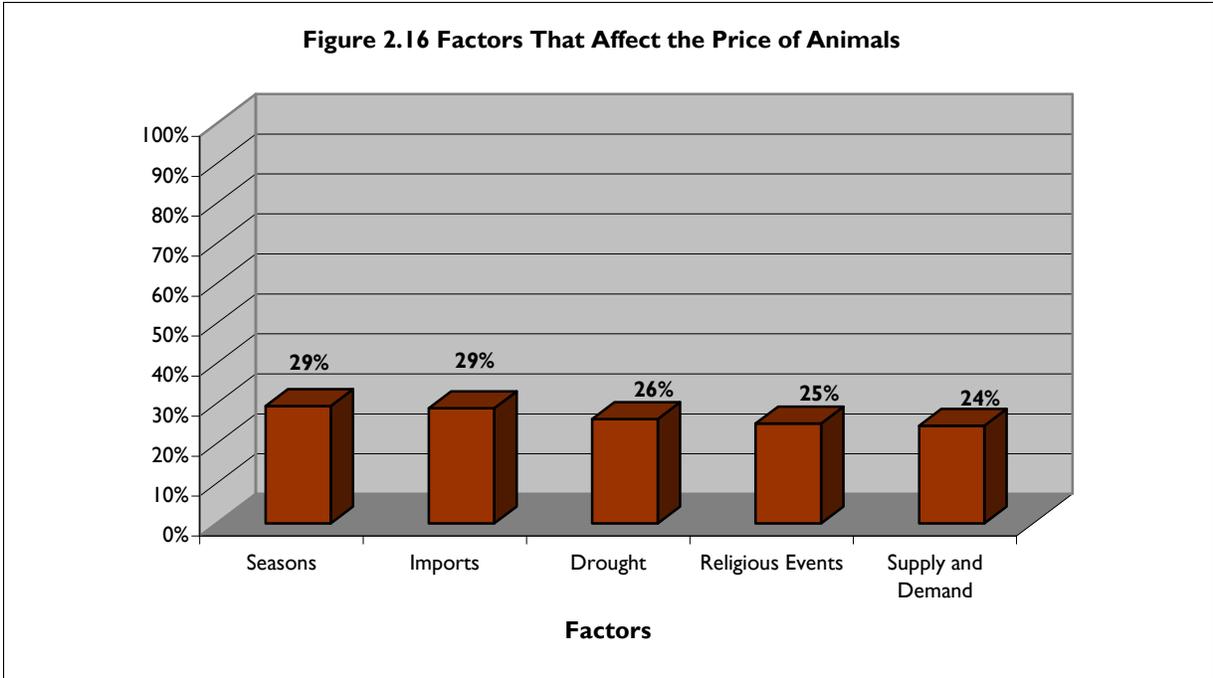


Figure 2.15 Percentage of Responses

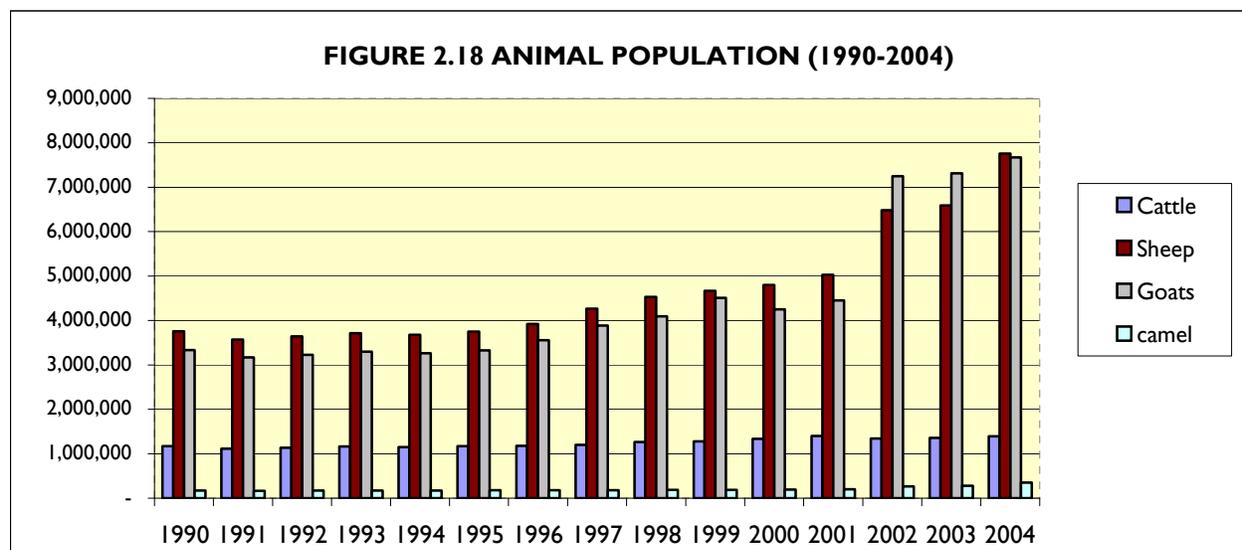




2.2.2 Discussion

The average Yemeni domestic livestock owner has ten or fewer cattle and camels in their herd, and over the last ten years, the majority of owners have decreased their herds' sizes. The price of feed, availability of rangeland, and the lack of veterinary services appear to have a negative impact on herd numbers. It is apparent that the owners are purchasing mostly adult animals. A slim majority of sheep and goat owners have increased their herd size, possibly due to the advantage that small ruminants have in utilizing rough

terrain and, thus, lower maintenance expenses. The owners that have increased their herd size could not have increased them tremendously due to the small median number of livestock owned by each owner. MAI information indicates that, over the last 14 years, the livestock population in Yemen has been increasing especially in the sheep and goat herds (see Figure 2.18).



Source: Ministry of Agriculture and Irrigation

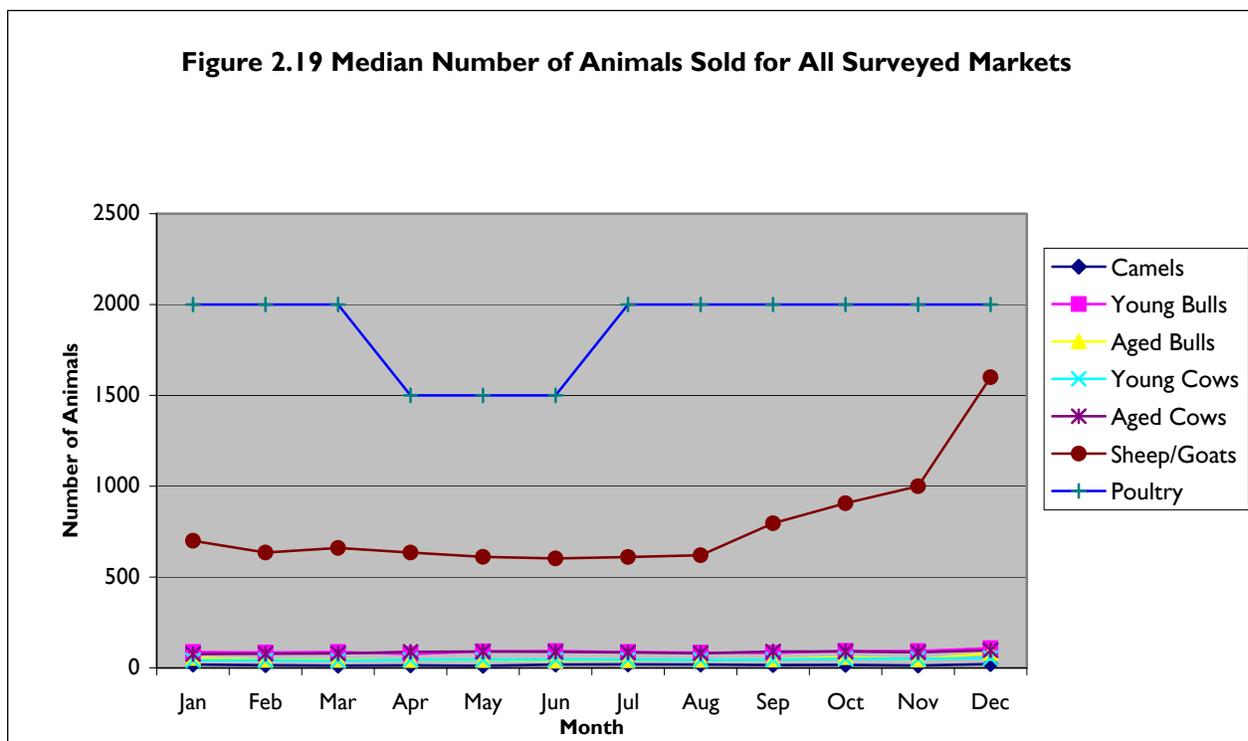
According to Figure 2.18, the sheep population has increased an average of 13% per year in the period from 2000 to 2004. This increase would have to be derived from imported animals, based on the data from the questionnaires. It is interesting to note, however, that during 2000 and 2001 when the importation ban was in place due to the RVF outbreak, there was no corresponding drop in the animal population in any of the groups, which questions the accuracy of MAI data given the only slight decrease of slaughtered animals. It is apparent that the Yemeni livestock owners have become very dependent on imported livestock to maintain the size of their herds due to the limiting factors of rangeland, climate, feed price and availability, veterinary services, and the price of imported livestock. This dependency is made even more apparent when it is considered that more young female camels and cattle are being sold by owners than male camels, aged bulls, or aged cows. This selling of young female livestock indicates that very little herd expansion is occurring and that it would take a considerable amount of time before expansion could occur. The most important aspect of this point is that if another importation ban occurs, and if it lasts for any length of time, there will be tremendous pressure placed on a decreasing number of domestic livestock to supply the needs of the Yemeni population.

In marketing its livestock, the Yemeni owner has to depend on the local traders for livestock pricing information. Apparently, the owners sell most of their livestock to these local traders due to the fact that the distance from the herds to the market is the most important factor used by owners when selecting a livestock market. When this is combined with the fact that all the major reasons that owners listed for selling their livestock are based on negative pressures instead of maximizing profits, it is apparent that the local traders have the advantage over the owners. In the absence of independent livestock price information, owners traditionally market their livestock during the major religious events, which have been the historical peak demands. Unfortunately, since the majority of livestock owners follow this traditional pattern, it does not necessarily coincide with the price peak for marketed livestock.

2.3 MARKETS/TRADERS

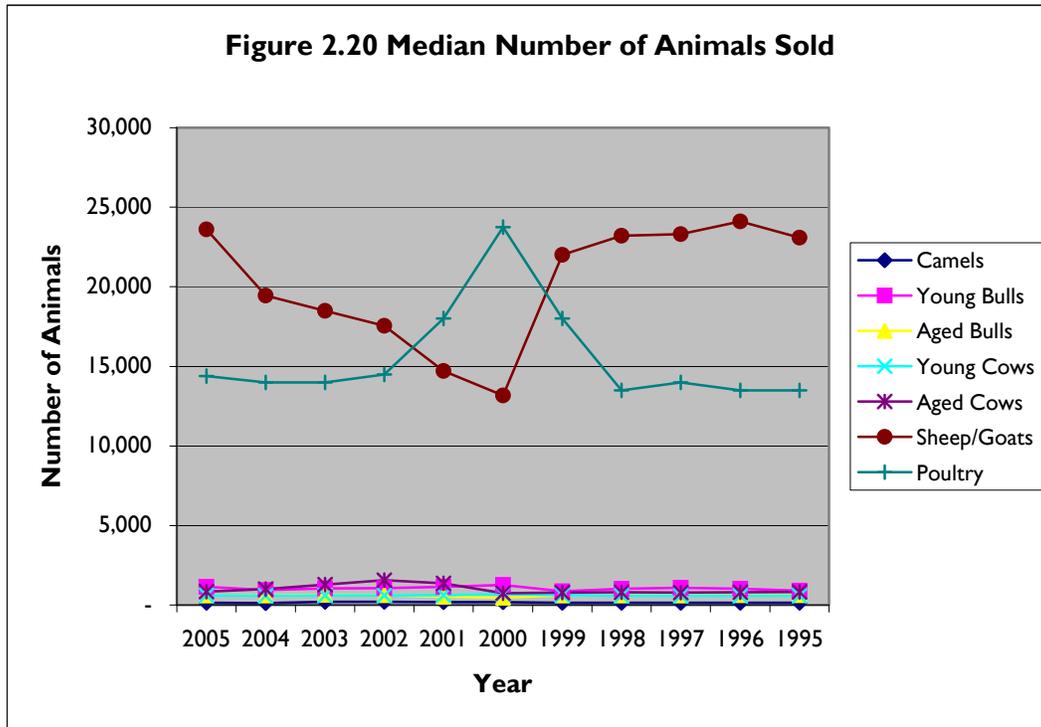
2.3.1 Results

The results of the data in Figure 2.19 indicate the median percentage of sheep sold in surveyed markets remains relatively constant in a slow rate of decrease from January to August. In September, the number marketed begins to increase at a modest rate of 13% per month through November. In December, the number of livestock marketed increases greatly at a rate of 38%. The number of cattle marketed remains relatively constant at a median rate of 88 head per month from January through September. In October, the number begins to rise and reaches its peak in December after rising 18%, to 109 head. The number of camels marketed remains relatively constant at a median of 16 head per month to a median of 21 head in December. Poultry remains at a relatively constant median of 2,000 head per month, except for April through June when the median decreases to 1,500 head per month.

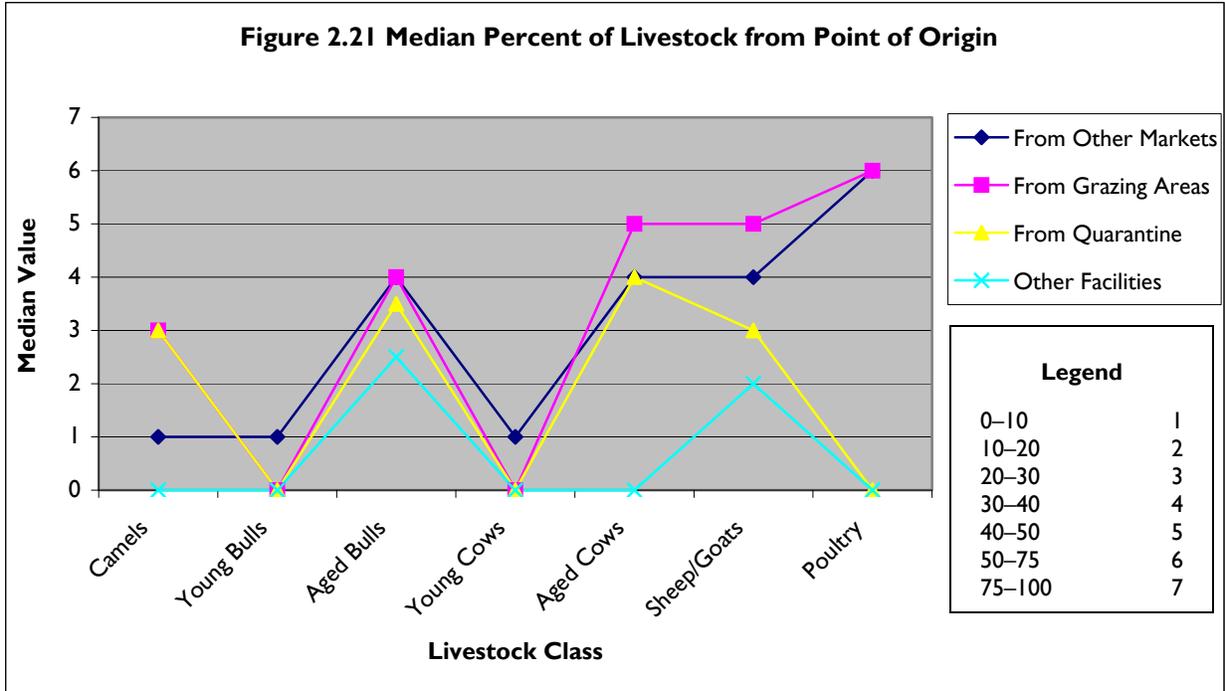


The market that handled the greatest number of sheep/goats in 2005 is the General Market in Hodiedah, which sold 373,000 head, followed by the Bit Faki Market in Hodiedah Governorate with 333,000 head. The third largest market for sheep/goats is the Rabo Market in Mabar in the Dhamar, which sold 264,800 head in 2005. The largest market for cattle in that year was the Bajel Market in Hodiedah Governorate, which sold 431,500 head. The second and third largest are the Mrawea Market in the Hodiedah Governorate, with 71,750 head and the Thaloth Market in Dhamar Governorate, with 27,792 head. The largest market for camels is the Bosh Market in Hadramount Governorate, which sold 19,030 head, followed by the Mukulla Market in Syuon in the Hadramount Governorate, which sold 14,900 head in 2005. The third largest camel market is the Mrawea Market in the Hodiedah Governorate, which sold 2,470 head. In poultry, the largest markets are the Markzi in the Saddah Governorate (449,700), Zragah in the Dhamar Governorate (360,000), and Thinaem in the Albidda (240,800) markets. The total number of livestock marketed in the surveyed markets was 4,412,000 head in 2005.

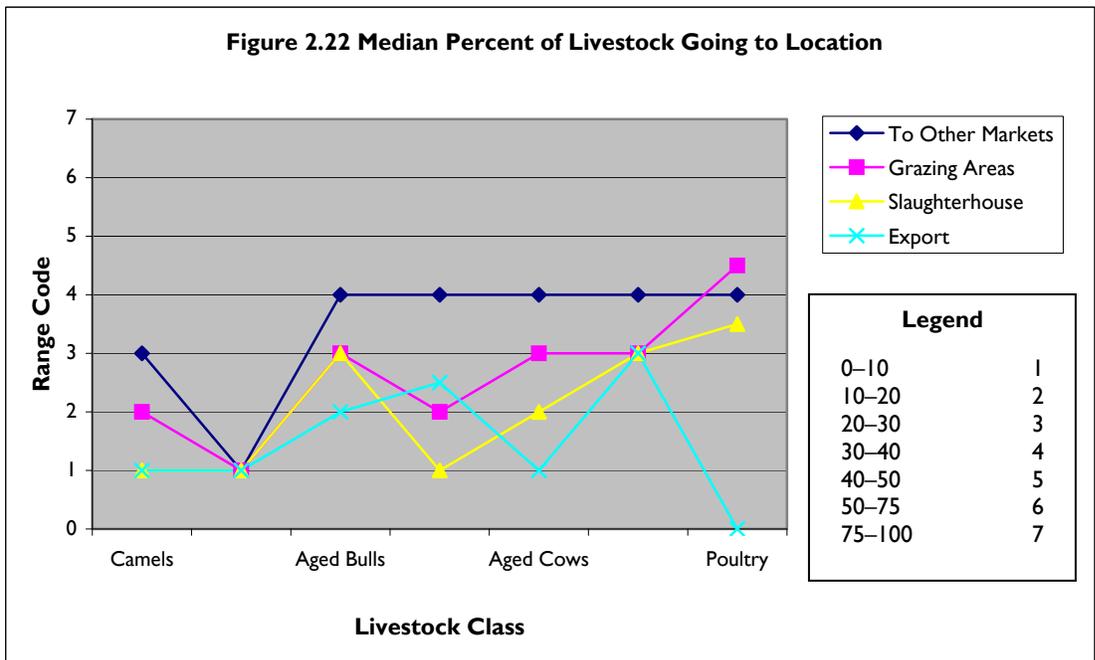
The number of sheep/goats marketed in Yemen remained relatively constant from 1995 to 1999. In 2000 during the RVF outbreak, the median number of sheep/goats marketed decreased by 44% from 23,207.5 to 13,171.5. From 2001 to 2005, the median number returned to the pre-outbreak level of 23,600 head. The number of poultry marketed increased from 14,000 to 23,750 during the RVF outbreak. After the outbreak, the number marketed returned to its pre-outbreak level. The median number of cattle and camels marketed during 1995 to 1999 remained relatively constant, as with the sheep/goats, but in the years of the RVF outbreak, their numbers actually increased. The largest increase occurred in the number of aged cows marketed, which increased by 50% in 2002 over its pre-outbreak level and is still slightly higher (Figure 2.20).



The sources of origin for sheep/goats at the surveyed markets are, in descending order, grazing areas (40%), other markets (30%), quarantines (20%), and other (10%). The sources of origin for cattle are basically in the same order, but with percentages of 30% in “from other markets” and 30% “from grazing areas.” “From quarantines” supplied 25%, and “other facilities” made up 15%. Twenty percent of marketed camels originated from quarantines and 20% from grazing areas. The next greatest source of camels originated from other markets (10%). The rest of the camels were not assigned to a source of origin (Figure 2.21).

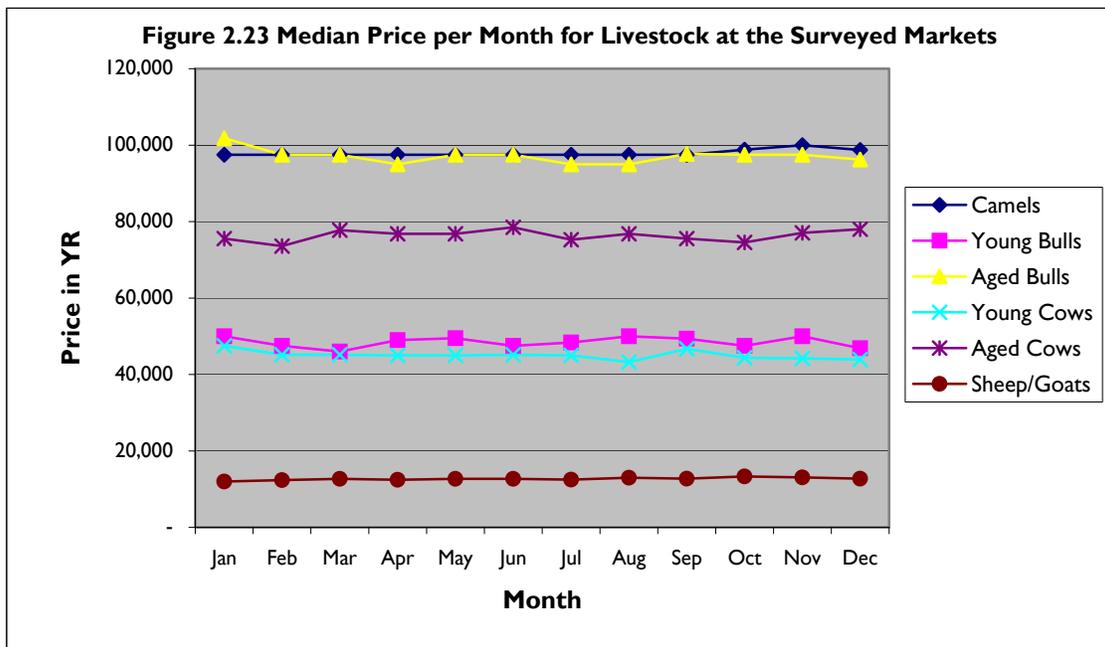


When asked for the next destination of the livestock leaving the markets, the destination with the greatest median percentage was “other markets” for all the classes of livestock except poultry. The destination with the next highest median percentage for aged cows and camels is “grazing areas.” The second highest destination for aged bulls is tied between “slaughter facilities” and “other grazing areas,” with 20–30% each. The sheep/goats’ second highest percentage destination is a three-way tie between “export,” “slaughterhouse,” and “grazing areas.” The second highest destination for young female cows is “export” and their third highest is “grazing areas.” Poultry destinations in descending order are “grazing areas” (farms), “to other markets,” and “slaughterhouses” (Figure 2.22).



The median price per month for camels and aged bulls remains relatively constant from February through October at 97,500 YR (US\$518.61). Sheep/goats remain relatively constant during the same period at 12,750 YR (\$67.81). Aged cows, young cows, and young bulls tend to show more volatility during the year. Aged cows range from 73,600 YR (\$391.48) to 78,500 YR (\$417.55). Young cows range from 43,250 YR (\$230) to 46,687.5 YR (\$248.33). Young bulls range from 46,875 YR (\$249.33) to 50,000 YR (\$265.95). The prices for all groups of cattle and camels peak in November and decrease in December, except for aged cows (see Figure 2.23).

Over the last ten years, the average price for all classes of livestock has increased 250%. Sheep/goats that sold in 1995 for 6,000 YR, today sell for 15,000 YR. Cattle have increased from 40,000 YR to 100,000 YR and camels from 100,000 YR to 230,000 YR.



Factors that decrease the number of livestock sold are rain and summer. Factors that increase the number of livestock sold are drought, religious events (Haij), and winter. The amount of taxes paid by sellers and buyers varied tremendously from market to market. The main disease conditions observed at the markets were parasites, pneumonia, mineral deficiency, and FMD. The majority of the markets indicated that there were no veterinary services available. The most frequently sited areas where assistance is needed were veterinary services, market facilities, and water.

2.3.2 Livestock Movement Between Markets

Upon leaving the Importation Center of Muhka the livestock move to the markets in three general directions. The majority of the livestock move north and northeast towards the areas of highest density of human population in the northern area of the country. The northward traveling livestock pass through the major markets of Bit Faki, Bajel, and the general market of Hodiedah. The next greatest concentration of livestock moves to the markets in the central highland regions of Taiz, Ibb, and Dharmar. The major market of this area is the market of Kaedah, which handles approximately 125,000 head of livestock annually. The secondary markets in the central highland area that handle the next greatest concentration of livestock are Rabo in the Taiz Governorate and Sabt market in the Ibb Governorate. These markets handle approximately 60,700 and 78,000 head of livestock per year. The third direction that the livestock move is toward the southern market of Dar Sad (see Map 2.2).

In the central highland area of Yemen, the majority of livestock move northward through the major market of Dhamar, which handles 106,000 head of livestock annually. The majority of livestock move to the markets around the capital, Sana'a, but some move further north to the Amaran market of Riddah. It is interesting to note that, according to the information from the questionnaires, there is some movement of livestock southward to the market of Kaedah in the Ibb Governorate (see Map 2.3).

The livestock that move through the west central coastal plane known as the Tihamma, pass through the major markets of Bit Faki, Bajel, and General Market of Hodeidah which sell approximately 345,000, 588,000, and 373,000 head of livestock per year. There are several secondary markets in this area some of which are the market of Kafen in Hodeidah, as well as Boan in the Sana'a Governorate. These secondary markets handle approximately 17,900 and 20,000 head per year respectively. The greatest percentage of livestock moving through these markets goes to the areas of increased human population around Sana'a. From there a few move northward to the S'adah Governorate and some move southward to the central highland area for grazing (see Map 2.4).

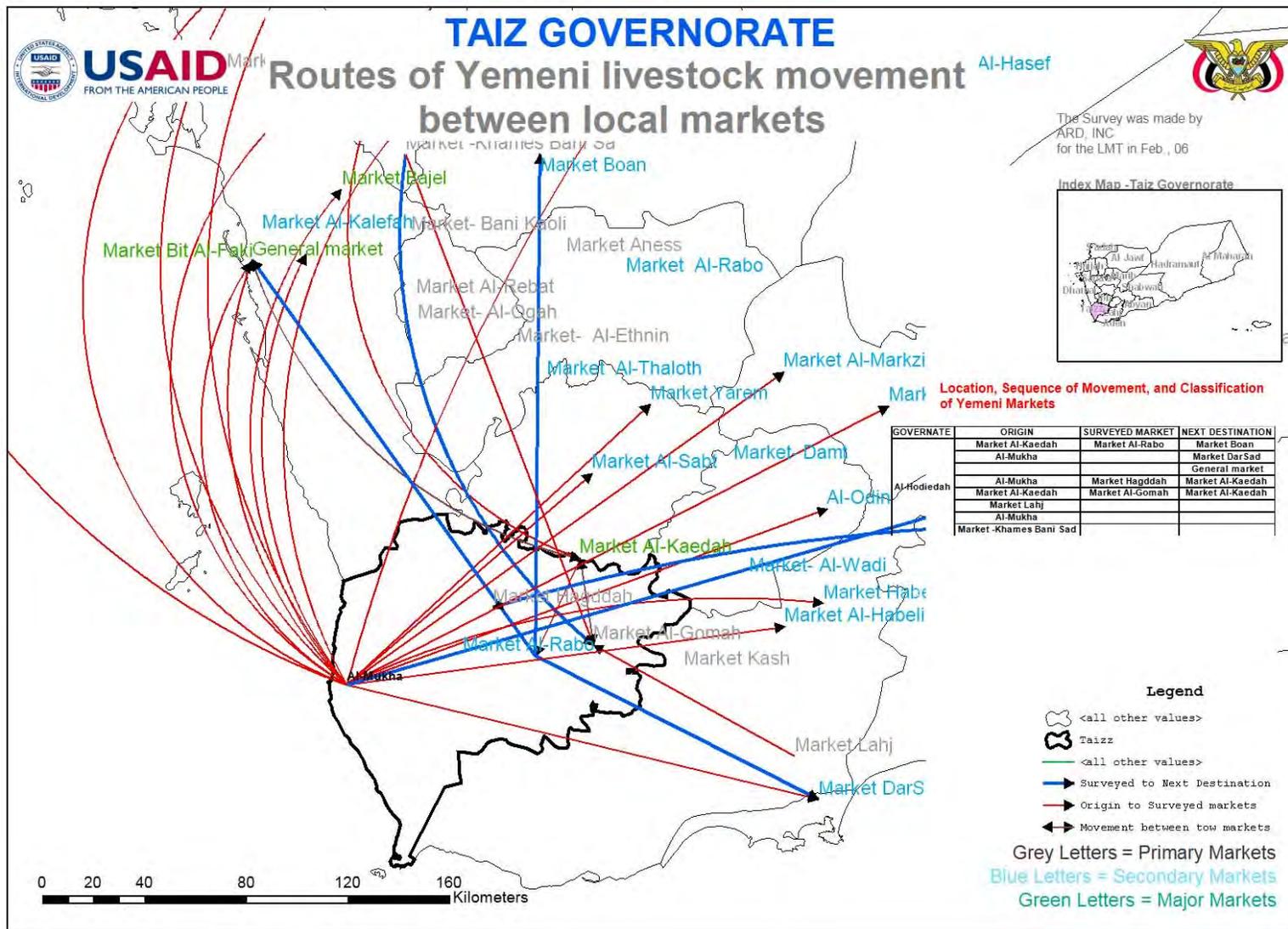
Livestock movement into the S'adah Governorate originates in three different areas. The apparent majority of livestock move northward along the coastal plane (Tihamma) and the central highlands from the markets of Bajel, Mukha, and Boan. Approximately 177,000 head of livestock move through the major market of Ammar annually. The second area of markets from which livestock originate are the Hotah and Dis in the Hadramout Governorate. Apparently, livestock from these markets move to the secondary markets of Dohian and Markzi, which handle approximately 2,000 head of livestock per year. In the Governorate of S'adah there appears to be a lot of movement of livestock between the markets. The livestock that are not purchased for slaughter or for local herds move into Saudi Arabia over land. The harsh conditions of this overland trek are what have spurred the recent increase in the number of camels imported, since they can tolerate the arid conditions better than cattle. The third area in which livestock originate and move south is Saudi Arabia. According to the information collected from traders, the livestock moving south towards the central highlands is mainly breeding stock (see Map 2.5).

In the southern Governorate of Aden, the majority of livestock that enter through the port are slaughtered locally. In order to add value, some of the young thin livestock move through the market of Dar Sad then northeastward to the Abyan and Shabwa Governorates for grazing in the east central highlands. The data collected from the questionnaires indicates that the market of Dar Sad is a secondary market, but some traders interviewed said that a large amount of livestock actually move through the market, which leads one of the authors, Dr. Fleming, to conclude that it is actually a major market. Livestock move to the Dar Sad market from two market areas, Mukha in the west and Mukulla in the east. Apparently, due to religious activities in December and January, the number of livestock coming from these areas can be quite high (see Map 2.6).

The movement of livestock in the sparsely populated Shabwah Governorate is mainly between the primary markets of the central highlands and the secondary market of Arm. The livestock then move either east to the markets of the Hadramout Valley or southwest to the markets around Aden (see Map 2.7).

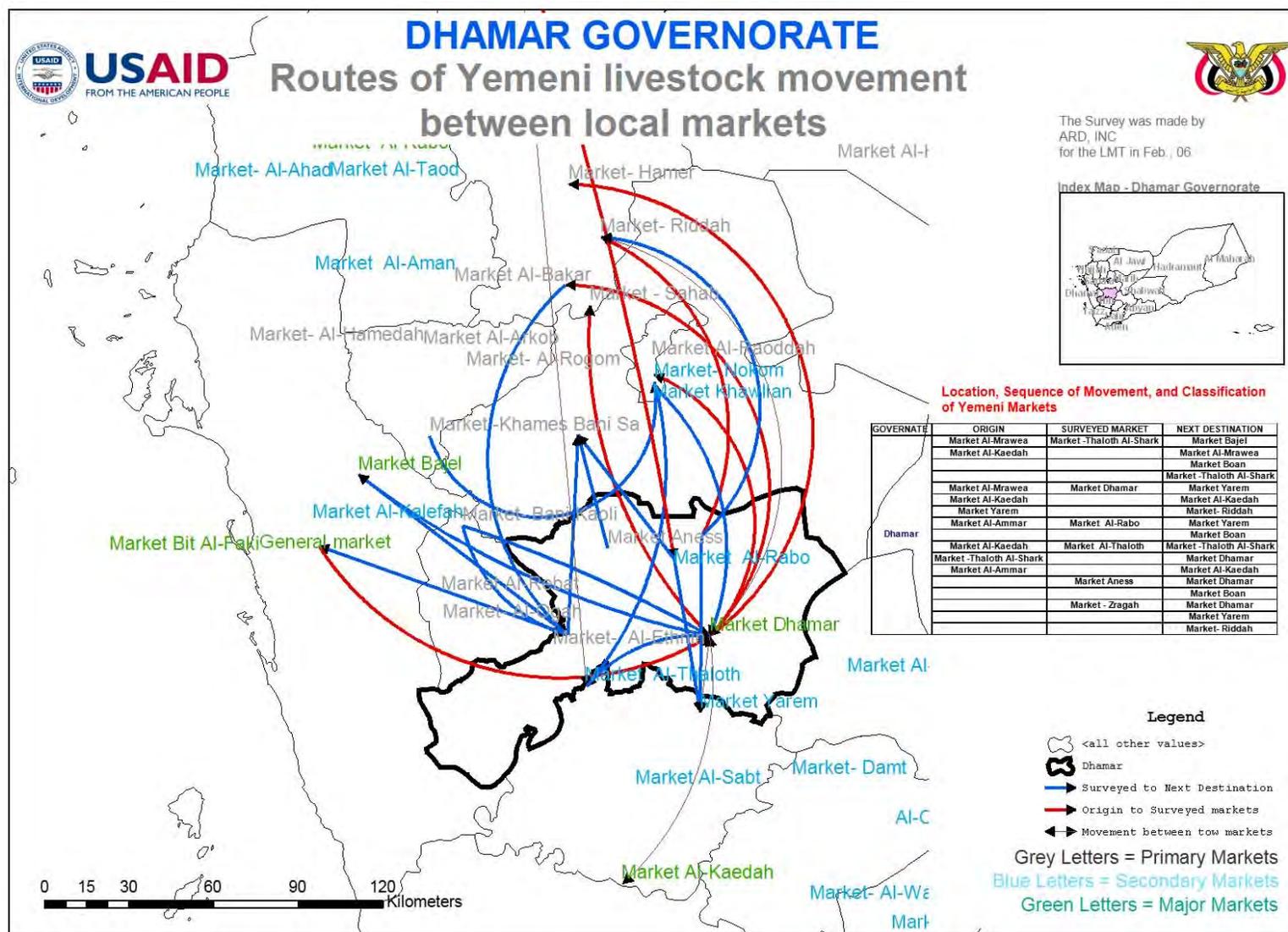
According to the responses to the questionnaires, the market of Mukulla is the major market in the Hadramout Governorate, handling approximately 276,000 head per year. It was also indicated by traders and others during interviews that the market of Bosh is also a major market, but the number of livestock per year handled there was not available. From the markets of Mukulla and Bosh, the livestock move in three directions with the majority moving northward to the east central highland secondary markets of Katen and Hotah, which handle approximately 70,000 and 14,200 head of livestock per year. The next greatest percentage of livestock move westward along the coast to the markets around Aden, especially during the periods of peak demand in December and January. The third direction which livestock move is eastward to the market of Hadramout in the Maharah Governorate. Evidently, this route is most commonly used by camels on their way to Oman (see Map 2.8).

MAP 2.2. LIVESTOCK MOVEMENT BETWEEN LOCAL MARKETS—TAIZ GOVERNORATE



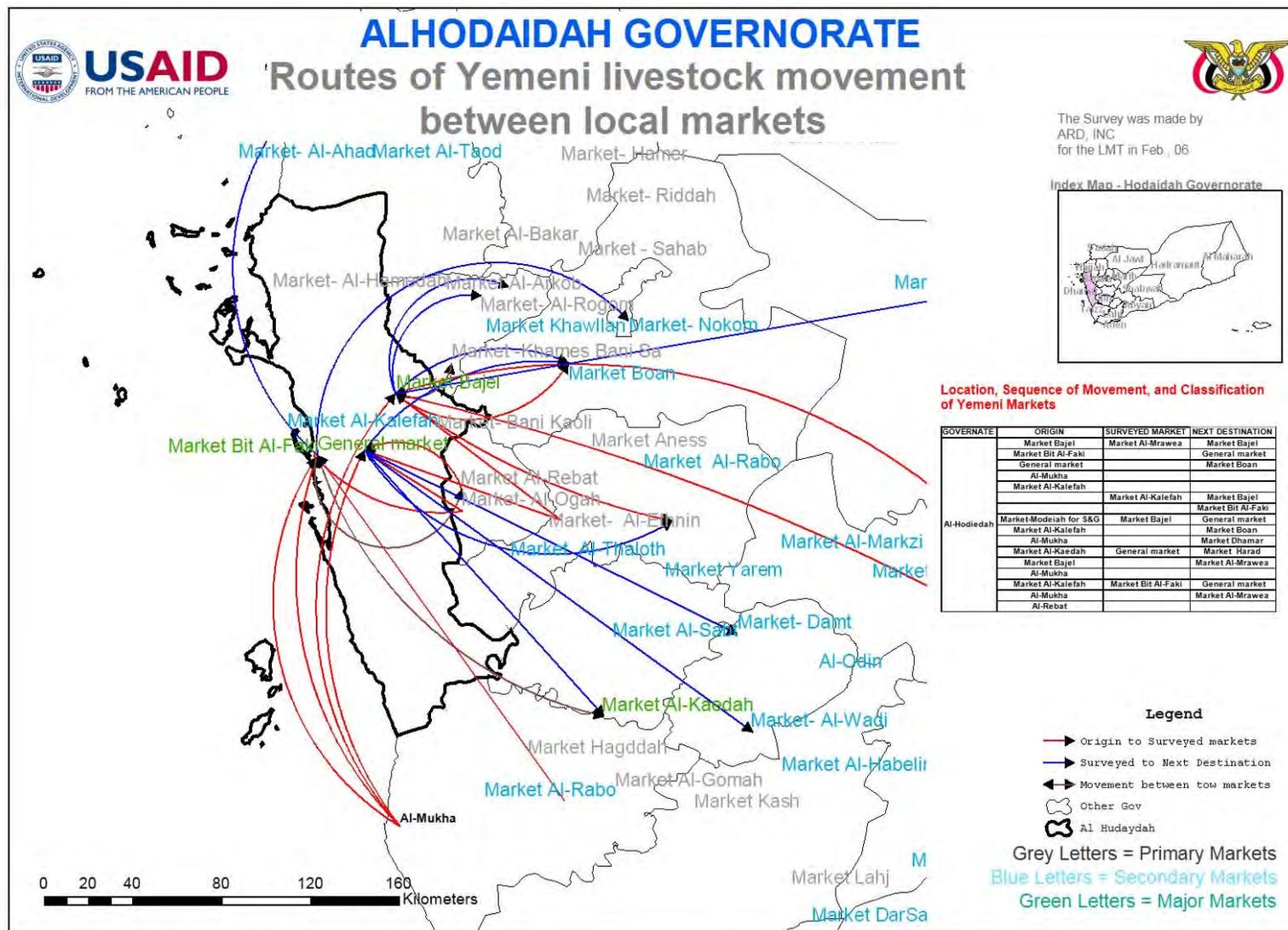
Source: Khalil Gobran, USAID-funded PHRplus project

MAP 2.3. LIVESTOCK MOVEMENT BETWEEN LOCAL MARKETS—DHAMAR GOVERNORATE



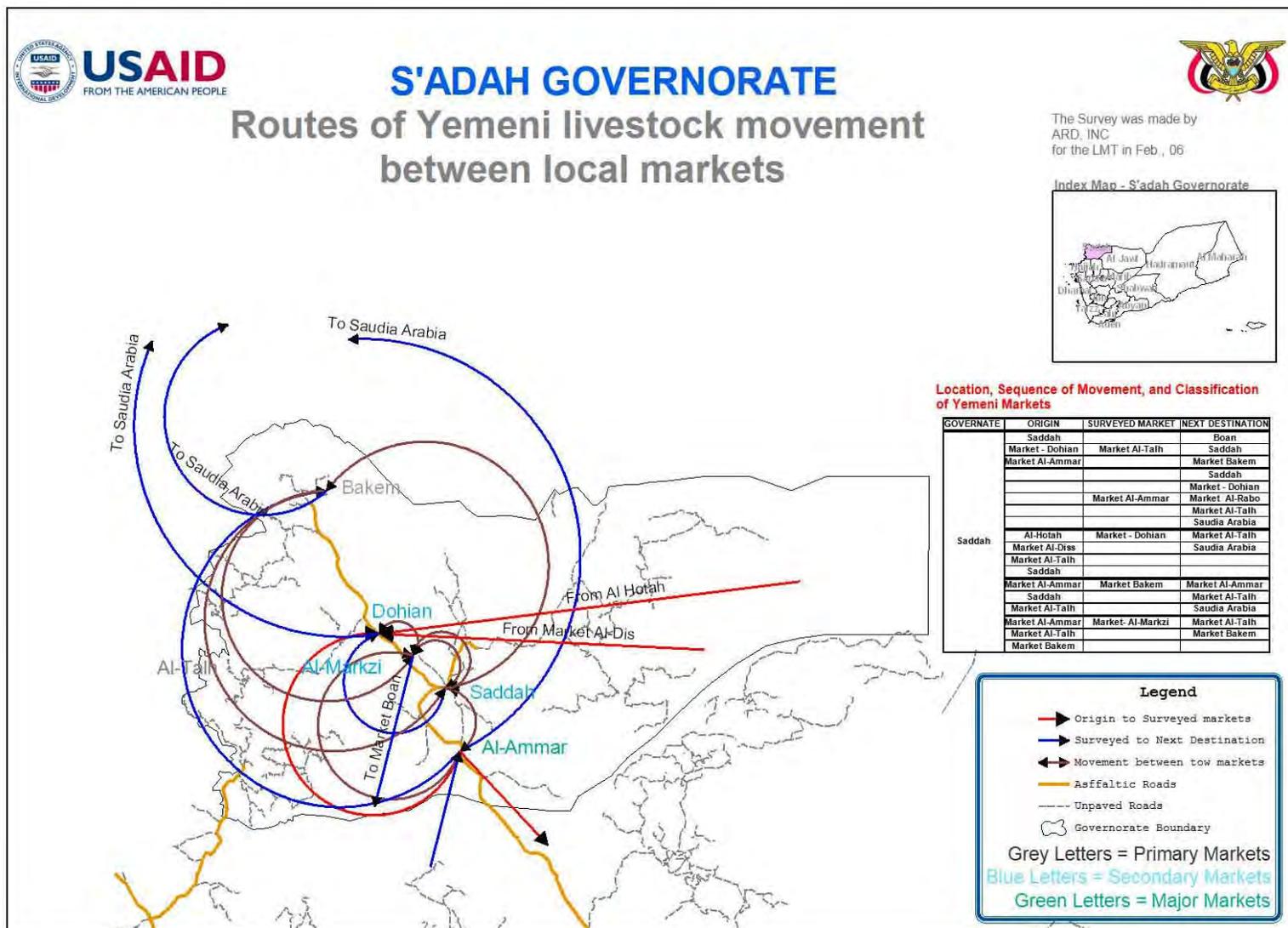
Source: Khalil Gobran, USAID-funded PHRplus project

MAP 2.4. LIVESTOCK MOVEMENT BETWEEN LOCAL MARKETS—ALHODAIDAH GOVERNORATE



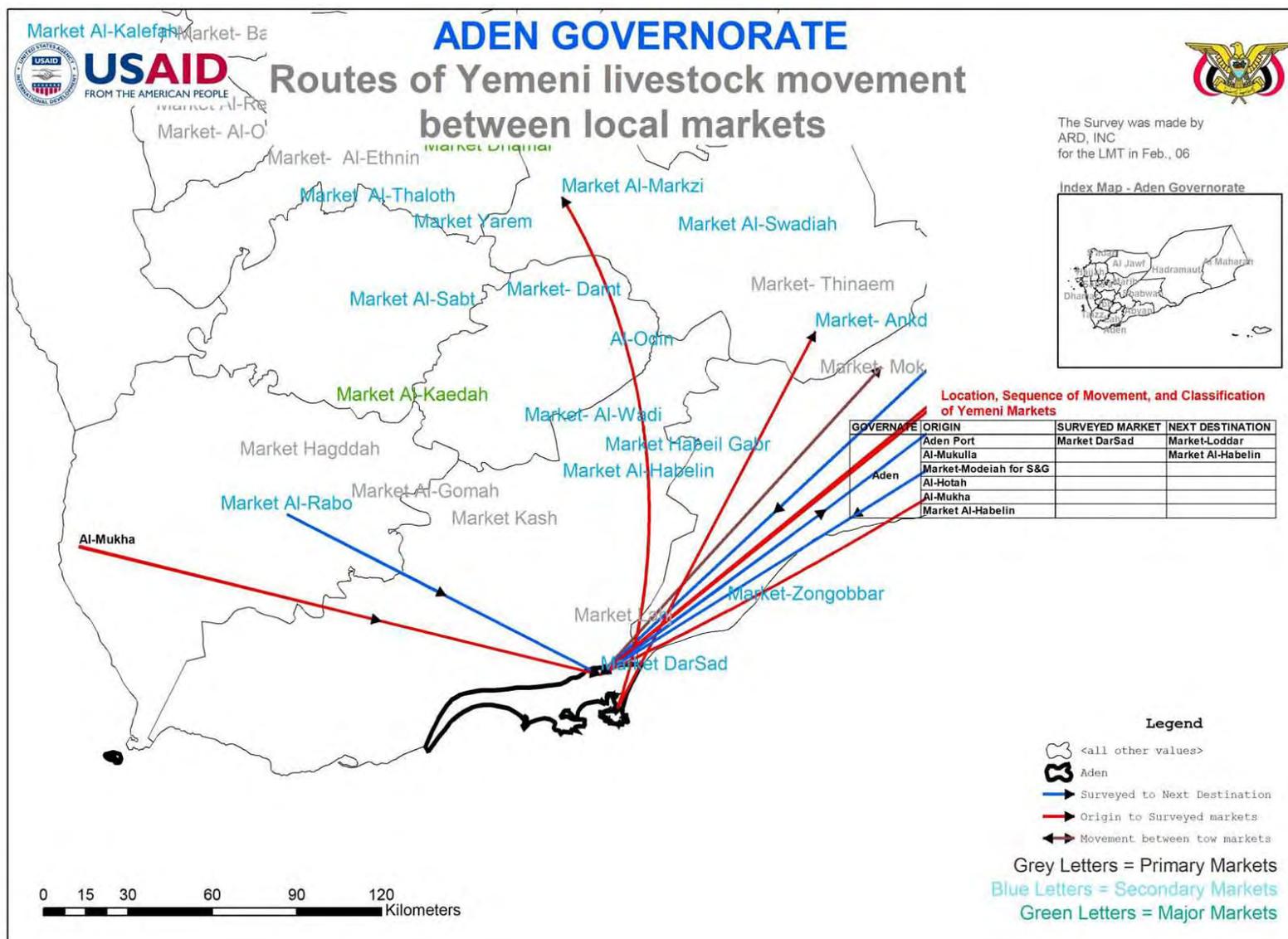
Source: Khalil Gobran, USAID-funded PHRplus project

MAP 2.5. LIVESTOCK MOVEMENT BETWEEN LOCAL MARKETS—S'ADAH GOVERNORATE



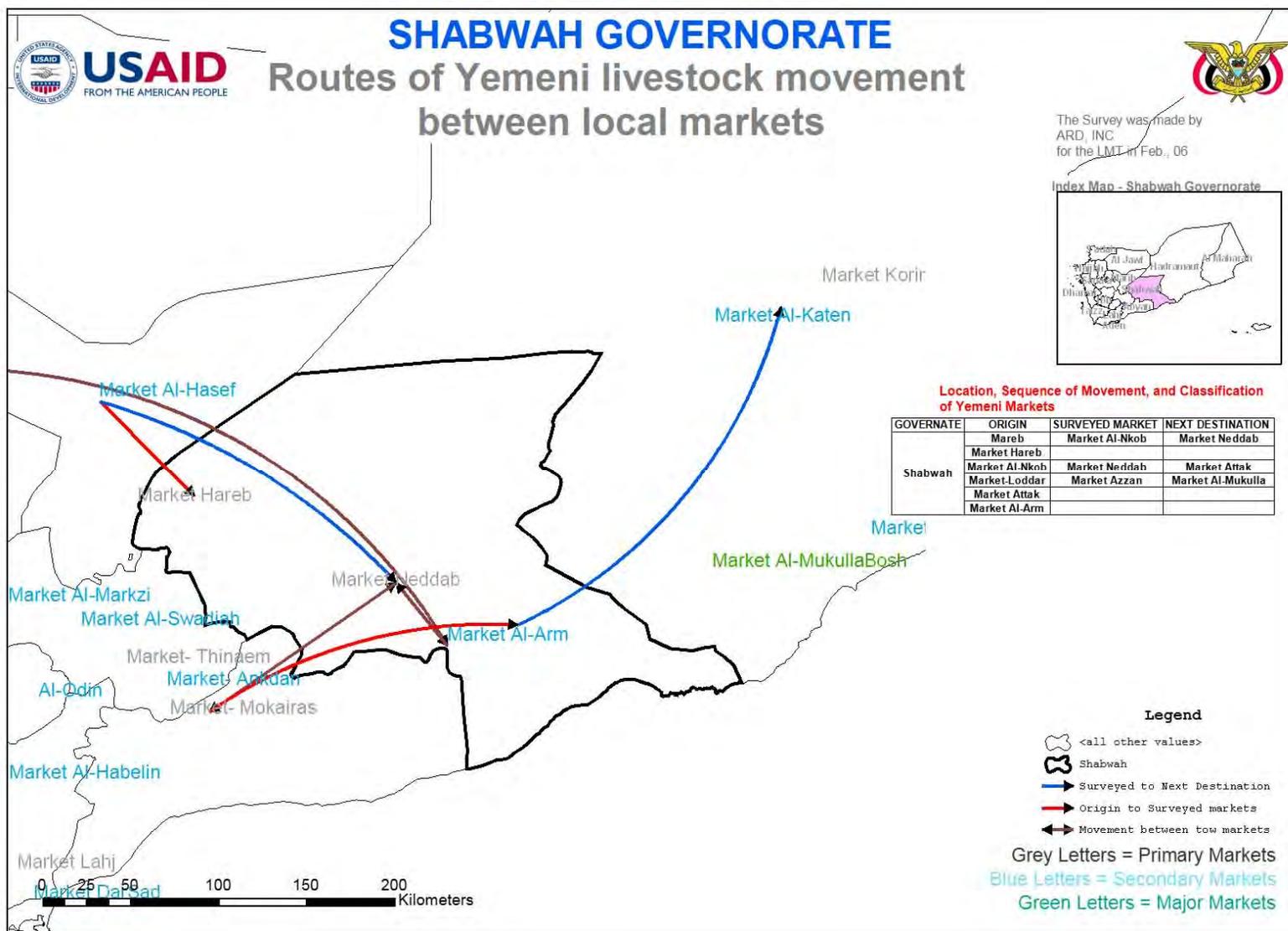
Source: Khalil Gobran, USAID-funded PHRplus project

MAP 2.6. LIVESTOCK MOVEMENT BETWEEN LOCAL MARKETS—ADEN GOVERNORATE



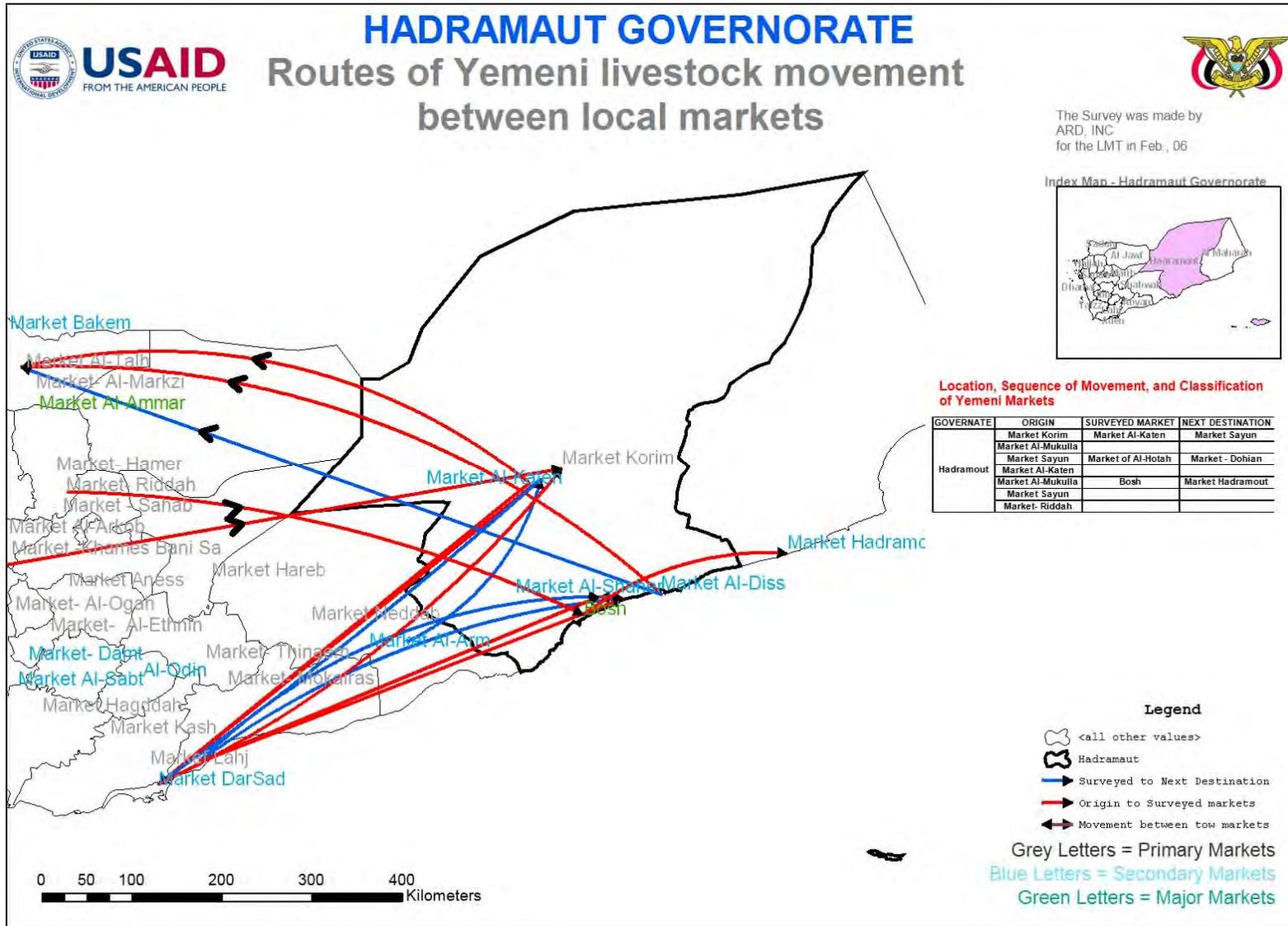
Source: Khalil Gobran, USAID-funded PHRplus project

MAP 2.7. LIVESTOCK MOVEMENT BETWEEN LOCAL MARKETS—SHABWAH GOVERNORATE



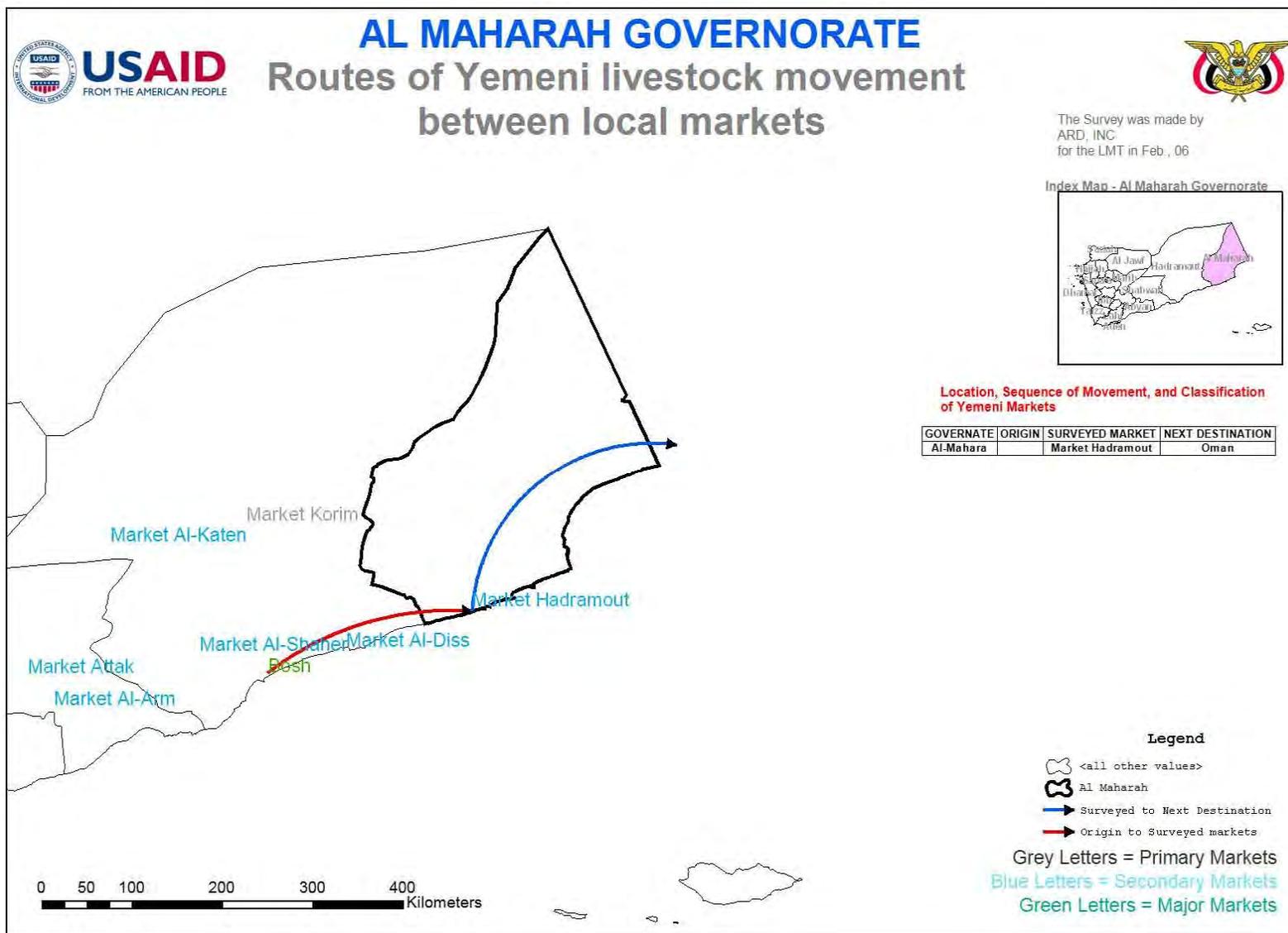
Source: Khalil Gobran, USAID-funded PHRplus project

MAP 2.8. LIVESTOCK MOVEMENT BETWEEN LOCAL MARKETS—HADRAMAUT GOVERNORATE



Source: Khalil Gobran, USAID-funded PHRplus project

MAP 2.9. LIVESTOCK MOVEMENT BETWEEN LOCAL MARKETS—AL MAHARAH GOVERNORATE



Source: Khalil Gobran, USAID-funded PHRplus project

2.3.3 Discussion

The data indicates that sheep/goats and poultry are the livestock marketed in the greatest numbers. The number of sheep/goats marketed varies the most of any of the classes of livestock over the year. The peak in the number of head marketed occurs in December, and the trough occurs in the dry month of June. The other classes of livestock remain relatively constant through the year with the peak in December. The median number of poultry marketed per month remains relatively constant except during the hot dry season in the summer when its trough occurs. The price per head slowly increases during the year to peak in November. During the RVF outbreak, poultry apparently became the much more popular class, which was indicated by a 42% increase, accompanied by a similar decrease in the number of sheep/goats marketed. During the RVF outbreak and associated ban on imported livestock, the number of young bulls and aged cows increased approximately by 50%, and they are still marketed above the pre-ban levels.

The major point of origin for the markets combined is “grazing areas” followed by “other markets” and “quarantines.” The larger markets have a higher percentage of livestock originating from “quarantines” and “other markets.” The smaller markets have a greater percentage of livestock originating from “grazing areas.” The destination for the livestock after leaving the markets is “other markets” and then “slaughter facilities” for most of the classes of livestock. The most interesting exceptions are the percentage of young female cows, sheep/goats, and aged bulls in which their third greatest destination is “export.”

The prices of most of the classes of livestock remain constant throughout the year with the major peak occurring in December. The large number of livestock marketed by traditional patterns applies negative pressure on the prices in December and January, resulting in a major price trough.

The lack of veterinary services is of major concern at the markets, and this is a common problem noted on the other questionnaires as well. Apparently the majority of market participants are unable to secure needed veterinary assistance. Multiple diseases are observed at the markets with parasites being the most prominent, followed by pneumonia. The second greatest problem indicated is the need for market organization. The markets often occur in the streets or alleyways of the towns. On market days, the congestion makes it very difficult to maneuver through the town as well as limits the exposure of livestock to potential buyers. Organized formal markets with available veterinary services would be a tremendous benefit for both the sellers and buyers.

The wide variation in fees and taxes indicates the lack of a uniform tax system. Most of the market participants could benefit from tax restructuring to ensure fair taxation.

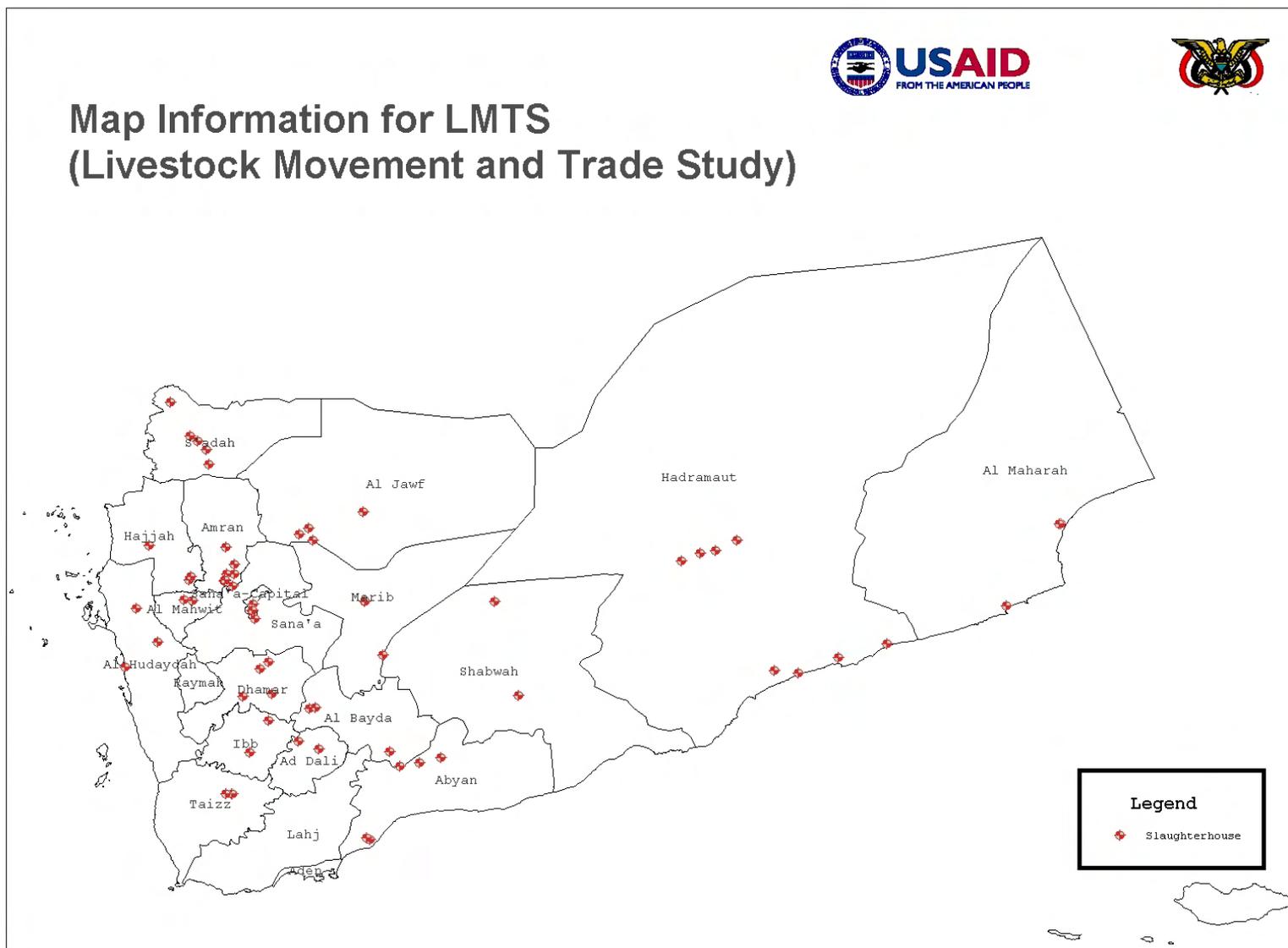


TABLE 2.2. SURVEYED MARKETS BASED ON THE NUMBER OF LIVESTOCK PER YEAR

MAJOR	NUMBER OF LIVESTOCK	SECONDARY	NUMBER OF LIVESTOCK	PRIMARY	NUMBER OF LIVESTOCK
BAJEL	588,000	LODDAR	85,000	ZRAGAH	8,950
AL-HODIEDAH GEN	373,000	ALTHALOTH	80,000	NEDDAB	8,400
BIT AL-FAKI	345,000	AL-SABT	76,000	AL-OGAH	8,000
AL-MUKULLA	276,000	THALOTH AL-SHARK	74,000	SAHAB	7,800
AL-RABO	264,000	AL-KATEN	70,000	HADRAMOUT	6,000
ALMRAWEA	208,000	HARAD	68,000	AL-ARKOB	5,600
AL-MUKHA	152,000	DAR-SAD	*	AL-REBAT	5,000
AL-AMMAR	177,000	AL-RABO	60,700	KORIM	4,850
AL-KAEDAH	125,000	MODEIAH S&G	56,000	LAHJ	4830
AZZAN	107,000	AL-RABO	55,000	RIDA	4,378
DHARMAR	106,000	KHAWLLAN	54,000	AL-HAZM	4,110
BOSH	*	AL-HABELIN	52,000	MOKAIRAS	4,000
		AL-MARKZI	47,000	AL-ETHNIN	3,500
		ATTAK	30,750	KASH	3,400
		AL-DISS	30,100	TAWELLAH	3,300
		AL-TAOD	30,000	AL-GOMAH	3,100
		AL-ODIN	30,000	ANESS	1,790
		YAREM	30,000	HAGDDAH	1,700
		AL-SHAHER	25,550	DOHIAN	1,600
		ZONGOBAR	25,530	AL-BAKAR	1,594
		AL-HASEF	23,000	HAMER	1,500
		AL-AHAD	23,000	THINAEM	1,500
		KOSYER	22,850	ALGHIL AL-MARKZI	1,490
		AL-AMAN	22,000	AL-HALK	1,475
		AL-ROGOM	21,000	AL-MARKZI	1,270
		BOAN	20,000	AL-HAMEDAH	800
		AL-WADI	19,000	AL-TALH	690
		HABEIL GABR	18,900		
		ANKDAN	18,000		
		AL-KALEFAH	17,900		
		BAKEM	14,400		
		AL-HOTAH	14,200		
		DAMT	13,000		
		AL-SWADIAH	12,000		
		AL-ARM	11,200		
		AL-GHEL BAWZER	11,130		
		AL-NKOB	11,100		

* Actual count unavailable

MAP 2.10. MAP OF THE LOCATIONS OF THE SURVEYED SLAUGHTER FACILITIES



Source: Khalil Gobran, USAID-funded PHRplus project

2.4 SLAUGHTER FACILITIES

2.4.1 Results

The largest slaughter facility for sheep/goats and bulls is the General Corporation for Slaughter and Meat Markets in Dar-Salm in the Amanah (Sana'a Governorate), which processed 327,711 head of sheep and 47,262 bulls in 2005. The greatest number of young cows slaughtered and processed was at the Ma'abar slaughterhouse in the Dhamar Governorate in which 2,976 head were processed in 2005. The largest processor of camels was the General Corporation for Slaughterhouses and Meat Markets in Dar-Salm in Sana'a, with 424 head slaughtered in 2005.

TABLE 2.3 MAJOR SLAUGHTER FACILITIES SURVEYED

FACILITY	GOVERNORATE	OWNER	ESTIMATED CAPACITY
General Corporation for Slaughter and Meat Markets	Amanah (Sana'a)	GOY	500,000
Public Authority for Slaughters and Meat Markets	Hodiedah	GOY	140,000
General Corporation for Slaughterhouses and Meat Markets	Aden	GOY	90,000

The sheep/goats livestock class is that which is processed by slaughter facilities in the greatest numbers (see Figure 2.24). In February and October, the number of sheep/goats processed decreases by approximately 11% to its lowest points of the year. In January and April, the number of sheep/goats peak at 80,000 head per month. The majority of the remaining classes of livestock hit low points in numbers processed in February and August, with the exception of aged bulls that peak in October at 7,436 head. The total number of sheep/goats processed per year varies between 68,000 and 80,000 head per month. The total number of young bulls is approximately 20,000 head per month. The number of aged bulls is around 5,000–7,436 head per month. The number of young cows varies between 800 and 900 head per month. The number of camels processed per month is approximately 140 head.

The median number of livestock processed per year for all classes of livestock peaked in 1998 and 1999 with the exception of aged bulls. There has been a relatively steady decrease in processed numbers since 2000 for all classes of livestock. In 2001, there was a slightly greater rate of decrease in the processed numbers in all classes of livestock except sheep/goats, which reached a ten-year low in 2002. The exception to the gradual rate of decrease occurred in 2003, when sheep/goats reached its highest median peak in the last five years at 3,500 head in 2003 (Figure 2.25).

The median value of kilograms of meat produced by the slaughter facilities mirrors the total median number of livestock processed, which indicates that the amount of meat produced peaked in 1998 and 1999. The amount of meat produced has also decreased in the year 2000 at a relatively rapid rate with the exception of aged bulls and poultry. The kilogram of poultry produced has increased at a relatively steady rate (Figure 2.26).

Figure 2.24 Total Number of Processed Livestock for the Combined Slaughterhouses Surveyed, 2005

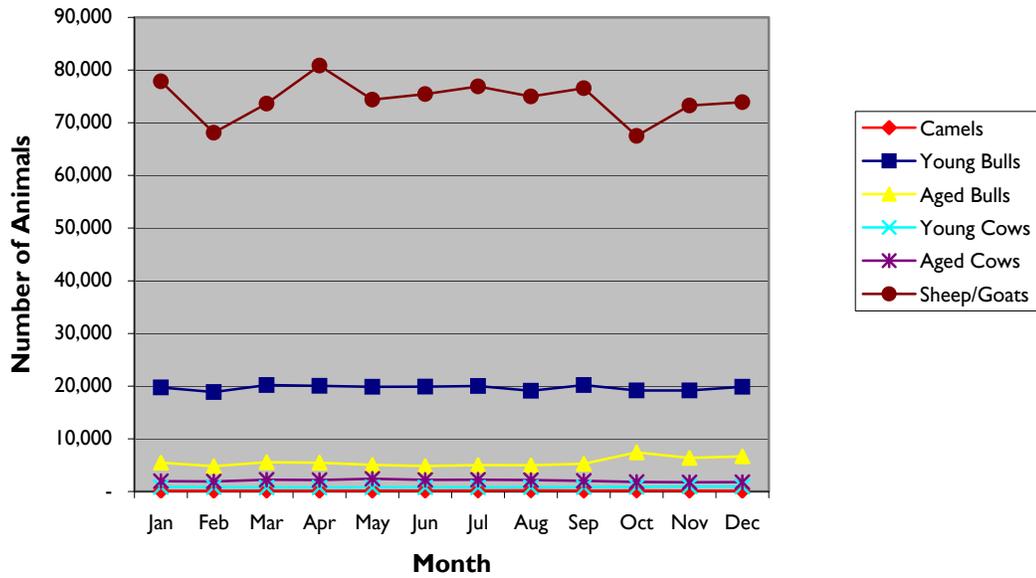
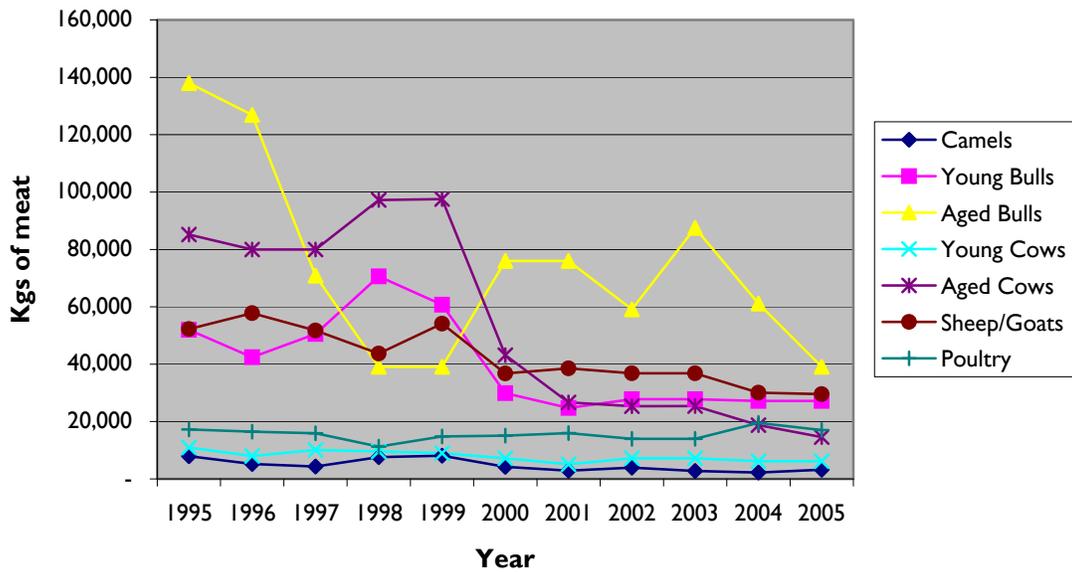
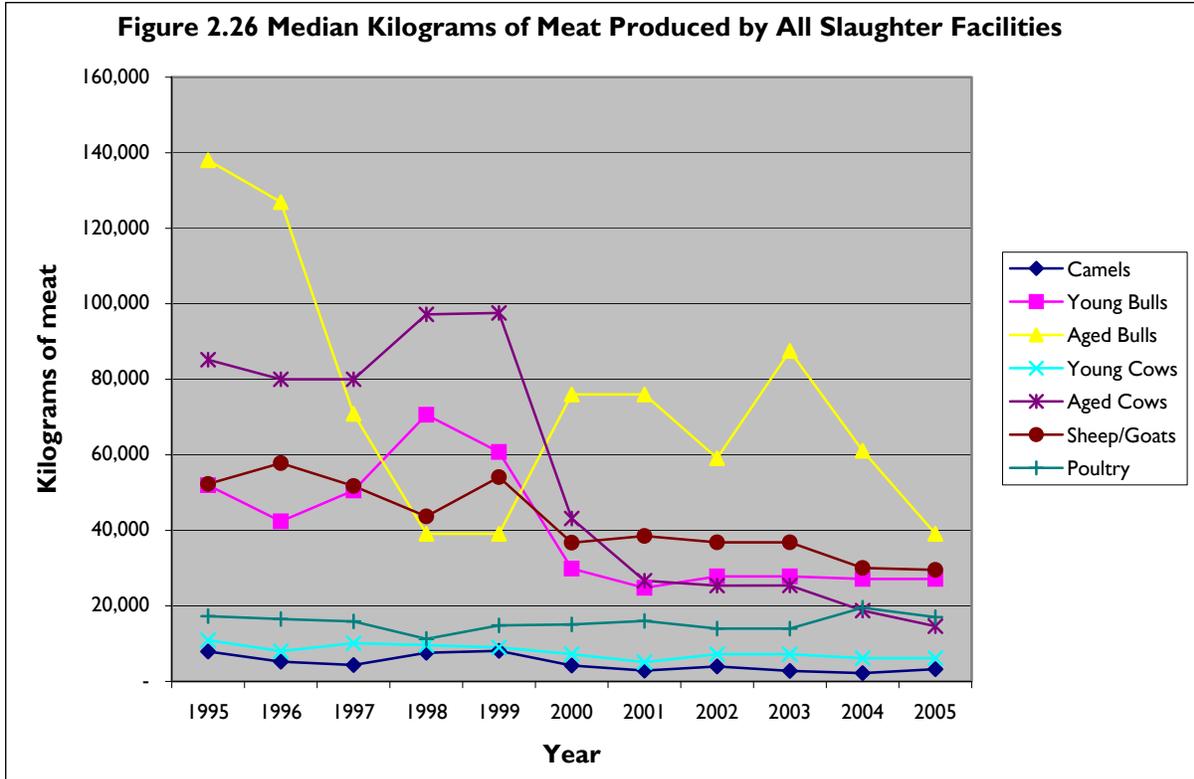


Figure 2.25 Median Value of the Kgs of Meat Produced by All Slaughter Facilities per Year





The number of hides produced is not consistent with the trends of the number of livestock processed and kilograms of meat produced, by the fact that the amount increases steadily from 1995 to the peak in 2004 at 4,850 hides. The amount of kilograms of consumable by-products also has increased from its major low in 2000 to a peak in 2003 of 6,000 kilograms (Annex 9, Figures 2–3).

The major disease conditions observed at the slaughter facilities are parasites, sheep pox, abscesses, pneumonia, and FMD (Annex 9, Table 1). The charge for processing livestock varies with each class, with camels being the most expensive at US\$12 and poultry being the least expensive at \$10 (Annex 9, Figure 5).

2.4.2 Discussion

The number of livestock processed by the slaughter facilities is relatively constant throughout the year. There are minor peaks associated with the wedding season in October for aged bulls and in December for cattle and sheep due to religious activities. The number of livestock and the amount of meat produced has decreased since 1999 in Yemen, except for poultry. The RVF outbreak as well the increase in the price of livestock appeared to have a significant negative impact on the number and amount of meat produced with the exception of poultry.

The majority of the livestock processed by the large slaughter facilities is imported. According to the data from the General Corporation for Slaughterhouses and Meat Markets in Sana'a, the imported livestock actually has less condemnation than domestic livestock. The reason behind this point is two-fold: the exporters from other countries select their most fit livestock to export to Yemen; and the Yemeni send their healthiest livestock to Saudi Arabia to receive up to three times the average Yemeni market price. The less profitable animals appear to be the ones utilized for slaughter.

The slaughter facilities utilize very little refrigeration. The majority of the livestock processed is for individual owners, who immediately pick up their meat in their vehicles once the processing is complete. Only a few of the large facilities have refrigeration capability, and none of them use cold storage of processed livestock for any length of time. None of the facilities produce meat or meat products for export. The only export product is hides and, as apparent from the number produced, only a small percentage of the total available material is utilized.

The phytosanitary conditions range from good in the largest facilities to very poor in the smaller ones. There are government regulations in place to assure good phytosanitary practices, but there appears to be a lack of enforcement in some areas. Most of the facilities do not have hot water to wash knives in order to prevent the spread of contamination between carcasses. There is also a significant problem with pests, such as birds, soiling the equipment in some of the facilities, which can be source of carcass contamination.



The majority of slaughter facilities, like this one in Abyan, process 5 to 15 head of livestock on market days.

The majority of livestock are slaughtered by small facilities which process 5-15 head per day on the days in which the local livestock market takes place. These slaughter facilities are usually located in or adjacent to the markets. The employees are very skilled in the traditional methods of processing, but lack formal training in phytosanitary methods.

3.0 CONCLUSIONS

3.1 LIVESTOCK MOVEMENT AND TRADE

The movement of livestock in and out of Yemen is a dynamic, responsive, and sustainable process. For thousands of years, livestock have been moving from the Horn of Africa through Yemen and on into the Arabian Peninsula. Many people have developed a profitable enterprise from the movement of the livestock. The livestock that have moved along the traditional routes have also fed many people. The process begins at two points: one in the Horn of Africa; and the other within Yemen. The whole process is fueled by various demands that drive the movement of livestock. Unfortunately, this traditional movement of livestock creates many problems in a modern world. Large numbers of livestock flood the market during the few times of high demand, driving down prices and overwhelming the government’s ability to adequately control disease. The inability to control disease has led to widespread outbreaks as well as endemic diseases in the domestic livestock and the human population. Unfortunately, the presence of certain diseases also greatly decreases the potential for official livestock exports. Poor production methods combined with disease, climate, and increased demand have had a negative impact on the domestic livestock population so severely that another importation ban could result in extreme decimation of the livestock numbers and lead to widespread famine among the poor. The deeply entrenched, traditional movement of livestock also has a tendency to limit access to important information to only a few, thereby preventing or decreasing competition. A few families control the livestock trading in Yemen, and it will be a difficult and arduous process to modernize. In order to meet the increasing pressure to feed the growing population, as well as to develop an official export market, the GOY should support and adequately fund the government ministries associated with livestock movement and trade. New regulations will need to be put in place and, along with existing ones, must be completely and rigorously enforced.



Camels being unloaded off of a cargo ship at the Port of Mukha.

4.0 SUGGESTIONS

4.1 IMMEDIATE

Yemeni livestock and agriculture have been the subject of several studies. It is apparent after discussions with members of the MAI, that many of the people in decision-making positions are not familiar with these documents due to communication barriers or other factors. In order to address this problem, a committee of Yemeni experts in the main areas of livestock agriculture, veterinary, marketing, economics, and horticulture needs to be established. Use of international experts for assistance to this committee could be extremely beneficial. This committee would be responsible for utilizing published material, subject matter experts, livestock producers, and their own acquired knowledge to develop a detailed agricultural action plan. This plan will need to address the changes and programs necessary to develop a sustainable improvement in Yemen's agriculture. One of the main points of this plan must be cost efficiency. Due to Yemeni revenue constraints, the MAI must be extremely cost conscious. There is simply not enough money to support a large staff. Engaging independent contractors is one way to decrease operation expenses. The plan should address the following areas:

- **Quarantine Services:**
 - Detailed operation plans to include length of quarantine, number of livestock to be quarantined at one time, and specific diseases for which the imported livestock must be tested;
 - The OIE Web site lists the regulations that are necessary for international trade of meat.
 - The necessary level of enforcement authority that will be required to control the facilities;
 - Annex 5 is an example of the necessary legislation to instill the authority upon quarantine officials in order to control the quarantine areas.
 - A budget for quarantine operations at the ports of Mukha, Aden, and Mukulla;
 - Quarantine fees—it is apparent that the current pricing structure is not reflective of the level of service nor is it fair since it is not based on market indicators; and
 - Utilization of quarantine facilities in countries of origin, such as Djibouti.
- **Importation Control:**
 - Importation quotas:
 - The number of livestock imported into the country must be controlled in order to ensure that the facilities are not overwhelmed. This will be a most difficult task, but it is extremely necessary to avoid the 500,000 head of livestock entering the country in December and January. If the number of imported livestock is not controlled, there would have to be three very large quarantine facilities built to handle the seasonal surge. When one considers the financial constraints, it is not feasible to build, equip, and maintain three large structures. With the cooperation of the traders, it would be possible to import more livestock each month to avoid the seasonal surges.

- **Diagnostic Services:**

- Initially, perform all serology at the Central Veterinary Lab. After some time, as funds are available, labs should be constructed at each of the quarantine facilities.
- Training for the laboratory staff is an essential part of increasing the effectiveness and efficiency of the diagnostic services.

- **Agriculture Production Services:**

- Livestock production/husbandry education must be geared toward the rural poor, many of whom rear livestock in traditional methods on inferior quality crop residue or graze on extremely over-utilized areas. Much of the needed education needs to be directed at women. In many families the women are the primary caretakers of the livestock. In Islamic societies it is improper for men that are not family members to interact with the women. This presents a problem since the majority of the current extension personnel are men. In order to address this situation, it is imperative that women be included in the training of extension agents so that they can provide valuable training directly to the main livestock caregivers. In order to meet the increasing need for meat and animal products in the face of the fact that livestock owners are decreasing the size of their herds, utilization of vertically integrated systems where fecal material from one confined species serves as fertilizer for crops would be beneficial (Owen et al, 2005). Rotational grazing of different species to control parasites is another method to improve husbandry. Selection for individual animals that have more resistance to parasites is another husbandry practice that can decrease the need for antiparasitics, as well as improve the percent death loss in a herd.
- Livestock breeding and reproduction is very important in the improvement of any livestock system. The majority of livestock in Yemen are products of hundreds of years of crossbreeding and natural selection. The result of this process has led, generally speaking, to a very hardy, small-framed, lightly muscled animal that is relatively resistant to the normal diseases and parasites of the region. The problem is that the amount of edible product per animal slaughtered is low especially when compared to animals in many other areas of the world. In Dr Fleming's experience, it takes almost as much to feed a marginal producing animal as one that is more moderate in production. The best way to improve individual animal performance is through breeding animals that have greater genetic capacity to produce more pounds of product per animal without tremendously increasing the nutrient demand for the increase. It is also beneficial to select for individual animals with increased reproductive efficiency, especially in the small ruminants. One of the most rapid methods to increase the number of offspring weaned is to increase the number of twins. One example of a good breed of goats to utilize in a crossbreeding program is the Kiko goat (Hendrixson et al, 2005).
- In order to increase the production of any marginal livestock system, the nutritional plan that the livestock are utilizing must be improved. The majority of Yemeni livestock is fed or grazed a common variety of Sudan grass that is very hardy and resistant to drought and parasites. Unfortunately, this variety appears to have less total digestive nutrients (TDN) per given plant than others found elsewhere in the world. In order to increase the productivity of the Yemeni livestock, different varieties of plants need to be developed, as well as more nutrient-dense (concentrated) feeds need to be used. There are many areas of Ethiopia and Kenya that are more suitable for cultivation than most of Yemen. The main problem that plagues the African farmers is the lack of profitable markets for exportation of their goods. The development of regional trade is an important part of increasing the level of nutrition available to the Yemeni livestock.

- **Veterinary Services:**
 - Relocation of MAI veterinarians to rural areas to supply necessary services to poor owners; and
 - Privatization of veterinary services in areas of high population density is a very effective method to reduce operation costs for MAI (Umali, 1992).
- **Livestock Markets:**
 - Organize markets to include:
 - Testing of livestock for disease;
 - Quarantining of diseased livestock; and
 - Reporting of livestock prices.
- **Epidemiological Services:**
 - Monitoring of livestock disease is an essential part of disease control.
 - The testing for disease at all the livestock markets is an important tool to monitor and control disease in the domestic livestock. Animal care workers or veterinarians can collect the samples, and screening tests can be completed at the markets. Samples can be sent to the central lab. The epidemiological services can then use this information to determine the locations and diseases in which national eradication and vaccination campaigns should be performed.
- **Veterinary Agricultural Marketing Centers (VACMs):**
 - In order to effectively meet the needs of producer education, market modernization, and disease control, MAI needs to establish veterinary agricultural marketing centers (VAMCs) that house veterinarians, extension specialists, and market inspectors. These centers should be located at the 49 major and secondary markets identified in this study (see Table 2.2). Since the markets have traditionally been the points of livestock concentration, MAI could quite easily and cost-effectively turn these markets into centers for education and disease control. The markets could also be utilized in the rural areas, as the centers for mobile veterinary services for the surrounding population. In the more populous areas the MAI could contract with the private sector veterinarians to perform the testing at these markets and thereby allow the MAI veterinarians to take care of the more rural markets.
- **Progress Monitoring:**
 - In order to ensure that progress is being made it is necessary for the expert committee to develop methods with which to measure the progress.
 - The number of livestock tested for disease at the quarantines per month would be an important value to measure;
 - The number of domestic livestock tested at the local markets is also an important way to measure progress;
 - The number of producer extension meetings could also be used to monitor progress;
 - The number of markets that report weekly the market prices and number of livestock sold is also important;

- The expert committee should be formed and have its first meeting within 90 to 120 days;
- 120 days after its first meeting, the committee should have an initial draft of the Agricultural Plan; and
- 6 months after its initial meeting, the committee should have finished the Agricultural Action Plan.

Another committee made up of all the director generals of the MAI, the Deputy Minister of the MAI, and representatives of aid organizations should be formed to develop methods for implementation, identify policy changes, and determine the amount of support necessary to assist in the implementation of the agricultural action plan. The program can then be submitted to the Minister of the MAI and higher level authorities in the GOY. In order to truly affect sustainable change in Yemen's agriculture at all levels, the GOY must be involved, especially if developing Yemen's export potential is an important goal.

Members of the ministries of agriculture, planning, export, finance, and marketing need to establish a committee to determine the feasibility of exporting livestock and livestock products. The FAO estimates that meat consumption in the Middle East will continue to increase from 3 to 8% per year for the next ten years. Given Yemen's traditional role as the main point of convergence for livestock entering the Arabian Peninsula, there appears to be an excellent potential for establishing livestock exports. One possibility to accomplish this goal is the establishment of disease-free zones for export. By utilization of OIE and World Trade Organization standards (see www.oie.int/eng/normes/mcode/en_sommaire.htm), these disease-free zones can be utilized by countries with animal diseases that normally prevent exportation of livestock and livestock products. The following ports have good potential to be utilized:

- **Mukha:**

- This location is a traditional importation port;
- The port is of sufficient size to handle 20% increase in the number of livestock imported;
- Expansion would be required in order to accommodate cargo traffic;
- The existing quarantine facility would require extensive reconstruction to meet OIE standards;
- It must be noted that the strength of the prevailing wind from the south affects the transmission of infectious agents;
- Sufficient space is available to accommodate expansion of facility as well as construction of a slaughter facility;
- There is a limited labor pool available; and
- Feed and forage must be transported from other areas.

- **Aden:**

- The port of Aden is a traditional port of importation. Even during the period of time when the GOY inhibited importation, small boats unloaded livestock along the shore. Due to market forces, there is going to be legal or illegal importation. Area traders indicate that they are interested in increasing the number of imported livestock. Instead of spending money and time trying to prevent importation, it would be more cost effective and potentially beneficial to develop the port to handle quarantine, slaughter, and exportation capacity;
- Sufficient space is available for construction of facility;

- Due to the low number of animals near the port because of the sea and city, a buffer zone is already present;
 - The existing slaughter facility in Aden could be utilized, but it would require refurbishing;
 - The free trade status of the port could be utilized to reduce input costs; and
 - There is a large population base as a labor source.
- **Hodeidah:**
 - The potential exists for utilizing refrigeration units that are remaining empty by building a slaughter facility at the port;
 - Holding pens are currently present and there is ample space for enlargement;
 - Livestock could be relatively inexpensively transported from Mocha quarantine area to Hodeidah for processing;
 - The port is close to areas of forage and feed production;
 - Importing of feed components is already occurring at the port;
 - Increased forage production could be stimulated by local farmers by creating increased demand; and
 - There is a large population base as a labor source.
 - **Salif:**
 - This is a food port facility with relatively light ship traffic;
 - There is ample space for quarantine facility construction;
 - The port is close to the port of Hodeidah, so it could supply livestock to a potential slaughter facility at reduced transportation costs;
 - The port is close to feed and forage sources; and
 - Increased forage production could be achieved by local farmers by creating increased demand.

4.2 SHORT-TERM

In order to meet the ever-increasing pressure placed on livestock production, tremendous efforts must be directed to assist the livestock producers. Programs that disseminate improved methods of the production of livestock and forage being carried out by the World Bank and USAID need to be expanded to include all of Yemen. An important aspect of the programs is veterinary assistance for the control and treatment of disease. The most common request from the owners and traders in our survey was for the expansion of veterinary services. The majority of GOY veterinarians are located in the areas of high animal and human population density. Unfortunately, the rural areas suffer from insufficient veterinary services. One of the most important aspects of meeting the veterinary needs of livestock producers is the privatization of services in areas that can support veterinarians and placement of government-supported veterinarians in the rural areas (Blanc, 2000).

The establishment of organized livestock markets is an important part of improving the livestock sector. The majority of traders indicated that they would be willing to work with the GOY to improve the markets. Organized competitive markets not only serve to allow more market opportunities for sellers, they also serve

as an excellent location for testing and treatment of livestock disease. The dissemination of market information is an integral part of organized markets, which allow sellers to make informed decisions. The new MAI Web page (www.mai-yemen.org) would be an excellent place to start this effort, with postings of market prices discovered by this study as well as updated prices.

The establishment of an effective quarantine system for imported livestock is essential to increasing the efficiency of livestock production by decreasing imported diseases. The three most important aspects of an effective quarantine—in this author’s opinion—are the testing for disease, strict enforcement of isolation protocols, and proper disposal of diseased animals. In order to accomplish these tasks, veterinary and health officials must have the authority and non-wavering support of the government. The government must also commit to the utilization of all necessary resources to prevent the smuggling of non-quarantined animals or the quarantine system will not be effective in controlling disease.

4.3 LONG-TERM

Yemen has had many aid programs in the past that have been successful; unfortunately after the programs ended, the benefits were soon lost. In order for a truly sustainable improvement in the livestock sector to occur, the GOY must strive to support livestock services. The MAI must take a leadership role providing cost effective programs of extension, marketing, and disease control as well as directing aid organizations to assist in the most appropriate areas. Producer education is the key to meeting the needs of the increasing demand placed upon livestock production and it must be a continuing effort. Unfortunately, the current extension system is non-productive and desperately needs to be restructured. Performance-based pay is a good method to increase worker productivity. Extension and research personnel should be rewarded for hard work with better pay. Research facilities need to be updated and managed by individuals who are knowledgeable in the areas of management and agriculture. It is apparent that there is increasing pressure for the livestock sector to provide food, fiber, exportable products, and jobs for the growing Yemeni population. In order for Yemen to meet the needs placed upon the livestock sector, more efficient and sustainable methods of livestock production must be utilized.

ANNEXES

ANNEX I. REFERENCES

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ANNEX 2: SCOPE OF WORK



There can be several Somali camels aboard a cargo ship like this one at the Port of Al-Mukha.

SCOPE OF WORK

- Project:** Yemen Agricultural Support Program (YASP)
- Consultancy:** International Livestock Specialist
- Activity:** Animal Movement and Trade Study
- Duration:** Up to 40 days: 3 days in US prior to travel to Yemen; 28 days in Yemen (5 days to hold Sana'a meetings and prepare and conduct Study training workshop; 18 days for field travel during data collection period; 5 days for data analysis and drafting initial report; 3 days to prepare and make USAID then MAI oral presentations); 4 days in US to finalize report; 4 travel days are estimated. Consultant will have a 6 day work week in Yemen.
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Purpose

Due to its unique geographical position with short distances to ports on the coast of the Horn of Africa, Yemen is a crossroads for animal trading between Africa and the Arabian Peninsula. An estimated 1,000,000 animals enter the country each year from the Horn of Africa with the importation of cattle and small ruminants estimated to account for 25% and 40% respectively of the total meat consumed in Yemen. This phenomenon has exposed Yemeni livestock to infectious diseases such as rinderpest, foot and mouth, sheep and goat pox, and *peste des petites ruminant* diseases. Little is known about the details of this international movement of livestock and how these animals consequently become mainstreamed into the Yemen markets and impact livestock and the people who raise and trade them in Yemen. What we do know is that these animals are bought and sold while some are consumed locally and other are re-exported into neighboring countries in the Arabian Peninsula.

Background

YASP is undertaking an Animal Movement and Trade Study to improve the understanding of animal movements and trade between Yemen and other countries and within the country for purpose of giving decision makers in the MAI Animal Resource Directorate General of Animal Resources, and others, information with which they can plan and implement policies and regulations to improve the national food security and health safety for people and animals in Yemen. It is also hoped that this information will support and lead to the expansion of the livestock sub-sector. The Study will be supervised by an international livestock expert working with and a team of local consultants (livestock, marketing, data entry, GIS). The Study team will be coordinated by YASP working out of their office in Sana'a.

This Scope of Work is prepared specifically for the expatriate international livestock specialist.

Objectives

The consultant will collaborate with the ARD/YASP Livestock Specialist and other local consultants to supervise the implementation of the Animal Movement and Trade Study to accomplish the following objectives: (1) profile and assess the animal trade value chain in Yemen and obtain information on the constraints such as major diseases - ability to prevent and treat; local grades and standards used for animal quality controls; domestic and export markets including slaughterhouses and refrigeration/frozen meat potential; (2) identify and prioritize trade opportunities for the expansion of animal export markets; and (3) prepare recommendations that include ways to improve and expand market exports and strengthen institutional capacity to support livestock sector growth. The methodology used by the consultant to accomplish objective's will be to work with a team of local experts in the sector; review relevant literature, reports and documents; conduct site field visits; meet with GOY officials (national, regional, local), traders, farmers, individuals who work in livestock market places, importers/exporters and collect primary data for analysis.

Tasks

- Undertake an Animal Movement, Marketing and Trade study to understand movement, marketing, trade of livestock (cattle, sheep, goats and camels) within Yemen and neighboring countries.
- Review the relevant literature and documents related to animal movement and trade in Yemen and extract material relevant to this study;
- Use, review and analyze the profile submitted by the local consultants which will provide useful information for the study;
- Hold discussions with GDAR, Ministry of Municipalities and other related authorities to determine the constraints and opportunities in the areas of policy (regulations, procedures, duties, standards, phytosanitary, etc), production and processing, current system of inspection in the slaughterhouses, type and source (imported / domestic) of slaughtered animals, and institutional capacity to support livestock sector growth;
- Finalize Study design including scopes of work for local consultants and data collectors, data collection instruments and implementation plan;
- Conduct training program for local consultants and data collectors to field test instruments and ensure quality and uniform data collection and recording;
- Conduct interviews in key areas where there import/export of livestock is taking place, along primary trade routes and select markets;
- Supervise the technical work of local consultants;
- Draft initial report summarizing Study and preliminary findings, and recommendations.
- Make two separate oral presentations: to USAID and a second presentation to the MAI/GDAR;
- Finalize Animal Movement and Trade Study Report inclusive of relevant Attachments;
- Provide suitable pictures of on going study activity and specific livestock types.

Deliverables

- Detailed Work Plan for carrying out the AMTS and Outline for Final Report
- Finalize Scope of work for local consultants and data collectors
- Prepare syllabus for pre-data collection training of local consultants and enumerators
- Finalize GIS and data entry formats with local consultants
- Prepare preliminary draft AMTS Report for YASP/COP, USAID and GOY while in-country
- Make two oral presentations: USAID and second for Government of Yemen. Presentation should include status of Study, preliminary findings and plausible recommendations
- Final AMTS Report submitted to ARD within 10 days of return to U.S.

Method of Report Submission

- Five hard copies and two electronic copies of all written deliverables.
- Electronic copies of text should be submitted in MS Word format; figures should be submitted in MS Excel.
- Photographs and maps should be submitted in high-quality jpeg format.

Work Schedule and Level of Effort

Up to 40 days of LOE: Three (3) days in US prior to travel to Yemen; Twenty-eight (28) days in Yemen (5 days to hold Sana'a meetings and prepare and conduct Study training workshop; 18 days for field travel during data collection period; 5 days for data analysis and drafting initial report; 3 days to prepare and make USAID then MAI oral presentations); Four (4) days in US to finalize report; Four (4) travel days are estimated. International consultant will have a Six (6) day work week in Yemen.

Skills required:

- Education: Graduate level university degree in veterinary science with focus on livestock
- Ten plus years practical experience working overseas in livestock epidemiology, trade, marketing and GIS with previous experience in planning and implementing animal surveys
- Prior experience working in livestock health and trade in Yemen is preferred

Cost:

Initial cost estimate for international consultant is approximately \$50,000 inclusive of LOE with up front and back-end work time allocated for pre-travel preparation and finalizing report; international travel; per diem and in-country transportation

ANNEX 3. QUESTIONNAIRES



Yemeni butchers are quite numerous at the livestock markets.

LIVESTOCK IMPORT FACILITY QUESTIONNAIRE:

1. Name of Facility: _____
2. Location of Facility: _____
3. GPS location of Facility: _____
4. List the name or names of individuals that control the Facility, their location and contact information:
 1. _____

 2. _____

 3. _____

4. Names of any Traders, Brokers, and Veterinarians and their contact information that are associated with the Facility:
 1. _____

 2. _____

 3. _____

 4. _____

5. Number of each species and class of livestock imported by month for the year 2005:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
JAN							
FEB							
MAR							
APR							
MAY							
JUN							
JUL							
AUG							
SEP							
OCT							
NOV							
DEC							
TOTAL							

6. List the total number per year of livestock imported per class over the last ten years?

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/goats	Poultry
2005							
2004							
2003							
2002							
2001							
2000							
1999							
1998							
1997							
1996							
1995							

7. List the percent of the total animals imported for each species or class and the source of origin for the year 2005:

Camels:

1. _____
2. _____
3. _____

Young bulls:

4. _____
5. _____
6. _____
7. _____
8. _____

Aged bulls:

9. _____
10. _____
11. _____
12. _____
13. _____

Young cows:

- 14. _____
- 15. _____
- 16. _____
- 17. _____

Aged cows:

- 18. _____
- 19. _____
- 20. _____
- 21. _____
- 22. _____

Sheep/goats:

- 23. _____
- 24. _____
- 25. _____
- 26. _____
- 27. _____

Poultry:

- 28. _____
- 29. _____
- 30. _____
- 31. _____

8. Where is the destination of the livestock once they leave the importation facility? List the percent of the livestock going to the destination of the total animals imported of each species or class and their destination after leaving the facility for the year 2005:

Camels:

32. _____
33. _____
34. _____

Young bulls:

35. _____
36. _____
37. _____
38. _____
39. _____

Aged bulls:

40. _____
41. _____
42. _____
43. _____
44. _____

Young cows:

45. _____
46. _____
47. _____
48. _____

Aged cows:

- 49. _____
- 50. _____
- 51. _____
- 52. _____
- 53. _____

Sheep/ goats:

- 54. _____
- 55. _____
- 56. _____
- 57. _____
- 58. _____

Poultry:

- 59. _____
- 60. _____
- 61. _____

9. Are there any regulations that affect the number of livestock imported through this facility? If so list the group or organization that is responsible for the regulation and the regulation:

- a) _____

- b) _____

- c) _____

10. Can the existing facility handle more head of livestock without major improvements? If so ask the manager or foreman to estimate the maximum number of head of each species or class that could be imported through this facility per year:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
Total							

11. List all of the taxes or charges that are paid by the facility to the Yemeni government, Regional government, Tribal Government, or any other group:

- a) _____
- b) _____
- c) _____
- d) _____
- e) _____
- f) _____
- g) _____
- h) _____

12. Ask the owner or manager what steps or measures could be taken by the government as well as non-government groups to help increase the number of livestock imported through the facility?

- a) _____
- _____
- _____
- _____

13. List the all fees and the amount that the import facility charges for handling livestock on a per head of livestock basis in US \$:

- a) _____
- b) _____
- c) _____
- d) _____
- e) _____

LIVESTOCK OWNER/ HERDER QUESTIONERE:

1. How many head of livestock do you have in your herd? List the number of livestock per class or species:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0-10	0-10	0-10	0-10	0-10	0-10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 100	50-100	50-100	50-100	50-100	50-100
G	> 100	> 100	> 100	> 100	> 100	> 100

2. List the livestock market, slaughter, or export facilities that you take your livestock to:

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____

3. What factors affect the herders/owner's choice of which market he uses to sell his livestock?

- a. Market price
- b. distance from herd
- c. transportation cost
- d. market commission cost
- e. tribal of family affiliation

4. Utilizing the list from question number two, list the number of livestock either sold, slaughtered, or exported for the last year:

- a. List facility and type: _____

	Bull Camels	Female Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
A	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
B	10-20	10-20	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40	30-40	30-40
E	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
F	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100

b. List facility and type: _____

	Bull Camels	Female Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/goats	Poultry
A	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
B	10-20	10-20	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40	30-40	30-40
E	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
F	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100

c. List facility and type: _____

	Bull Camels	Female Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/goats	Poultry
A	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
B	10-20	10-20	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40	30-40	30-40
E	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
F	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100

d. List facility and type: _____

	Bull Camels	Female Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/goats	Poultry
A	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
B	10-20	10-20	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40	30-40	30-40
E	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
F	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100

e. List facility and type: _____

	Bull Camels	Female Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/goats	Poultry
A	0-10	0-10	0-10	0-10	0-10	0-10	0-10	0-10
B	10-20	10-20	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40	30-40	30-40
E	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
F	> 100	> 100	> 100	> 100	> 100	> 100	> 100	> 100

5. What is the source and origin of the livestock that you have taken to the above facilities? List what percentage of your livestock comes from each source:

	Markets	Imports	Raised on premises
A	0-10	0-10	0-10
B	10-20	10-20	10-20
C	30-40	30-40	30-40
D	40-50	40-50	40-50
E	>50	>50	>50

6. Over the last ten years has the number of livestock in your herd increased or decreased? Indicate by species whether they have increased or decreased.

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
A	Increased	Increased	Increased	Increased	Increased	Increased	Increased
B	Decreased	Decreased	Decreased	Decreased	Decreased	Decreased	Decreased

7. What is the source of the feed that you feed your livestock? List the type of feed and its source:

- a. Raised on premises
- b. Purchased from local market
- c. Imported
- d. Other _____

8. What diseases have the herder/owner observed in the livestock? List the species and the disease.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____
- i. _____

9. What are the factors that most control the size of your livestock herd?

- a. Weather
- b. Available grazing
- c. Tribal/ family limits
- d. Government controls
- e. Available labor
- f. Taxes
- g. Other _____

10. What factors most affect the number of livestock sold from the herd per year?

- a. Drought
- b. Financial
- c. Price of feed
- d. Amount of available grazing
- e. Other _____

11. List the factors that the herder/owner believes affects the price that he receives for his livestock?

- a. _____
- e. _____
- f. _____
- g. _____
- h. _____

12. Where does the herder/ owner obtain his information on the market livestock prices?
- a. Other herders
 - b. Radio
 - c. Traders
 - d. Government publications
 - e. Market owners
 - f. Other _____
13. Who owns the land on which the herder's/ owner's livestock graze?
- a. Tribe
 - b. Family
 - c. Government of Yemen
 - d. Other _____
14. Ask the owner or herder what steps or measures could be taken by the government as well as non- government groups to help stimulate an increase in the number of livestock in his or her herd?
- a) _____

15. List all of the taxes or charges that are paid by the owner or herder to the Yemeni government, regional government, tribal government, or any other group:
- a) _____

LIVESTOCK QUARANTINE/ IMPORT FACILITY QUESTIONNAIRE:

1. Name of facility: _____
2. Location of facility: _____
3. GPS location of facility: _____
4. List the name or names of individuals that control the facility, their location and contact information:
 - a. _____

 - b. _____

 - c. _____

5. Names of any traders, brokers, and veterinarians and their contact information that are associated with the facility:
 - a. _____

 - b. _____

 - c. _____

6. Number of each species and class of livestock quarantined by month for the year 2005:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
JAN							
FEB							
MAR							
APR							
MAY							
JUN							
JUL							
AUG							
SEP							
OCT							
NOV							
DEC							
TOTAL							

7. List the total number per year of livestock quarantined per class over the last ten years?

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
2005							
2004							
2003							
2002							
2001							
2000							
1999							
1998							
1997							
1996							
1995							

8. What is the standard length of time that the livestock is quarantined at the facility? List the number of days by class:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
Total							

9. What are the main diseases seen in the livestock at this facility? List the disease then the percentage affected of the total number of that species that has been quarantined at the facility for the year 2005:

a. Camels:

1. _____
2. _____
3. _____

b. Young bulls:

1. _____
2. _____
3. _____
4. _____
5. _____

c. Aged bulls:

1. _____
2. _____
3. _____
4. _____
5. _____

d. Young cows:

1. _____
2. _____
3. _____
4. _____

e. Aged cows:

1. _____
2. _____
3. _____
4. _____

f. Sheep/ goats:

1. _____
2. _____
3. _____
4. _____
5. _____

g. Poultry:

1. _____
2. _____
3. _____
4. _____

10. What is the death rate per species per year of the livestock at the facility? List the number of livestock per species or class that died for the year 2005:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
Total							

11. Where is the destination of the livestock once they leave the Quarantine facility? Given the following possible destinations, mark the percentage of each species of livestock that routinely goes to that destination after leaving the facility for the year 2005:

a. Other Markets:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75- 100	75- 100	75- 100	75- 100	75- 100	75- 100

1. List the names of some of the markets:

- a. _____
- b. _____
- c. _____
- d. _____

b. Grazing areas:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

2. List the names of some of the areas:

- a. _____
- b. _____
- c. _____
- d. _____

c. Slaughter Facility:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

3. List the names of some of the slaughter facilities:

- a. _____
- b. _____
- c. _____
- d. _____

d. Export Facility:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

4. List the names of some of the export facilities:

- a. _____
- b. _____
- c. _____
- d. _____

12. Where do the livestock at the Quarantine facility originate? Given the following possible sources of origin, mark the percentage of each species or class that originated from that source for the year 2005:

a. Somalia:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75- 100	75- 100	75- 100	75- 100	75- 100	75- 100

b. Djibouti:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

c. Kenya:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

d. Eritrea:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

e. Other: _____

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

f. Other: _____

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

13. Are there any regulations that affect the number of livestock imported through this facility? If so list the group or organization that is responsible for the regulation and the regulation:

- a. _____

- b. _____

- c. _____

14. Can the existing facility handle more head of livestock without major improvements? If so ask the manager or foreman to estimate the maximum number of head of each species or class that could be imported through this facility per year:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
Total							

15. List all of the taxes, charges or fees that are paid by the facility to the Yemeni government, regional government, tribal government, or any other group:

- a. _____

16. Ask the owner or manager what steps or measures could be taken by the government as well as non- government groups to help increase the number of livestock quarantined through the facility?

- a. _____

17. List the all fees and the amount that the quarantine facility charges for handling livestock on a per head of livestock basis in US \$:

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

LIVESTOCK MARKET/ TRADER QUESTIONNAIRE:

1. Name of market: _____

2. Location of market: _____

3. GPS location of market: _____

4. List the name or names of individuals that control the market, their location and contact information:

a. _____

b. _____

c. _____

5. Names of any Traders, Brokers, Sellers, and Veterinarians that are associated with the Market:

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

i. _____

j. _____

k. _____

l. _____

6. Number of each species of livestock sold by month for the year 2005:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats
JAN						
FEB						
MAR						
APR						
MAY						
JUN						
JUL						
AUG						
SEP						
OCT						
NOV						
DEC						
TOTAL						

7. List the total number per year of livestock sold per class over the last ten years:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats
2005						
2004						
2003						
2002						
2001						
2000						
1999						
1998						
1997						
1996						
1995						

8. Given the following possible destinations, mark the percentage of each species of livestock that routinely goes to that destination after being sold:

a. Other Markets:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75- 100	75- 100	75- 100	75- 100	75- 100	75- 100

1. List the names of some of the markets:

- a. _____
- b. _____
- c. _____
- d. _____

b. Grazing areas:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

2. List the names of some of the areas:

- a. _____
- b. _____
- c. _____
- d. _____

c. Slaughter Facility:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

3. List the names of some of the slaughter facilities:

- a. _____
- b. _____
- c. _____
- d. _____

d. Export Facility:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

4. List the names of some of the export facilities:

- a. _____
- b. _____
- c. _____
- d. _____

9. Where do the livestock sold at the market originate? Given the following possible sources of origin, mark the percentage of each species or class that originated from that source for the year 2005:

a. Other Markets:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75- 100	75- 100	75- 100	75- 100	75- 100	75- 100

5. List the names of some of the markets:

- a. _____
 b. _____
 c. _____
 d. _____

b. Grazing areas:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

6. List the names of some of the areas:

- a. _____
 b. _____
 c. _____
 d. _____

c. Quarantine/ Import Facility:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

7. List the names of some of the slaughter facilities:

- a. _____
- b. _____
- c. _____
- d. _____

d. Other Facility:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

8. List the names of some of the other facilities:

- a. _____
- b. _____
- c. _____
- d. _____

10. What percentages of the livestock that are sold at the market are hauled to the market by truck?

- a. 0-20% b. 20-30% c. 30-40 d. 40-50 e. > 50

11. What percentages of the livestock sold at the market are hauled to their next destinations by truck?

- a. 10-20% b. 20-30% c. 30-40% d. 40-50% e. > 50%

12. If a low percentage of the livestock sold at the market is hauled by truck, indicate what the market owner/ manager thinks the reason or reasons are:

- a. poor roads
- b. lack of adequate trucks
- c. high trucking costs
- d. other _____

13. What are the names and contact information of truck drivers and truck owners that haul the livestock from the market:

- a. _____

- b. _____

- c. _____

- d. _____

- e. _____

- f. _____

14. What is the average price per month in US\$ for the following classes of livestock for the year 2005?

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats
JAN						
FEB						
MAR						
APR						
MAY						
JUN						
JUL						
AUG						
SEP						
OCT						
NOV						
DEC						

15. If available, list the average price in US\$ of each livestock class per year for the last ten years:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats
2005						
2004						
2003						
2002						
2001						
2000						
1999						
1998						
1997						
1996						
1995						

16. The number of livestock sold at a market fluctuates due to various factors that affect demand or the number of livestock available for sale. Choose whether the following factors (a.) increase, (b.) decrease, or (c.) have no effect on the number of animals sold. Also, list why the market owner/ manager/ coordinator thinks that factor affects the number of livestock sold.

a. Time of year. Mark (a.), (b.), or (c.) in the column to indicate the affect.

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
Spring							
Summer							
Fall							
Winter							

1. List why each factor effects the number of livestock sold at the market:

a. Spring:

b. Summer:

c. Fall:

d. Winter:

b. Weather. Mark (a.), (b.), or (c.) in the column to indicate the affect.

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
Drought							
Rains							

1. List why each factor effects the number of livestock sold at the market:

a. Drought:

b. Rains:

c. Religious events. Mark (a.), (b.), or (c.) in a column to indicate the affect.

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
Haijj							
Rains							

1. List why each event affects the number of livestock sold at the market:

16. What does the livestock market charge the sellers per animal for selling each species of livestock:

a. Camels: _____

b. Cattle: _____

c. Sheep/ goats: _____

d. Poultry: _____

17. What diseases are observed in the livestock sold at the Market?

a. _____

b. _____

c. _____

d. _____

18. Where do the feedstuffs utilized for the livestock originate? Are there adequate amounts available to meet the yearly needs of the Market? Is there enough available to supply the market if the number of animals sold at the Market were to increase?

a. _____

19. Ask the owner or manager what steps or measures could be taken by the government as well as non- government groups to help stimulate an increase in the number of livestock sold at the Market?

a. _____

20. List all of the taxes or charges that are paid by the owner or manager to the Yemeni government, regional government, tribal government, or any other group:

LIVESTOCK SLAUGHTER (ABATTOIR) FACILITY QUESTIONNAIRE:

1. Name of facility: _____

2. Location of facility: _____

3. GPS location of facility: _____

4. List the name or names of individuals that control the facility, their location and contact information:

a) _____

b) _____

c) _____

d) _____

5. Names of any inspectors, brokers, and veterinarians and their contact information that are associated with the Facility:

a) _____

b) _____

c) _____

d) _____

6. Number of each species and class of livestock slaughtered by month for the year 2005:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
JAN							
FEB							
MAR							
APR							
MAY							
JUN							
JUL							
AUG							
SEP							
OCT							
NOV							
DEC							
TOTAL							

7. List the total number per year of livestock slaughtered per class over the last ten years:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
2005							
2004							
2003							
2002							
2001							
2000							
1999							
1998							
1997							
1996							
1995							

8. Where do the livestock slaughtered at the facility originate? Given the following possible sources of origin, mark the percentage of each species or class that originated from that source for the year 2005:

a. Markets:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75- 100	75- 100	75- 100	75- 100	75- 100	75- 100

1. List the names of some of the markets:

- a) _____
- b) _____
- c) _____
- d) _____

b. Grazing areas:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/G oats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

2. List the names of some of the areas:

- a) _____
- b) _____
- c) _____
- d) _____

c. Quarantine/Import Facility:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

3. List the names of some of the slaughter facilities:

- a. _____
- b. _____
- c. _____
- d. _____

9 Other Facility:

	Female Camel	Bull Camels	Bull Cattle	Female cattle	Sheep/ Goats	Poultry
A	0- 10	0- 10	0- 10	0- 10	0- 10	0- 10
B	10-20	10-20	10-20	10-20	10-20	10-20
C	20-30	20-30	20-30	20-30	20-30	20-30
D	30-40	30-40	30-40	30-40	30-40	30-40
E	40-50	40-50	40-50	40-50	40-50	40-50
F	50- 75	50- 75	50- 75	50- 75	50- 75	50- 75
G	75-100	75-100	75-100	75-100	75-100	75-100

4 List the names of some of the other facilities:

- e. _____
- f. _____
- g. _____
- h. _____

10. Where does the meat and animal products go from the slaughter facility? List the percentage of meat and animal products from each species and the destination or destinations of each:

a. Camels:

	Meat	Hides	Edible Offal	Non-edible Offal	Other
Yemen					
Saudi					
Eritrea					
Oman					
Other export					

b Cattle:

	Meat	Hides	Edible Offal	Non-edible Offal	Other
Yemen					
Saudi					
Eritrea					
Oman					
Other export					

c Sheep/ Goats:

	Meat	Hides	Edible Offal	Non-edible Offal	Other
Yemen					
Saudi					
Eritrea					
Oman					
Other export					

11. What is the total amount of meat in pounds from each species utilized for domestic consumption? Meat consumed by the local Yemeni population. List the amount in pounds of the meat for each species per month shipped or sold from this facility for local (Yemeni) consumption for the year 2005:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
JAN							
FEB							
MAR							
APR							
MAY							
JUN							
JUL							
AUG							
SEP							
OCT							
NOV							
DEC							
TOTAL							

12. List the total of amount of meat in pounds per class produced by this facility per year for domestic consumption (Yemeni) for the last ten years:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats
2005						
2004						
2003						
2002						
2001						
2000						
1999						
1998						
1997						
1996						
1995						

13 List the total of amount animal products and by products produced by this facility per year for domestic use (Yemeni) for the last ten years by pounds or the number:

	Hides	Edible Offal	Non-edible Offal	Other	Poultry by Products
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					

14. What is the total amount of meat in pounds from each species utilized for export to other countries? List the amount in pounds or tons of the meat for each species per month shipped or sold from this facility for export for the year 2005:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
JAN							
FEB							
MAR							
APR							
MAY							
JUN							
JUL							
AUG							
SEP							
OCT							
NOV							
DEC							
TOTAL							

15. List the total amount of the meat in pounds per class produced by this facility per year for export for the last ten years:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats
2005						
2004						
2003						
2002						
2001						
2000						
1999						
1998						
1997						
1996						
1995						

16. List the total of amount animal products and by products produced by this facility per year for export for the last ten years by pounds or tons:

	Hides	Edible Offal	Non-edible Offal	Other	Poultry by products
2005					
2004					
2003					
2002					
2001					
2000					
1999					
1998					
1997					
1996					
1995					

17. Does this facility have refrigeration capabilities? If so, what is the size of the cooler? How many carcasses can it hold at one time? Is it powered by a generator or by Power lines?

18. What is the level of sanitation of this facility? Does this facility have hot water available on the processing floor? Is the meat and edible trim stored away from the offal?

19. Can the existing facility handle more head of livestock without major improvements? If so ask the manager or foreman to estimate the maximum number of head of each species or class that could be processed through this facility per year:

	Camels	Young bulls	Aged bulls	Young cows	Aged cows	Sheep/ goats	Poultry
Total							

20. Ask the owner or manager what steps or measures could be taken by the government as well as non- government groups to help stimulate an increase in the number of livestock slaughtered at the facility?

21. List all of the taxes or charges that are paid by the facility to the Yemeni government, regional government, tribal government, or any other group:

22. List the all fees that the slaughter facility charges for processing the livestock on a per head of livestock basis in US\$:

ANNEX 4. COMPREHENSIVE LIST OF CONTACTS: OWNERS/TRADERS, MARKETS, SLAUGHTER, AND QUARANTINE FACILITIES

TABLE A4-1. Owners/Traders Location and Contact List						
Number	Name of the Owner and Location (Questions Numbers 1-3)					
	Name of Owner	Location	District	Governorate	GPS location	
					N	E
1	Salmien Ahmed Ba Rasheed	Ghail Bawazeer	Ghail Bawazeer	Hadramoot	14.46.572	49.22.044
2	Salmien Ghethan Ba Rasheed	Ghail Bawazeer	Ghail Bawazeer	Hadramoot	14.46.571	49.42.044
3	Abdula Ben Eida Al Egayli		Arryda, Qusaer	Hadramoot	14.56.073	50.20.246
4	Awad Ben Rafash Al Egayli	Raghdon	Arryda, Qusaer	Hadramoot	14.56.073	50.20.246
5	Ahmed Saed Al Obaydi	Khard	Ashshehr	Hadramoot	14.45.619	49.36.501
6	Hassan Ashukayl Al Qerzi	Aurf	Ashshehr	Hadramoot	14.45.619	49.36.501
7	Ahmed Mohamed Al Ghurabi	Habork	Al_Deas Asharqya	Hadramoot	14.54.730	49.59.805
8	Awad Saed Al Qaser Al Ghurabi	Al Hagi, Al_Deas	Al_Deas Asharqya	Hadramoot	14.54.730	49.59.805
9	Marey Saed Mubarak	Broog	Al Qatn	Hadramoot	15.50.52	48.26.295
10		Al Mahtheeq	Al Qatn	Hadramoot	15.50.211	48.18.084
11	Kramah Mubarak Ben Sowid	Assahbal	Sayon	Hadramoot	15.57.106	48.46.803
12	Mahfood Guma'n Ben Omair	Al-Karm	Sayon	Hadramoot	15.56.884	48.48.543
13	Saleh Saed Handoom	Anserah	Shebam	Hadramoot	15.55.815	48.36.791

14	Mahroos Eida Al Adah	Al Fara	Shebam	Hadramoot	15.56.764	48.36.595
15	Omar Hameed Haidar	Abid	Tareem	Hadramoot	16.03.470	49.58.824
16	Saleh Awad Abed	Thei	Tareem	Hadramoot	16.02.543	49.00.187
17		Arrebat	Al Mkhader	Ibb	14.04.917	44.09.524
18		Arrakah	Ibb	Ibb	13.58.281	44.05.722
19	Ahmed Ali Salman	Rebat Al Qla'ah	Yareem	Ibb	14.12.077	44.19.572
20		Al Ma'radah	Al Udein	Ibb	13.57.897	44.00.887
21	Abdu Hezam Ali	Al Mnqoda	Al Mkhader	Ibb	14.05.686	44.09.758
22	Abdulkareem Shagab	Der Al Khdaya	Bajel	Hodiada	15.03.811	43.17.730
23	Mohamed Ali	Zayd	Al Hali	Hodiada	14.48.724	42.57.923
24	Salem Yaya Omar	Mahal Ashameri	Bajel	Hodiada	15.03.811	43.17.730
25	Mohamed Mohamed Baqnool	Der Al Mdoer	Bajel	Hodiada	15.03.811	43.17.730
26	Mohamed Dahmoos	Al Khalifah	Al Mrawea	Hodiada	14.53.362	43..18.431
27	Muneef Abdu Khalil	Azzaidya	Al Mrawea	Hodiada	14.50.26	43.09.399
28	Hashem Al Ardahi	Al Aradeha	Bayt Al Faqeh	Hodiada	14.48.284	42.57.672
29	Abdula Naser	Al Khalifah	Al Mrawea	Hodiada	14.54.163	43.19.490
30	Mohamed Ebraheem Yaya	Harat Zaid	Al Hali	Hodiada	14.48.794	42.75.983
31	Mashhoor Ali	Arrabsah	Al Hol	Hodiada	14.48.794	42.57.983
32	Ebraheem Ahmed Ali	Al Katbah	Al Mrawea	Hodiada	14.50.026	43.09.399
33	Mohamed Ali Uthman Khazan	Al Qatee'	Al Mrawea	Hodiada	14.50.026	43.09.399
34	Mohamed Sagheer Mashraei	Al Gamela	Bayt Al Faqeh	Hodiada	14.48.284	42.57.672
35	Yahya Hassan Hayl	Al Aradeha	Bayt Al Faqeh	Hodiada	14.48.284	42.57.672
36	Salem Mubarak Al Muri	Nesab	Nesab	Shabwa	14.30.162	46.29.791
37	Musaed Muhamed Al Qaiti	Gabal Al Qait	Nesab	Shabwa	14.31.507	46.31.209
38	Khaled Ali Bhathli	Arraida	Myfah	Shabwa	14.17.928	47.33.116
39	Muhamed Saleh Abdulla Matrooh	Kurat Buhar	Myfah	Shabwa	14.16.124	47.35.115
40	Zain Alla Nakher Abdulla	Al Hama	Myfah	Shabwa	14.09.935	45.45.904

41	Muhamed Musaed Adbgi	Assodana	Esailan	Shabwa	15.00.520	45.48.680
42	Adel Abdulla Abu Aqeeda	Ataq	Ataq	Shabwa	14.32.507	46.49.489
43	Ali Omer AliLgar	Ataq	Ataq	Shabwa	14.32.471	46.49.620
44	Mohsen Abdulla Nasser	Bacha	Haban	Shabwa	14.20.943	47.04.481
45	Abdul Kader Ahmed Assayd	G-haba	Haban	Shabwa	14.21.317	47.03.385
46	Mohamed Sa'd Attaher	Al Agraf	Hareeb	Mareb	14.53.393	45.30.652
47	Ali Ahmed Arramaqi Saba	Al Madarain	Hareeb	Mareb	14.57.720	04.52.343
48	Saleh Ahmed Husain	Al haneef	Mareb	Mareb	15.27.760	45.20.186
49	Esmacyl Galeb	Al Fao	Mareb	Mareb	15.26.333	45.19.709
50	Hadi Mohamed Hadi Al Gradi	Al Khasif	Mareb	Mareb	15.27.064	45.21.508
51	Abdulla Ben Abdulla Al Qatebe	Mafrag Assad	Mareb	Mareb	15.24.962	45.19.008
52	Yahya Saleh Abdulla Almaghribi	Sa'da market	Assfra	Sa'da	16.56.262	43.45.788
53		Sa'da market	Assfra	Sa'da	16.56.262	43.45.788
54	Abdulla Hassan Al Ahgeri	Sa'da market	Sa'da	Sa'da	16.56.262	43.45.788
55	Saleh Muhsen Hbash Sufyan	Al Amar	Sa'da	Sa'da	16.47.511	43.47.362
56	Mohamed Naser Husain Al Hthaifi	Dahyan market	Magz	Sa'da	17.03.963	43.36.031
57	Mahmood Ali Ahmed	Dahyan market	Magz	Sa'da	17.03.965	43.36.031
58	Saleh Mohamed Al ghurbani	Ataleh market	Sahar	Sa'da	17.00.902	43.40.770
59	Yahya Ali Huti	Ataleh market	Sahar	Sa'da	17.00.902	43.40.770
60	Yahya Ahmed Hadi Hwa'	Ataleh market	Sahar	Sa'da	17.00.902	43.40.770
61	Saleh Saleh Ali	Ataleh market	Sahar	Sa'da	17.00.902	43.40.770
62	Omar Saleh Naser Ali	Ataleh market	Sahar	Sa'da	17.00.902	43.40.770
63	Mohamed Yaya Esmacy Khashaba	Khashba	Baqem	Sa'da	17.32.911	43.28.602
64	Husain Musfer	Khashba	Baqem	Sa'da	17.23.911	43.28.602
65	Ahmed Ben Ahmed Saleh	Ghazwan	Ans	Dhmar	14.20.054	44.23.675
66	Ahmed Yahya Al Hashedi	Aslam market	Doran Aanis	Dhmar	14.49.621	44.14.719
67	Saleh Ali Assufyani	Nagd Al Mlahi	Doran Aanis	Dhmar	14.49.825	44.05.916

68	Ebraheem Ali Saleh Abu Suhaib	Gabhan	Doran Aanis	Dhmar	14.48.315	44.59.576
69	Mohamed Ali Husain	Arrshda	Al Hada	Dhmar	14.52.076	44.22.691
70	Ali Ali Gumaei	Zarejah	Al Hada	Dhmar	14.52.076	44.22.691
71	Ashaikh Muqbel Ahmed Al Ahmed	Bani Zydan	Al Hada	Dhmar	14.52.076	44.22.691
72	Muhsen Ali Annumairi	Zarejah (Aylam)	Al Hada	Dhmar	14.52.076	44.22.691
73	Ahmed Ubadi Qaid Al Mashrafi	Wadi Al Majel	Utma	Dhmar	14.28.194	44.04.452
74	Abdulla Hamad Saleh Al Haj	Yafa'	Dhmar	Dhmar	14.33.637	44.20.717
75	Muhamed Abdulla Al Badwi	Yafa'	Dhmar	Dhmar	14.33.637	44.20.717
76	Husain Abdulla Arraei	Qa'wan	Gahran	Dhmar	14.42.751	44.19.826
77	Mohamed Naser Naser Al Asadi	Bayt Al Asadi	Gahran	Dhmar	14.42.751	44.19.826
78	Abdulla Hamid Rageh	Madinat Ashsharq	Gabal Ashsharq	Dhmar	14.33.135	43.57.485
79	Ahmed Saed Addaheri	Madinat Ashsharq	Gabal Ashsharq	Dhmar	14.33.135	43.57.485
80	Basheer Ali Husain Al Utmi	Madinat Ashsharq	Gabal Ashsharq	Dhmar	14.33.135	43.57.485
81	Yaya Abdulla Saleh	Arrahabah	Bani Al Hareth	Al Amanah	15.25.556	44.13.351
82	Saleh Mohamed Al Kholani	Al Asnaf	Kholan	Sana'a	15.20.829	44.11.269
83	Mohamed Hassan Al Masagidi	Al Msaged	Bani Matar	Sana'a	15.11.303	43.59.019
84	Husain Yahya Yaya Swan	Addymani	Rydah	Amran	15.43.452	44.02.736
85	Qasem Ahssan Saleh Aran	Bayt Amran	Khamer	Amran	15.09.502	43.57.410
86	Abdulla Saleh Ghamyah	Amran	Amran	Amran	15.39.336	43.56.758
87	Husain Ahmed Abdulla Khutail	Addarb	Amran	Amran	15.38.946	43.55.897
88	Abdulla Abdulla Ashaibah	Addakm	Rydah	Amran	15.48.132	44.01.908
89	Husain Ashaibah	Addakm	Rydah	Amran	15.48.132	44.01.908
90	Mohamed Ahmed Abdulla Al Wreki	Mazahem Al Werk	Eyal Seraih	Amarn	15.41.155	43.58.852
91	Ali Bahwan	Goob	Al Gabal	Amarn	15.45.711	43.59.859
92	Saleh Husain Ali Saran	Rydah	Rydah	Amran	15.48.243	44.02.782
93	Ahssan Ahmed Saleh Addylami	Mazahem Al Werk	Eyal Seraih	Amran	15.40.944	43.58.836
94	Ahmed Naser Khuthayl	Addarb	Amran	Amran	15.38.922	43.55.905

95	Sameer Saleh Alqobaei	Bayt Al Qobaei	KHamer	Amran	15.59.190	43.57.593
96	Ali Saleh Khuthayl	Addarb	Amran	Amran	15.38.992	43.56.052
97	Hadi Ahmed Salem (Ashateef)	Al khalq/Ashateef	Al Khalq	Al Jowf	16.03.757	44.48.355
98	Mohamed Ahmed Ali Ashareef	Assamat	Al Ghail	Al Jowf	16.06.956	44.44.239
99	Hassan Ahmed Muhsen	Al Ali Hamdan	Al Hazm	Al Jowf	16.09.371	44.45.872
100	Mohamed Ahmed Muhsen	Wadi Ashehn	Al Hazm	Al Jowf	16.07.794	44.45.193
101	Abdulrab Mohamed Abdulla	Al Bsatein	Dar sa'ad	Aden	12.53.568	44.58.711
102	Mansoor Hamood Mohamed	Karish	Al Qabaitah	Lahj	13.22.077	44.29.535
103	Ammar Ali Mohamed Atheeb	Al Hotah	Al Hotah	Lahj	13.03.370	44.53.030
104	Fahd Basa Assubaihi	Adduba'	Tuban	Lahj	13.03.741	44.52.702
105	Khedr Fatwan Salem	Harabah/Al Hmidah	Al Qabaitah	Lahj	13.21.664	44.31.301
106	Emad Thabet Al Mashal	Al Qasha'h	Al Mlah	Lahj	13.28.709	44.50.265
107	Abdulla Salah Sa'd	Bir Omar	Tuban	Lahj	12.54.542	44.58.726
108	Muthana Husain Mohamed	Khairan	Habil Gabr	Lahj	13.35.542	44.56.724
109	Awad Saleh Hadi	Al Habilain	Al Habilain	Lahj	13.31.098	44.57.037
110	Abdull Hamid Qasem Abdu Rab	Habil Gabr	Habil Gabr	Lahj	13.36.116	44.59.116
111	Faisal Mohamed Ali Al Khuleidi	Shat Humrah	Maqbanah	Taiz	13.35.204	43.49.027
112	Mohamed Hezami	Al Meqdad / Assawa'	Al Ma'afer	Taiz	13.22.945	43.58.390
O113	Ashaikh Hazaa' Ali Ahmed	Ashareef	Demnat Khadeer	Taiz	13.26.990	44.11.261
114	Ali Mohamed Ali Asselmi	Gabal Adduhr / Khadeer	Khadeer	Taiz	13.27.223	44.10.379
115	Abdu Ali Saed Mohamed	Waher	Gabal Habashi	Taiz		
116	Salem Mohamed Kdah	Al Gahi (main road)	Al Ghydah	Al Mharah	15.24.686	51.39.571
117	Ali Saleem Mohamed Balhan	Al Ghydah	Al Ghydah	Al Mharah	15.24.686	51.39.571
118	Salem Matbah Ghmood	Al Ghydah	Al Ghydah	Al Mharah	16.13.618	52.11.053
119	Selm Salem Za'boon	Al Gahi	Al Ghydah	Al Mharah	16.12.683	52.11.562
120	Guma'n Muslem Kdah	Al Abri	Al Ghydah	Al Mharah	16.13.660	52.11.217
121	Salem Mohamed Saed Azzyadi	Fori	Al Ghydah	Al Mharah	16.10.384	52.13.421

122	Assayd Mohamed Ahmed Naser	Maran	Modia	Abyan	13.55.937	46.04.901
123	Al Mashreqi	Al Hasak	Modia	Abyan	13.55.105	46.03.730
O124	Ahmed Awad Abdulla Al Hagigi	Al Melk	Zungubar	Abyan	13.08.463	45.24.980
125	Ali Yaslem Hesh	Hassan Amaleqah	Zungubar	Abyan	13.08.943	45.27.417
126	Eid Hatem Hakami	Ba Sheharah	Zungubar	Abyan	13.08.817	45.21.066
127	Ali Saed Ataibi	Al Musaimeer	Khanfar	Abyan	13.07.235	45.20.846
128	Hassan Ahmed Eydah	Al Graib	Khanfar	Abyan	13.08.838	45.20.717
129	Ali Mansoor Maqdamah	Amskhal	Lodar	Abyan	35.47.717	45.22.189
130	Al Khedr Ahmed Rabeea	Amaen	Lodar	Abyan	13.48.829	45.55.510
131	Ali Mohammed Al-Shuli	Arzah	Mazhar	Raymah	-	-
132	Mohammed Ahmed Al-Busaisi	Bukal	Mazhar	Raymah	-	-
133	Mohammed Abdullah Al-eliani	Al-Ribatt market	Al-jabin	Raymah	14.40.581	43.33.044
134	Ahmed Hatem Al-Hanabah	Al-Ribatt	Al-jabin	Raymah	14.40581	43.33.044
135	Mohsen Hasan Al-sabah	Rabu'a Bani Al-khawli	Bilad Al-ta'am	Raymah	14.53.855	43.36.911
136	Thabit Al-Falahi	Rabu'a Bani Al-khawli	Bilad Al-ta'am	Raymah	14.53.780.	43.36.911
137	Rashid Isma'il Ghalip	Wadi Al-Rahb	Al-Salafiah	Raymah	14.30.148	43.54.319
138	Abdullah Zaid Al-Salafi	Wadi Al-Rahb	Al-Salafiah	Raymah	14.30.219	43.54.518
139	Mohammed Ali Abdullah Al-Hajri	Allujah	Al-Ja'fariah	Raymah	14.34.321	43.53.201
140	Salem Mohammed Hasan	Allujah	Al-Ja'fariah	Raymah	14.36.382	43.52.169
141	Ali Al-Yazedi	Al-Haqb	Damt	Ad'dali	14.02.877	44.40.887
142	Mane'I Al-Mishriqi	Al-Matar	Ad'dali	Ad'dali	13.41.781	44.44.082
143	Hadi Al-Ja'fari	Al-Matar	Ad'dali	Ad'dali	13.41.781	44.44.082
144	Mohammed Abdullah Al-Yazedi	Al-Haqb	Damt	Ad'dali	14.02.877	44.40.887
145	Yousef Qaid Ali Salem	Jbob	Juban	Ad'dali	14.05.747	44.49.568
146	Mohammed Saleh Mohammed	Jbob	Juban	Ad'dali	14.05.747	44.49.568
147	Ali Ahmed Ahmed Al-Mahdi	Al-rujum market	Al-rujum	Al-Mahwait	15.27.555	43.37.816
148	Naser Ahmed Ghazwann	Al-rujum market	Al-rujum	Al-Mahwait	15.27.555	43.37.816

149	Ali Ali Al-Hasebi	Al-Taraef	Al-rujum	Al-Mahwait	15.27.555	43.37.816
150	Hamoud Mohammed Sa'ad	Al-Mahwait market	Al-mahwait	Al-Mahwait	15.28.028	43.22.584
151	Saleh Mohammed Al-qawasi	Al-Hamidhah	Al-khabt	Al-Mahwait	15.28.351	43.22.699
152	Ahmed Othman Al-hakami	Al-Hamidhah market	Al-khabt	Al-Mahwait	15.28.351	43.22.699
153	Hasan Hasan Al-sha'fali	Al-Hamidhah	Al-khabt	Al-Mahwait	15.28.351	43.22.699
154	Ahmed Ali Ezz-Addin	Jabal Mishriq	Al-khabt	Al-Mahwait	15.28.351	43.22.699
155	Mohammed Ahmed Al-Rudaini	Thursday market	Khamis Bani Sa'ad	Al-Mahwait	15.11.135	43.30.593
156	Ali Ahmed Aman	Al-Qiam Buhal	Abs	Hajjah	16.01.926	43.11.669
157	Othman Shayban Rajehi	Al-Rawn	Abs	Hajjah	16.07.762	43.10.079
158	Mohammed Qa'ed Saleh Sara'a	Bani Misra'a - Al-matyyat	Al-shaghadirah	Hajjah	15.41.760	43.36.603
159	Ali Nasser Malti	Bani Misra'a - Al-matyyat	Al-shaghadirah	Hajjah	15.38.300	43.28.360
160	Mahdi Abdu Ali Hilal	Al-qaim -Bani Hilal	Haradh	Hajjah	16.22.499	43.03.313
161	Abdulla Sagheer Hilal	Al-qaim -Bani Hilal	Haradh	Hajjah	16.22.499	43.03.313
162	Ali Ibrahim Rajehi	Al-rawn	Abs	Hajjah	16.07.762	43.10.79
163	Mohammed Abdullah Al-sahli	Al-fajj	Bani Qays - Al-tawr	Hajjah	15.35.304	43.16.666
164	Huraiah Saeed shu'ie	Al-lawhah	Bani Qays - Al-tawr	Hajjah	15.34.796	43.18.705
165	Wohaysh Mohammed Dhahawi	Al-misbar	Abs	Hajjah	15.59.764	43.11.836
166	Abdullah Basheer Areeb	Rada'a	Rada'a	Al-baydha'a	14.25.068	44.50.775
167	Salih Abdullah Al-junaidi	Areeb	Mukairass	Albaydha'a	13.56.375	45.42.232
168	Mohammed Salem Ahmed	Areeb	Mukairass	Albaydha'a	13.56.375	45.42.232
169	Ahmed Abdu-rabbuh Mishtul	Mudhaffer thi Muraeeb	Al-zahir	Al-baydha'a	13.58.913	45.34.025
170	Saleh Mohammed Mishtul	Mudhaffer thi Muraeeb	Al-zahir	Al-baydha'a	13.58.913	45.34.025
171	Omer Mohammed Husain Al-hajri	Al-hajerah	Al-baydha'a	Al-baydha'a	14.01.747	45.34.337
172	Abdu-Rabbuh Allaw'a	Al-khadhra'a	Rada'a	Al-baydha'a	14.23.490	44.49.612
173	Saleh Ahmed Al-Darb	Al-hajerah	Albaydha'a	Al-baydha'a	14.51.747	45.34.337
174	Mohammed Ghulal	Al-khadhra'a	Rada'a	Al-baydha'a	14.23.790	44.49.612
175	Ahmed Husein Al-Sayyd	Al-safa	Al-sawadiah	Al-baydha'a	14.18.262	45.19.839

176	Ateq Ahmed Al-Khanqi	Al-maslukhah	Rada'a	Al-baydha'a	14.24.438	44.50.598
177	Jabr Salih Al-Riashi	Al-maslukhah	Rada'a	Al-baydha'a	14.94.438	44.50.598
178	Mohammed Ahmed Abdullah Al-Hiashi	Al-dhahrah	Al-taffah	Al-baydha'a	14.10.973	45.23.596
179	Salem Ahmed Al-Damdami	Al-ribatt village	Thi Na'im	Albaydha'a	14.06.992	45.27.190
180	Hadi Ali Abdu-Arrab	Al-dhahrah	Al-taffah	Al-baydha'a	14.10.973	45.23.596
181	Ahmed Mohammed Al-Sayyd	Al-safa	Al-sawadiah	Al-baydha'a	14.18.262	45.19.839
182	Zu'ghaib Al'Busairi	Al-ribatt	Thi Na'im	Al-baydha'a	14.06.999	45.27.190
183	Ahmed Omer Al-Murshidi	Al-dess (SuGUM market)	Al-mukalla	Hadhramawt	14.33.302	49.07.422
184	Salem Omer Ba-Das	Al-dess (SuGUM market)	Al-mukalla	Hadhramawt	14.33.302	49.07.422

Table A4-2. Name, Location, and Contact Information of People Associated with Market Facility								
Name of Facility	Location	Governorate	Q	GPS Location		Controllers		
				N	E	Name	Position	Phone
Market-Modeiah for S&G	Modeiah	Abian	1	1355989	5E+06	Mansor Abdullah	Owner	0
Market-Modeiah for S&G								
Market-Modeiah for S&G								
Market-Modeiah for S&G								
Market-Gaar for S&G	Gaar	Abian	2	13.13.360	4518121	Adbulkawy Yahmel	Control of the market	73356613
Market-Gaar for S&G		Abian				Waleed Alskaf	Collector of money	
Market-Gaar for S&G		Abian				Aydasos Mohamed Saeed	Collector of money	
Market-Loddar	Loddar Dis.		3	13.52878	45.5201			
Market-Loddar	Loddar Dis.		3					
Market-Loddar	Loddar Dis.	Abian	3					
Market- Loddar	Loddar Dis.	Abian	4	1352919	4551982			
Market- Loddar		Abian	4					
Market- Loddar		Abian	4					
Market- Loddar		Abian	4					
Market- Loddar		Abian	4					
Market- Loddar		Abian	4					
Market-Zongobbar	Zongobbar	Abian	5	1307720	452261	Waleed Aldaboe	Dep. Slaughter	733838509
Market-Zongobbar			5			Naser Alraboe	Assist. Slaughter	605888
Market-Zongobbar			5					
Market-Zongobbar			5					
Market-Zongobbar	Zongobbar	Abian	6	1307805	4522550	Mohtar Naser	Akel—the market	733315922
Market-Zongobbar			6			Nabel Saeed	Assist.	733331927
Market-Zongobbar			6			Thoba Zid	Aket—the camel market	
Market-Zongobbar			6					
Market-Zongobbar			6					
Maker-Al-Ghel	Ghel Bawzer	Hadramout	7	14046.57	49.22.044	Abdul Kader Saeed	Trader	

Maker-Al-Ghel	Ghel Bawzer	Hadramout	7			Saror Ben Ahmed	Trader	
Market Kosyer	Kosyer	Hadramout	8	14.56.073	50.20.246	Awad Salemen	Trader	
Market Aldiss	East Diss	Hadramout	9	14.47.730	49.59.805	Majed Awad	Trader	71170890
Market Aldiss			9	73317128				
Market Aldiss			9	14.45.619				
Market Alshaher	Alshehr Aidaros	Hadramout	10	14.45.619	49.36..501	Khaled Monser	Trader	733824542
Market Alshaher			10			Abdul Aziz	Trader	
Market al moklla	Syuon	Hadramout	11	15.56.965	4847279	Salem Abdul Rahman	Owner of market	711311061
Market al moklla			11					
Market al moklla			11					
Market al moklla			11					
Market Korim	Korim	Hadramout	12	16.03.163	48.59.849			
Market Korim			12					
Market Korim			12					
Market Korim			12					
Market Alkaten	Alhaten	Hadramout	13	15.50822	48.2718	Joman Salem	General inspection	7745395
Market Alkaten			13					
Market Alkaten			13					
Market Alkaten			13					
Market of Alhotah	Alhotah	Hadramout	14	15.54.424	4840268	Awad mohamed	Inspection of market	425587
Market Alkaedah	Alhaedah	Ibb	15	13.45.534	4407628	Abdulatif Yahya	Courter of Market	
Market Alkaedah			15			Mohamed Mohamed Saleh	Akel—the market	
Market Alkaedah			15			Abdullah Mohamed Saleh	Worker	
Market Alkaedah			15					
Market Yarem	Yarem	Ibb	16	14181274	4422477	Mohamed Yahya	Akel the market	
Market Yarem			16					
Market Yarem			16					
Alodin	Alodin	Ibb	17	13.56.062	4459975	Ahmed Alkady	Responsibility of market	
Alodin			17			Abdullah Kaed	Akel of market	

Alodin			17					
Market Alsabt	Alsahol	Ibb	18	14.03.582	44.1017	Hasan Adnan	Shaikh	
Market Alsabt			18			Saleh Hgndy	Manager	
Market Alsabt			18			Gmal Ahmed	Controller	711260423
Market Alsabt			18			Abdullah Fadel	Controller	711925806
Market Almrawea	Almrawea	Alhodiedah	19	14.50.026	43.09.392	Slman Hmos	Akel the market	
Market Almrawea			19			Omar Slman	Akel the market	77730480
Market Almrawea			19			Ali Ahmed Ghaleb	Vet.	711989630
Market Almrawea			19					
Market Almrawea			19					
Market Alkalefah	Almrawea	Alhodiedah	20	14.54.354	43.1941	Oohamed M.Dhmos	Akel the market	
Market Alkalefah			20			Ahmed M. Dhmod	Ass.	
Market Alkalefah			20					
Market Bajel	Bajel	Alhodiedah	21	15.03.733	43.16.930	Ahmed Abkar	Akel the market	
Market Bajel			21			Ebahim Abkar	Ass.	
Market Bajel			21			Mohamed Abkar	Ass.	
Market Bajel			21					
Market Bajel			21					
Market Bajel			21					
Market Bajel			21					
General market	Alhohiedah	Alhodiedah	22	14 48 794	42.57.981	Samer Mohamed	Akel the market	733087904
General market			22			Hasan Hosen	Ass.	
General market			22					
General market			22					
General market			22					
General market			22					
Market Bit Al-Faki	Bit Al-Faki	Alhodiedah	23	14 48 284	42 57 672	Mohamed Meny	Sook Albaker	
Market Bit Al-Faki			23			Mansour Aziz	Sook Alebel	733788334
Market Bit Al-Faki			23			Alhamody	Sook Alghanam	
Market Bit Al-Faki			23			Salem Harab	Owner of market	
Market Al-Arm	Ahban	Shabwah	24	14.13.133	47 05009			

Market Al-Arm			24					
Market Attak	Attak	Shabwah	25	1432439	4649344			
Market Attak			25					
Market Alnkob	Bihan	Shabwah	26	1458900	45 47 522	Abdul Ellah Alshref	Shref Bihan	
Market Neddab	Neddab	Shabwah	27	14 30.102	46 29382			
Market Azzan	Myfah	Shabwah	28	14 19542	74 26778			
Market Alhasef	Tarek Alhasef	Mareb	29	2527985	451834			
Market Alhasef			29					
Market Alhasef			29					
Market Hareb	Hareb	Mareb	30	1455833	4529996			
Market Hareb			30					
Market Hareb			30					
Market Hareb			30					
Market -Thaloth Alshark	Madinat Al-Shark	Dhamar	31	14 33 135	43 57 85	Ali Mojali	Inspection of market	
Market -Thaloth Alshark			31					
Market -Thaloth Alshark			31					
Market -Thaloth Alshark			31					
Market Dhamar	Dhamar	Dhamar	32	14 32 869	44 2 227	Mohamed Ahmed	Mandop Alsook	711903889
Market Dhamar			32			Mohamed Hossin	Akel AlSook	
Market Dhamar			32					
Market Dhamar			32					
Market - Al-Rabo	Mabar	Dhamar	33	14 47 570	4417 485	Ahmed Yahia	Owner of market	
Market - Al-Rabo			33			Mohamed Ahmed	Owner of market	
Market - Al-Rabo			33					
Market - Al-Rabo			33					
Market - Al-Thaloth	Al-Thaloth Otomah	Dhamar	34	1423 255	44 00 635	Mohamed Kaeed	Hakem Alsook	
Market - Al-Thaloth			34					
Market - Al-Thaloth			34					
Market Aness	Doran	Dhamar	35	14 49 621	44 04 719	Manager		

Market Aness			35					
Market Aness			35					
Market - Zragah	Zragah	Dhamar	36	14 52 76	44 22 691	Saleh M.	Controller	
Market - Zragah			36			Ali M.		
Market - Zragah			36			Mohamed Mosleh		
Market Al-Ammar	Alsafra	Saddah	37	16 47 511	43 47 362	Saleh Hendy	Shaihk	
Market Al-Ammar			37			Ali Hendy	Shaihk	
Market Al-Ammar			37					
Market - Dohian	Dohian Magaz	Saddah	38	17 03 963	43 36 031	Mahmoud Ali	Magaz	
Market - Dohian			38			Ragehy Mohamed	Magaz	
Market Altalh	Vellage Altalh	Saddah	39	17 00 902	43 40 770			
Market Altalh			39					
Market Altalh			39					
Market Bakem	Center of Dis.	Saddah	40	17 23 911	43 28 602	Ebrahim Saleh	Manager	
Market Bakem			40					
Market Bakem			40					
Market Bakem			40					
Market- Almarkzi	Inside the twon	Saddah	41	16 56 262	43 45 798			
Market- Almarkzi			41					
Market- Nokom	Nokom	Amanat Alasemah	42	15 21 421	44 13 624	Ali Hossin	Akel Alsook	
Market- Nokom			42					
Market- Nokom			42					
Market- Nokom			42					
Market Boan	Boan Bani Mater	Sana'a	43	15 11 303	43 59 019	Mansor Alhadrani	Owner of the land	
Market Boan			43			Ahmed Saleh	Akel AlSook	
Market Boan			43					
Market Khawllan	Street Khawllan	Alamanah	44	14 20 829	44 00 26	Saleh Abdullah	Owner of the land	77771820

Market Khawllan			44			Ahmed Mohamed		733903409
Market Khawllan			44					
Market Khawllan			44					
Market Al-Raoddah	Al-Raoddah	Al-Amanah	45	15 25 556	44 13 351	Yahia Gameel	Member of local	77779070
Market Al-Raoddah			45					
Market Albakar	Amran	Amran	46	15 39 654	43 56 571	Mohamed		
Market Albakar			46			Ateek Hzam		
Market Albakar			46			Fadl Ahmed		711857606
Market Albakar			46					
Market - Sahab	St. Sana'a - Amran	Amran	47	15 36 064	44 01 331	Yahia Ali	Akel AlSook	07/600613
Market - Sahab			47			Ali Hamid	Slakh of the distrcet	71199447
Market - Sahab			47					
Market - Sahab			47					
Market- Hamer	Dawn-Tawn (center of city)	Amran	48	15 59 167	43 57 251	Lotf Shia	Akel AlSook	71056397
Market- Hamer			48			Fahd Lotf		
Market- Hamer			48					
Market- Hamer			48					
Market-Sheep& Goats	General St.	Amran	49	15 39 938	43 56 644	Yahia Ali	Akel AlSook	07/600613
Market-Sheep& Goats			49			Hamid Ali		
Market-Sheep& Goats			49			Mansour Mohamed		
Market- Riddah	Sook Albakar	Amran	50	15 49 034	44 03 479	Ali Abdullah	Akel AlSook	711002861
Market- Riddah			50					
Market- Riddah			50					
Market- Riddah			50					
Market- Riddah			50					
Market AlHGil Almarkzi	District Alghil	Aljoaf	51	16 06 526	44 40 950	Saleh Nafes	Trader and battior	06/343020
Market AlHGil Almarkzi			51			Ahmed Nafes	Trader and battior	
Market AlHGil Almarkzi			51			Saleh Tamem	Trader and battior	
Market AlHGil Almarkzi			51			Mohamd Ali	Trader and battior	

Market Al-Halk	District Alhalk	Aljoaf	52	16 03 283	44 48 893	Mohamed Mohssen	Trader and battior	
Market Al-Halk			52			Ali Ahmed	Trader and battior	
Market Al-Halk			52			Ali M. Mohssen	Trader and battior	
Market Al-Halk			52			Ali Mohamed	Trader and battior	
Market Al-Halk			52			Hassan Ahmed	Trader and battior	
Marlet- Alhazm	District Alhazm	Aljoaf	53	16 09 850	44 45 456	Saleh Salemin	Trader and battior	
Marlet- Alhazm			53			Hadi Alsekh	Trader and battior	
Marlet- Alhazm			53			Mohamed Saeed	Trader and battior	
Marlet- Alhazm			53			Mosleh Daris	Trader and battior	
Market -Alhabelin	Alhabelin	Lahj	54	13 31 098	114 51 032	Saf Hassan	Shaihkh	
Market -Alhabelin			54					
Market -Alhabelin			54					
Market -Alhabelin			54					
Market -Alhabelin			54					
Market Habeil Gabr	Habeil Gabr	Lahj	55	13 36 116	44 59 116	Municipality	Municipality	
Market Habeil Gabr			55					
Market Habeil Gabr			55					
Market Lahj	Alhotah	Lahj	56	13 03 37	44 53 030	Mahmoud Thabet	Responsibility of the market	
Market Lahj			56					
Market Lahj			56					
Market Kash	Karesh	Lahj	57	13 22 077	44 29 535	Municipality	Municipality	
Market Kash			57					
Market DarSad	Dar Sad	Aden	58	12 54 542	44 581 26	Aref Ali	Inspection of market	733853113
Market DarSad			58					
Market DarSad			58					
Market -Twon	Alghddah	Alhaharah	59	16 12 617	52 952	Mohamed mojahed	Manager	05/610800
Market Hadramout	Syhot	Alhaharah	60	15 12 340	51 14 776			
Matam Balhaf	Alghadah	Alhaharah	61	15 12 727	52 11 757	Ali Abdullah	Responsibility of the market	
Marek -Alrabo	Almafer	Taiz	62	13 24 931	4358 057	Ahmed Kaid	Shaihkh of the market	711265152

Marek -Alrabo			62					
Marek -Alrabo			62					
Marek -Alrabo			62					
Market Hagddah	Hagddah	Taiz	63	13 35 204	43 49 027	Fahmi Hashem	Akel AlSook	733269286
Market Hagddah			63			Mohamed Abduh	Shaikh	04/246901
Market Hagddah			63			Hashem Abduh	Owner of the market	
Market -Algomah	Aldmnah	Taiz	64	13 27 223	44 10 379	Abdullah Kaid	Shaikh of the District	77324177
Market -Algomah			64			AbdulWahab Kaid	Akel Alsook	77324260
Market -Algomah			64			Alhag Saef Ali		
Market -Domian	Nazhar	Raymah	65			Mohamed Albosis	Raymah	
Market -Domian			65					
Market -Domian			65					
Market Alrebat	Alrebat	Raymah	66	43 33 044	14 40 581	Mohamed Abdullah	Shaikh of the District	
Market Alrebat			66			Naser Alafari		
Market Alrebat			66					
Market- Bani Kaoli	Bani Kaoli	Raymah	67	14 53 952	43 36 934	Ali Naser	Shaikh of the market	
Market- Bani Kaoli			67			Harbah Ahmed		
Market- Bani Kaoli			67					
Market- Alethnin	Wadi Alraheb	Raymah	68	14 30 339	43 54 428	Hassan Abdullah	Shaikh of the Dstrict	
Market- Alethnin			68					
Market- Alethnin			68					
Market- Alethnin			68					
Market- Alogah	Alwgah- Algafariah	Raymah	69	14 35 271	43 33 265	Abdul Aziz	Shaikh of the market	77967031
Market- Alogah			69			Mohamed Ben Mohamed	Ass.	
Market- Alogah			69			Mahmoud Haza		
Market- Alogah			69					
Market --Goban	Goban	Alddalea	70		44 52 95	Nageb Mohamed		
Market --Goban			70			Ali Saeed	Owner	
Market --Goban			70			Mohamed Kasem		

Market- Damt	Damt	Alddalea	71	14 05 483	44 40 58	Ahmed M. Saleh		711517080
Market- Alwadi	Aldalea	Alddalea	72	13 41 666	44 43 855	Khalid Ali		
Market- Alwadi			72			Saleh Hassan		
Market- Alwadi			72					
Market- Alahad	Ans	Hajjah	73	15 59 764	43 11 836	Hadi Ahmed	Shaihk of the market	
Market- Alahad			73					
Market- Alahad			73					
Market- Alaman	Nagrah	Hajjah	74	15 41 794	43 35 464	Yahia Ben Ahmad	Manager of municipality	
Market- Alaman			74			Yahia Hossin	Shaihk	
Market- Hard	Hard	Hajjah	75	16 24 771	43 03 891	Mohamed Haser	Shaihk	
Market- Hard			75					
Market- Hard			75					
Market- Hard			75					
Market- Alrabo		Hajjah	76	16 05 045	43 08 232	Ahmed Gonid		
Market- Alrabo			76					
Market- Alrabo			76					
Market- Altaod	Bani Kames	Hajjah	77	15 59 770	43 11 823	Mohamed Shoei	Shaihk of the market	
Market- Altaod			77					
Market- Altaod			77					
Market -Almarkzi	Aldaeri	Albidda	78	19 25 068	44 50 775			
Market -Almarkzi			78					
Market -Almarkzi			78					
Market -Almarkzi			78					
Market- Alswadiah	Sook Alqat	Albidda	79	14 17 821	45 13 060			
Market- Alswadiah			79					
Market- Mokairas	Mokiras	Albidda		13 50 713	45 40 241			
Market- Mokairas			80					
Market- ThiNAem	Sook Alqat	Albidda	81	14 06 379	45 26 922	Municipality		
Market- ThiNAem			81					
Market- Ankdan	Near Cop. Army	Albidda	82	13 59 590	45 39 386	Awad Ahmed	Owner of the market	

Market- Ankdan			82					
Market- Ankdan			82					
Market- Ankdan			82					
Market- Bosh	Bosh Almoklla	Hadramout	83	14 35 675	49 12 610	Ahmed Saeef	Responsibility of the market	733785626
Market- Bosh			83					
Market- Alhamedah	Alhabt	Almahwiet	84	15 28 351	43 22 699	Saleh Mohamed	Akel AlSook	77832119
Market- Alhamedah			84					
Market- Alrogom	Alrogom	Almahwiet	85	15 27 555	43 37816	Ali Saeed	Akel AlSook	
Market- Alrogom			85					
Market- Alrogom			85					
Market- Alrogom			85					
Market- Alrogom			85					
Market- Tawellah	Altawellah	Almahwiet	86	15 29 659	43 44 447	Ahmed Ali Altaheri		
Market- Tawellah			86					
Market IA-Arkob	Alarkob	Almahwiet	87	15 27 759	43 29 507	Ali Saer	Akel AlSook	
Market IA-Arkob			87			Ahmed Saleh		
Market IA-Arkob			87					
Market IA-Arkob			87					
Market -Khames Bani Sad	Khames Bani Sad	Almahwiet	88	15 11 135	43 30 593	Thabet Ahmed	Akel AlSook	
Market -Khames Bani Sad			88					
Market -Khames Bani Sad			88					

ID No.	Name of Facility	Location	Governate	GPS location	
				N	E
1	Zonjubar	Zonjubar	Abyan	13.07.715	45.22.640
2	Lawder Poultry Slaughter	Lawder	Abyan	10.52919	45.51927
3	Zonjubar Poultry Slaughter	Zonjubar	Abyan	13.07.728	45.22.642
4	Zonjubar Poultry Slaughter	Zonjubar	Abyan	13.07.706	45.22.652
5	Zonjubar Poultry Slaughterhouse	Zonjubar	Abyan	13.07.706	45.22.652
6	Jia'ar Poultry Slaughterhouse	Jia'ar	Abyan	13.08.829	45.20.714
7	Mawdiah Slaughterhouse	Mawdiah	Abyan	13.55.935	46.04.841
8	Lawder Slaughterhouse	Lawder	Abyan	13.52.919	45.51.982
9	Shaikh ben Mohsen Albahari Slaughterhouse	Al-raidah Al-sharqiah	Hadhramawt	15.02.212	50.28.787
10	Al-tareemi Slaughterhouse	Ghail ba-wazeer	Hadhramawt	14.46.562	49.22.228
11	Ba-rakebah Slaughter	Al-dees Al-sharqiah	Hadhramawt	14.54.525	49.59.703
12	Farhan Slaughter	Al-shahr market	Hadhramawt	14.45.410	44.36.285
13	Sayoun Slaughter	Sayoun	Hadhramawt	15.56.972	48.47.113
14	Tareem Slaughterhouse	Tareem	Hadhramawt	16.03.002	48.59.899
15	Al- Qatan Slaughterhouse	Al-Qatan	Hadhramawt	15.50.832	48.22.152
16	Shibam Slaughterhouse	Shibam	Hadhramawt	15.55.551	48.37.849
17	Ibb Slaughterhouse	Ibb-Maitam road	Ibb	13.58.939	44.11.367
18	Yareem Slaughterhouse	Yareem	Ibb	14.17.594	44.22.44
19	Bajil Slaughterhouse	Bajil	Hodaidah	15.03.425	43.16.970.
20	Public Authority for Slaughters and Meat Markets	Al-salakhanaThursday	Hodaidah	14.48.764	42.57885
21	Ataq Poultry Slaughterhouse	Ataq	Shabwah	14.31.966	46.50.395
22	Hareeb Slaughterhouse	Hareeb	Marib	14.55816	45.30.247
23	Marib Slaughterhouse	Marib town	Marib	15.27.686	45.19.434
24	Ahmed Ali Al-ghairah Slaughterhouse	Marib town	Marib	15.79.60.	45.18.613
25	Yemenia Economic Corporation	Marib town	Marib	15.27.374	45.96.55
26	Mulays Slaughterhouse	Marib town	Marib	15.27.374	45.19.655
27	Al-Talh Market Slaughterhouse	Al-talh Market	S'adah	17.00.902	43.40770.
28	Tuesday Baqim Market Slaughterhouse	Baqim	S'adah	17.23.911	43.24.602
29	S'adah City Slaughterhouse	Old City	S'adah	16.56.262	43.45.788
30	Aal Ammar Market Slaughterhouse	Aal Ammar market	S'adah	16.47.511	43.47.362
31	Dhahyan Slaughterhouse	Dhahyan	S'adah	17.03.963	43.36.031
32	Central Dhamar Slaughterhouse	Al-mawahip	Dhamar	14.33.330.	44.24.530

33	Ma'abar Poultry Slaughterhouse	Ma'abar	Dhamar	14.47.590.	44.17.626
34	Zarajah Poultry Slaughterhouse	Zarajah	Dhamar	14.52.076	44.22.691
35	Ma'abar Slaughterhouse	Ma'abar (Jahran)	Dhamar	14.47.704	44.17479
36	Zarajah Slaughterhouse	Zarajah market	Dhamar	14.52.076	44.22.691
37	Al-sayyah Slaughterhouse	Al-sayyah	Al'amanah	15.22.040.	44.12.866
38	Shu'ob Slaughterhouse	Shu'ob	Al'amanah	15.21.589	44.13.008
39	General Corporation for Slaughters and Meat Markets	Dar-Salm	Al'amanah	15.17129	44.14.549
40	Al-rawda'a Slaughterhouse	Bani Al-harith	Al'amanah	15.25.556	44.13.351
41	Rayda'a Sheep Slaughterhouse	Rayda'a	Amran	15.43.192	44.52.554
42	Eal Suraih Poultry Slaughterhouse	Sahab -Eal Suraih	Amran	15.36.064	44.01.331
43	Old Slaughterhouse	Al-hinatt	Amran	15.39.731	43.55.550.
44	Shou'iee Al-ameri Slaughterhouse	Amran -l	Amran	15.39.629	43.56.874
45	Central Market Slaughterhouse	Amran	Amran	15.39.472	43.56.517
46	Raydah Slaughterhouse for Cows	Raydah	Amran	15.49.128	44.02.556
47	Khamir Slaughterhouse (under construction)	Khamir	Amran	15.59.211	43.57.351
48	Khamir Slaughterhouse	Khamir	Amran	15.59.211	43.57.251
49	Poultry Slaughterhouse	Amran	Amran	15.39.413	43.56.667
50	Al-dhubr Poultry Slaughterhouse	Al-dhubr	Amran	15.42.561	43.57650.
51	Shibayl Slaughterhouse	Shibayl	Amran	15.39.613	43.54.458
52	Sahab Slaughterhouse	Sahab - Eal Suraih	Amran	15.36.064	44.01.331
53	Al-ghayl Central Slaughterhouse	Al-ghail	Al-Jawf	16.06.426	44.40.950
54	Al-khalaq Slaughterhouse	Al-khalaq	Al-Jawf	16.03.283	44.48.893
55	Central Slaughter of Al-Hazm	Al-Hazm	Al-Jawf	16.09.899	44.46.521
56	General Corporation for Slaughterhouses and Meat Markets	Al-Mansurah	Aden	13.08.462	44.44.710
57	National Center for Meat	Al-ghaydhah	Almaharah	16.12.727	52.11.757
58	Al-ghaydhah Slaughterhouse	Al-ghaydhah	Almaharah	16.12.592	52.10.864
59	Fat-han Slaughterhouse	Al-ghaydhah	Almaharah	15.24.685	51.39.571
60	Al-Ashbutt Slaughterhouse	Al-Ashbutt market	Taiz	13.34.809	44.01.468
61	Al-Saylah Slaughterhouse	Saylat Al-markazi	Taiz	13.34.621	44.00.816
62	Cental Slaughterhouse	Al-Dhabab	Taiz	13.34.714	43.57.210
63	Abs Slaughterhouse	Abs	Hajjah	15.59.764	43.11.836
64	Central Hajjah Slaughterhouse	Hajjah city	Hajjah	15.41.766	43.36.609
65	Haradh Slaughterhouse	Haradh	Hajjah	15.22.995	43.04339
66	Juban Slaughterhouse	Juban	Ad'dali	14.00.727	44.52.476
67	Damt Slaughterhouse	Damt town	Ad'dali	14.05.434	44.40.073

68	Ad'dali Slaughterhouse	Ad'dali	Ad'dali	10.20.117	44.11.092
69	Al-rujum Slaughterhouse	Al-rujum	Al-mahwait	15.27.555	43.37.816
70	Cental Slaughterhouse	Al-mahwait town	Al-mahwait	15.28.038	43.32.584
71	Mukairass Slaughterhouse	Mukairass	Al-baydha'a	13.50.713	45.40.241
72	Malah Slaughterhouse	Malah - Al-arash	Al-baydha'a	41.24.740	44.46.846
73	Rada'a Central Slaughterhouse	Al'safiah	Al-baydha'a	14.25.287	44.50.219
74	Azzan Slaughterhouse	Izzan	Al-baydha'a	13.59.151	45.34.210.
75	Al-sharj Slaughterhouse	Al-sharj - Al-mukalla	Hadhramawt	14.31.894	44.07.729

Table A4-4. Quarantine Name, Location, and Contact Information

ID No.	Name of Facility	Location	Governate	GPS Location		Controllers		Traders	
				N	E	Name	Phone	Name	Phone
1	Haradh Quarantine	Haradh's Custom	Hajjah	16.29.801	42.59.600.	Mohammed Odain	711686506	Ta'asil Co.	4762113
								Arab Co.	6393222
2	Makha'a Quarantine	Alkhadra'a area	Taiz	13.18.144	43.15.274	Dr. Mohammed Al-Mohammadi	711903643	Abduljabbar Mohammed	733246008
						Qasim Ali Mabruk	733392774	A'ish Swaidann	711288338
						Isam Ghalip Hamud	711923295	Ali Al-Khaishani	711777958
						Abdullah Al-Majari	711638351	Saeed Al-Baydi	711689985
						Thuraia'a Hasan Abdullah	-		
3	Aden Quarantine	Dakkat Alkibash Almu'ala'a	Aden	12.47.800.	45.01.412	Ali Sultann Hasan	232708	Mahmoud Al-Alemi	711123849
						Dr. Mushtaq Abd Al-sattar	733802303	Abdullah Juma'an	733645571
						Dr. Ahmed Al-Aqil	711534370	Abdulghani Al-ernad	-
								Ali Al- aulaqi	-
4	Powaish Quarantine	Almukalla - Powaish	Hadhramawt	14.35.624	49.13.061	Hani Mahfudh Musahwar	711810403	Saeed Yusef Mohammed	733786509
						Dr. Salih Al-Haddad	733416343	Abdulqadir Khushu	711953903
						Anwar Obaid Ba-shua'ib	733866073	Saeed Obaid	77953298
						Saeed Salim Filihan	-	Ali Al- Haiqi Ar'or	-

ANNEX 5. TANZANIA LEGISLATION

THE ANIMAL DISEASES ACT, 2003

Republic of Tanzania

ARRANGEMENT OF SECTIONS

PART I

PRELIMINARY PROVISIONS

Section Title

1. Short title and commencement.
2. Interpretation.

PART II

APPOINTMENTS AND ADMINISTRATION

3. Appointment of the Director.
4. Appointment of Inspectors.
5. Appointment of other staff.
6. Indemnity.

PART III

MEASURES FOR CHECKING LIVESTOCK DISEASES

7. Measures to be regulated.
8. Restriction on movement in an infected area.
9. Barriers.
10. Isolation and separation of diseased animals.
11. Isolation of animals in the infected area.
12. Declaration of buffer zone.
13. Restriction on movement in buffer area.
14. Reports to the Inspector.
15. Duty to report diseases or death of an animal.

16. Procedure for notification of diseases.
17. Quarantine.
18. Slaughter of affected animals.
19. Disposal of animals, carcasses, products and wastes.
20. Identification and traceability of animals, fomite, and animal products.

PART IV

MEASURES FOR CHECKING DISEASES OF ANIMALS OTHER THAN LIVESTOCK

21. Disease to be listed with the Director.
22. Certification of farms and ranches.
23. Notification of disease outbreaks.
24. Quarantine for animals other than livestock.
25. Destruction and disposal of affected animals other than livestock.

PART V

POWERS OF INSPECTORS

26. Power to enter and examine.
27. Power to enter with warrant.
28. Power of inoculation and disinfection.
29. Power to carry out tests.
30. Inspection of animals.
31. Powers of seizure and destruction.
32. Disposal of carcasses of diseased animals.
33. Powers to issue notices.
34. Power to prohibit movement.
35. Power to get information on outbreaks of diseases.
36. Power to examine at points of entry into the country.
37. Power to use force.
38. Insemination centers.
39. Powers to make declarations

PART VI

COMPENSATION

- 40. Entitlement to compensation.
- 41. Claim for compensation.
- 42. Compensation to be withheld.

PART VII

COMPULSORY ANIMAL DISEASES PREVENTION MEASURES

- 43. Movement of livestock.
- 38. Power to ensure compliance in hatcheries and artificial
- 44. Issuance of permits.
- 45. Zoosanitary border post and checkpoints.
- 46. Compulsory animal identification.
- 47. Power to delegate.
- 48. System for disease control.
- 49. Declaration of disease free areas.
- 50. Declaration of chemicals for use in disease control.

PART VIII

GENERAL PROVISIONS ON CONTROL OF ANIMAL DISEASES

- 51. Restrictions on milk and milk products.
- 52. Restrictions on meat and meat products.
- 53. Slaughtering premises ante mortem and post-mortem inspection.
- 54. Restrictions to importation.
- 55. Restrictions on artificial insemination
- 56. Use and sale of embryos and ova.
- 57. Restriction on genetically modified organisms.
- 58. Prevention and control of bee diseases.
- 59. Restrictions on bee keeping.
- 60. Prevention and control of fish diseases.

PART IX

MISCELLANEOUS PROVISIONS

61. Detection and arrest.
62. Offences and penalties.
63. Reports.
64. Repeal and savings.
65. Power to make regulations.

Definitions

“Border post” means any airport, or any port railway station or road station-point open to international trade of commodities, where import veterinary inspection can be performed;

“Buffer zone” or “buffer area” means an area established within and along the border of an infected area using measures based on the epidemiology of the disease under consideration to prevent the spread of the causative agent;

“Carcass” means dead body of an animal;

“Classified disease zone” means a zone declared as such pursuant to this Act;

“Check point” means any airport or any port, railway station or road station-point open to local or national trade of commodities, where veterinary inspections can be performed;

“Compulsory disease control” means compulsory control of diseases as may be declared from time to time; pursuant to this Act;

“Compulsory disease control area” means an area designated as such pursuant to this Act;

“Contagious disease” means a disease communicable by close contact or inoculation;

“Director” means the Director responsible for veterinary services under the ministry responsible for livestock;

“Disease” means any deviation from normal physiological functioning of the body and includes the clinical and pathological manifestation;

“Disposal” means getting rid of animal, animal product, animal waste, feed or litter, in a prescribed manner, for the purpose of disease control pursuant to this Act;

“District Veterinary Officer” means a veterinarian in charge in a district;

“Feed” means any thing or materials commonly used for feeding animals;

“Fodder” means hay, silage or any other pasture material commonly used for feeding animals;

“Fomite” means a substance or thing by which a disease causing agent section may travel from an infected area or place or animal to uninfected one;

“Game reserves” means an area of land preserved for wild life production;

“Hatching egg” means fertilized egg, suitable for incubation and hatching;

“Hunting block” means a demarcated hunting game area;

“Infected area” means an area in which the absence of the disease under consideration has not been demonstrated by the requirements specified by the Director pursuant to this Act;

“Inspector” means a person appointed to be an Inspector under “infectious disease” means a disease communicable in any manner;

“Litter” means straw or any other materials commonly used for bedding or otherwise for or about animals;

“Livestock” means any domesticated animal and includes cattle, water buffalo, sheep, goats, pigs, dogs, cats , donkeys, chicken and game;

“List” means a list of registration of diseases in different categories according to severity and prescribed criteria pursuant to this Act;

“Market value” means the value of the animal, animal products and property established at the place where the destruction is ordered pursuant to this Act;

“Meat” means all edible parts of an animal;

“milk” means milk or any milk product which has not been subjected to any process;

“Minister” means the Minister responsible for livestock;

“National park” means an area of countryside protected by the state for the enjoyment of the general public of preservation of wildlife;

“Notifiable diseases” means any disease, which the Director may by notice, declare to be notifiable in any area;

“Owner” includes any person having any right, title or interest in an animal or having an animal in his possession, custody or control and the owner in respect of a dead animal, means owner of the dead animal or person who is in possession or control of it;

“Paraprofessional” has the meaning ascribed for it under the Veterinary Act No. 16 of Act; 2003 "quarantine area” means an area, vehicle, premises or any place declared as such pursuant to this Act;

“Vector” means an animal by which a disease causing agent may travel from an infected animal or place to an uninfected one;

“Veterinarian” has the meaning ascribed for it under the Veterinary Act;

“Stray” means any animal which has no owner or is moving;

“Wildlife management area” means an area of land for management of native fauna like game ranching or commercial managed wildlife;

“Zoo” means an establishment, which is used for keeping wild animals for study, conservation or display to the public;

"Zoonotic diseases” a disease with potential to affect both man and other animals.

PART II

APPOINTMENTS AND ADMINISTRATION

Appointment of the Director

3. -(1) The Minister shall appoint by written instrument a Veterinarian in public service to be the Director for veterinary services who shall exercise powers and functions conferred upon him pursuant to this Act.

(2) The Director shall-

- (a) ensure successful implementation of all provisions of this Act;
- (b) list and maintain lists of all notifiable diseases;
- (c) categorize diseases into lists according to criteria prescribed in the regulations made under this Act;
- (d) establish expert advisory committees for each regulation to advise on technical matters relating to provisions of this Act;
- (e) issue official position on the method to be used in the diagnosis, control, treatment, disposal, quarantine, for each notifiable disease and cause the same to be published in print media yearly;
- (f) establish and maintain a national veterinary laboratory system and other means for analyzing products for the purpose of this Act;
- (g) regulate the use of animal pesticide, vaccines and any other related products that may be used under this Act;
- (h) define areas to be under the jurisdiction of Inspectors; and
- (i) cause publication of areas to be under the jurisdiction of Inspectors.

4. -(1) The Minister may, by a written instrument appoint for a Paraprofessional in public service or in private practice to be Inspectors for specific areas and for purposes of enforcing this Act, as may be prescribed.

(2) Inspectors shall have powers to perform all or any of the duties of an Inspector or any duties spelt out in various regulations made under this Act.

Appointment of other staff

5. The Minister shall, by notice published in the *Gazette* appoint such number of other staff to perform various functions under this Act.

Indemnity

6. No person shall be liable for any loss or damage resulting from the reasonable or intended exercise of powers conferred by this Act.

PART III

MEASURES FOR CHECKING LIVESTOCK DISEASES

7. -(1) The Minister may issue regulations spelling out measures for checking and handling livestock disease outbreaks including the technical steps to be taken in order to effect quarantine and shall spell out epidemiological demarcations for buffer zones or areas and infected areas.

Measures to be regulated

(2) An Inspector shall have power to regulate the disposal of carcasses, animal produce, feed, litter, animal waste and any other things associated with disease within the infected area.

8. -(1) No person shall move any animal, animal produce, animal feed, litter, animal waste or anything as may be prescribed in the regulation into or from an infected area without a written permission of the Inspector.

Restriction on movement of an infected animal

(2) An Inspector may seize, destroy, bury or otherwise deal with any animal, carcass, animal product feed, litter and animal waste which shall have been moved contrary to the provisions of this Act.

(3) The carcasses of animals dying from the disease shall forthwith be buried or disposed of in any manner prescribed by the Inspector and in accordance with existing control regulations for the disease under consideration. specified period of time such number of Veterinarians or

(4) No owner of any animal infected or liable to be infected with the disease shall leave the area without having complied with such directions for preventing the spread of disease as may be given by an Inspector.

(5) Provisions for the prevention of the spread of each specific notifiable disease shall be followed as set out in the regulations or order for each notifiable disease.

9. -(1) No person shall herd or graze animals within two hundred meters of a public road unless there is a barrier between the public road and the area of herding or grazing.

Barriers

(2) An Inspector shall erect and maintain around the infected area and therein any barrier, notice board or beacon, and may remove any barrier, notice board or beacon so erected;

10. -(1) Every owner of any animal affected or suspected of being affected with a disease shall have the duty to keep such animal isolated and separated from other animals.

Isolation and separation of diseased animals

(2) No person shall I move an infected or diseased animal outside the infected area.

(3) An Inspector or Veterinarian or Paraprofessional may in writing, order the owner of animal suffering or suspected of suffering from a notifiable disease, to isolates animal for such a time until the animal have been found not to be suffering from a disease.

Isolation of animals in the infected area

11. The Inspector shall

(a) for the purpose of isolation of animals in the infected area, require the owner of any animal within the infected area to isolate the animal from other animals, or to move such animal within twenty four hours from one place within the area to another place within the same area, or from the area to such other place as directed by the Inspector, or

- (b) regulate the movement of animals within the infected area; and
- (c) cause any animal in the infected area to be marked for definitive identification.

Declaration of buffer zone

12. An Inspector shall-

- (a) declare a buffer zone between an infected and uninfected area of a size in accordance with control regulations applicable to the disease under consideration;
- (b) cause a declared buffer zone to be *Gazetted* and made public through popular media in the buffer zone, infected area and the neighboring uninfected area;
- (c) require each animal owner in the buffer area to vaccinate all his animals or carry out any other preventive measures so directed against the disease under consideration in the buffer area; and
- (d) carry out regular collection of relevant samples to check the disease and immune status in animals in the buffer area;

Restriction on movement in buffer area

13. -(1) No person shall move animals, animal products and waste into or from the buffer area without a written permission of the Inspector.

(2) An Inspector shall, where there is contravention of subsection

(1), have power to seize destroy, bury or otherwise deal with any animal, animal product and waste.

(3) No gathering of animal for sale or slaughter shall be allowed unless such animals had gone through disease preventive measures instituted by the Inspector for the disease under consideration in the buffer area.

(4) The Inspector shall-

- (a) cause any animal in the buffer zone to be marked for definitive identification;
- (b) erect and maintain between the infected and uninfected areas and the buffer area any barriers, notice boards or beacons; and
- (c) have power to remove such barriers, notice boards or beacons so erected

Reports to the Inspector

14. -(1) Every owner of animals shall for the purpose of identifying the cause of death of an animal, have the duty to report to the Inspector on the death of animal in the buffer area. Consideration in the infected area, all provisions relating to diseases in infected area shall apply.

(2) No owner of any animal that, is liable to be infected with the disease under consideration in the buffer area shall leave without having complied with such directions for preventing the spread of the disease as may be given by the Inspector.

(3) Provisions for the prevention and control of notifiable disease in buffer areas shall be followed as set out in the regulations made specifically for each of the notifiable diseases.

Duty to report diseases or death of an animal

15. -(1) Where any animal is affected or suspected of being affected or dies of a disease or from any cause, other than disease, which is not apparent, the owner of the animal shall, within twenty-four hours, report the matter to the nearest Veterinarian or Paraprofessional.

- (2) A Veterinarian or Paraprofessional shall have a duty, after receiving a report from the owner to report the matter to an Inspector.
- (3) The burden of proof that an animal did not die of a notifiable disease or that the cause of death was that of a notifiable disease lie with the Veterinarian who first receives the report of the disease outbreak.
- (4) The carcass of any animal dead from a notifiable disease shall not be cut or destroyed in any way without the consent of an Inspector or Veterinarian.
- (5) The owner shall, where it is not reasonably possible for the report of the death of an animal to be received by an Inspector within twelve hours of such death-
- (a) report the matter in writing to the Local Government Authority in the area prior to burying or burning of the carcass; Provided that, if the death is caused by the diseased under
 - (b) cause the intact carcass, to be wholly burnt or buried within twenty four hours after its death at a depth of not less than 2 meters below the surface of the ground located at least 100 metres from wells or water sources and at least 100 metres from any residence or any animal facilities;
 - (c) report the matter to a Veterinarian or Paraprofessional after the burning or burying of the carcass.
- (6) Any person in-charge of animal market or fair who suspects an animal having a notifiable disease is being sold or exposed or offered for sale or disposal may seize and isolate the animal and forthwith notify the nearest Veterinarian or Inspector.
- (7) Notwithstanding the provisions of this section, the owner of a dead animal shall be allowed to take a blood smear from an ear of the animal before the animal is burnt or buried.

Procedure for notification of diseases

- 16.** -(1) The Veterinarian may, after receiving information from the farmer, take appropriate measure to confirm the disease and shall -
- (a) immediately take measures to control the disease; and
 - (b) report the matter to the Inspector in a prescribed form and to the farmer;
- (2) The Inspector shall, after receiving the report of the outbreak from the Veterinarian, and after satisfying himself that the disease is notifiable-
- (a) institute measures to control the spread of disease through quarantine and slaughtering;
 - (b) initiate the compensation process.
 - (c) inform the owner and the neighbors about the disease outbreak;
 - (d) supervise owners to take immediate measures to control the spread of the disease; and
 - (e) report steps taken to the Director.
- (3) Any person who analyses specimens affected with a notifiable disease or who comes in contact with a notifiable disease shall notify the nearest Veterinarian.

Quarantine of affected animals

- 17.** Where the District Veterinary officer has reasonable grounds to suspect that the place or area contains or has contained an animal or fomite or vector that has a notifiable disease, he shall institute quarantine of a place or area in a manner prescribed and *Gazetted* by the Minister.

18. -(1) An Inspector shall cause to be slaughtered and or destroyed any animal affected or suspected of being affected with or which has been in contact with a disease registered with the Director as a notifiable disease pursuant to this Act.

(2) The Inspector shall cause a copy of the statements on identification of the animal, value, circumstances of slaughter or destruction to be given to the owner.

(3) The slaughter of animals specified under subsection (1) shall be witnessed by the police and public valuers.

19. -Where an animal has been slaughtered under the authority of this Act or animal products or wastes destroyed under any provision of this Act, the carcass or animal products or animal wastes shall belong to the Government and shall be disposed of by the Inspector.

Disposal of animals, carcasses, products and wastes

(2) The Inspector shall cause disposal to be carried out in a manner to be stipulated by regulations.

(3) Where an animal is known or suspected to have died from a notifiable disease, the owner of the animal shall dispose of it in accordance with the directions of the Inspector and in no case may the animal be disposed of by natural means.

(4) No person shall dig up whole carcass or part of the buried carcass of an animal unless he obtains a written permission from the Inspector.

Slaughter Identification and trace ability of animals, fomites and animal products

20. -(1) The Inspector may use a special mark for purposes of identifying animals under quarantine, disposal or any matters pursuant to disease control.

(2) No person other than an Inspector shall-

(a) brand or mark any animal with any of the brands or ear tags or with any brand or mark calculated to cause it to be believed that the animal has been branded or ear tagged by an Inspector in accordance with the provisions of this Act;

(b) willfully blotch, deface, render illegible or alter any mark or brand that has been impressed on or inserted in any animal or product. in accordance with the provisions of this Act except by the direction of the Inspector.

PART IV

MEASURES FOR CHECKING, DISEASES OF ANIMALS OTHER THAN LIVESTOCK

Disease to be listed with the Director

21. The Director shall-

(a) register all notifiable diseases of animals other than livestock;

(b) classify diseases of animals other than livestock as to those not found in Tanzania, causing high mortalities and severe economic losses and code according to international specifications;

(c) classify diseases that exist in Tanzania, that would cause high mortalities and severe losses; and

(d) classify and provide annually a list of the notifiable diseases.

Certification of farms and ranches

22. -(1) Any person who desires to deal with the farming import or export of fish, birds, reptiles, mammals, mollusks and animals other than livestock shall, for the purpose of disease control, register with the Director.

(2) The Director shall upon registration under this section and after consultation with the Directors responsible for Wildlife and for fisheries, issue a certificate that will require a license holder to keep records regarding tracking of animals, export and imports.

Notification of disease outbreaks

23. -(1) In Aquaculture, Farms, Zoo, National Park, Animal Sanctuary, Game Reserve, Wildlife Management Area, Hunting Block or other places keeping or maintaining animals other than livestock, if any animal is affected or suspected of being affected or dies of a disease suspected to be of notifiable in nature, the owner or in-charge of the animal shall, within twenty-four hours, report the matter to his Veterinarian or the nearest Veterinarian or Paraprofessional,

(2) The Veterinarian or Paraprofessional shall, after receiving a report from the owner or in-charge; be required to report the matter to the Inspector.

(3) The proof that an animal did not die of a notifiable disease or that the cause of death was that of a notifiable disease shall lie with the Veterinarian first receiving the report of the matter.

(4) In Aquaculture, Farms, Zoo, National Park, Animal Sanctuary, Game Reserve, Wildlife Management Area, Open Area, Hunting Block, or other places keeping or maintaining animals other than livestock, the owner or officer in-charge or anybody responsible for the animals, shall keep any animal affected or suspected of being affected with disease isolated and separate from animals not so affected or suspected, to have been affected.

(5) A Veterinarian receiving information from the owner or in-charge of a place for keeping animals other than livestock shall take appropriate measures to confirm and control the disease and shall -

(a) immediately report to the Inspector in a prescribed form; and

(b) report the matter to the Farm, National Park, Zoo, Game reserve or other Veterinarian.

(6) The Inspector shall, after receiving the report of the matter from the Veterinarian, and after satisfying himself that the disease is notifiable-

(a) institute measures to control the spread of the disease through quarantine, prohibition of escape or any other measures;

(b) inform the owner or officer in-charge, and neighbours about the notifiable disease outbreak;

(c) ensure that they take immediate measures to control the spread of the diseases; and

(d) report the matter to the Director who, shall cause additional measures to be taken in consultation with the Director of Wildlife.

Quarantine for animals other than livestock

24. The Inspector shall, in a manner prescribed by regulations, institute quarantine of a place or area for animals other than livestock , which are deemed to be potentially infected with a notifiable disease.

Destruction and disposal of affected animals other than livestock

25. -(1) An Inspector, shall cause to be destroyed any animal affected or suspected of being affected with or which has been in contact with a notifiable disease in the manner as may be prescribed.

(2) Where an animal has been destroyed under the authority pursuant to this Act or destroyed under any other provision in this Act or its animal than products or animal wastes, the carcass or animal products or animal wastes shall belong to the Government and shall be disposed of by the Inspector.

(3) The Inspector shall cause the disposal to be carried out in the manner as may be prescribed in the regulations.

(4) The Director shall in consultation with the Directors responsible compensation under this section.

PART V

POWERS OF INSPECTORS

Power to enter and examine

26. -(1) An Inspector shall have power-

(a) to enter any land, building, shed, place or vehicle containing or suspected of containing or suspected of having contained any animal, animal products or animal wastes or formite and make such examination as may be required for the purpose of ascertaining whether any such animal, animal product or animal waste or formite is capable of transmitting diseases;

(b) to stop and enter any vehicle or vessel and in which an animal is conveyed and make, such examination of the animal as is reasonably required to ascertain whether or not it is suffering from a notifiable diseases.

(2) An Inspector or police officer or any law enforcement agent may enter any land, building, shed, place vessel or vehicle for the purpose of ascertaining whether any regulations, orders or directions made or given under this Act have been properly carried out.

The power to enter with a warrant

27. -(1) An Inspector shall apply to a Magistrate for the issue of a warrant in relation to a specified dwelling; or land, place, premises or vehicle to which the Inspector has been, or is likely to be, refused admission.

(2) A Magistrate to whom such an application is made, and who is satisfied with information on oath that entry is necessary for purposes relating to the administration of this Act may at any time issue a warrant authorizing the Inspector to enter the premises.

(3) A warrant mentioned under subsection (2) shall specify a date not being later than one month from the date of issue upon which the warrant ceases to have effect.

(4) An Inspector who executes a warrant under subsection (3) in addition to an animal or animal product or property spelt out in the warrant shall seize and impound any animal or animal product or property which the Inspector identifies that it is used to commit an offence pursuant to this Act.

Power of inoculation and disinfect ion

28. An Inspector shall

(a) in preventing the spread of disease quarantine, inoculate, spray, dip, wash or otherwise disinfect an animal or in the case of an animal infected or suspected of being infected with a notifiable disease deal with it in a manner as may be prescribed by the regulations for that disease; and

(b) order the owner of such animal to bring the animal to such place as may be directed.

Power to carry out tests

29. An Inspector shall for the purpose of detecting or diagnosing diseases -

(a) take or cause to be taken from an animal blood, carcass, fluid, samples or specimen;

(b) take or cause to be taken from any building, shed or place or vehicle fluid or hay, straw, litter; and

(c) apply such other tests as he may consider necessary.

Inspection of animals etc.

30. The owner of an animal, animal product or animal waste shall produce the same for inspection when called upon to do so by an Inspector pursuant to this Act.

Powers of seizure and destruction

31. -(1) An Inspector shall have power to seize and impound an animal, animal product, animal waste, fodder or fitting or any vehicle, that is placed, exposed, moved, imported or sold contrary to a prohibition or restriction provided for under this Act, or which the Inspector reasonably suspects to be infected with a notifiable disease, or which is astray in or near a place where there has been an outbreak of a notifiable disease.

(2) Where in the opinion of the Inspector it is not necessary to destroy the animal or thing seized, the Inspector shall-

(a) release the animal or animal products or property to its lawful owner;

(b) release the animal or animal products or property to its lawful owner on conditional payment of any charges incurred, in connection with its impounding or other measures taken by an Inspector;

(3) At the time of release, the Inspector shall by order in writing require the owner to take measures to eliminate any risk associated with a notifiable disease.

Disposal of carcasses of diseased animals

32. Where an animal dies of a notifiable disease, the Inspector designated for the area shall give directions with reference to the burial, destruction or disposal of the carcass, animal products and animal wastes associated with the animal.

Powers to issue notices

33. -(1) Where an Inspector has reasonable grounds to believe that a vehicle or any premises or place where animals or animal products or animal waste are commonly exposed for sale exhibition, parade, racing or any other form of recreation or competition or where animals or animal products are processed for human or animal consumption, is infected with a disease, he may, by notice in writing to the owner or person in charge require that person to disinfect the place, premises or vehicle specified in the notice, any fodder or fitting within the premises, place or vehicle, any vehicle within the premises or place.

(2) A disinfection notice issued under subsection (1) shall specify the time within which the owner or person in-charge is required to comply with the requirements of the notice and the manner in which the disinfections is to be carried out.

(3) An Inspector-

(a) shall have power to issue notices intended to control the spread of animal diseases; and

(b) may erect notice boards for the display of important notices, which shall inform the general public on current measures being applied to limit the spread of notifiable diseases;

(c) may after consultation with a District Veterinary officer, responsible for the destination area and if he is convinced that such a permit shall not contravene this Act in preventing spread of the disease, issue permits to allow transportation of animals and animal products either into or out of a restricted area.

Power to prohibit movement

34. -(1) An Inspector shall, for the purpose of preventing the spread of disease, prohibit in any place-
- (a) the holding of any exhibition or movement of animals or animal products or animal wastes or the sale of any such products in open markets or in private yards; or
 - (b) the slaughter of livestock for food and the sale of meat or carcasses.
- (2) An Inspector who exercises the powers of prohibition under this section shall forthwith inform the Director of the measures taken and success achieved and steps he intends to take to completely control the disease.

Power to get information on outbreaks and diseases

35. For the purpose of preventing, controlling or eradicating notifiable diseases, an Inspector shall: -
- (a) require any person to answer any question that the Inspector of diseases reasonably believes may provide information bearing on the prevention, control or eradication of the disease;
 - (b) require any person who had been ordered or directed or given directives under provisions of this Act but failed to comply with such requirement, to vaccinate, disinfect or act as directed by the warrant and at the expense of such person;
 - (c) require any person to produce any record or other document;
 - (d) inspect and take extracts from or make copies of any record or other document.

Power to examine at points of entry into the country

36. -(1) For the purpose of controlling introduction of diseases into the country, an Inspector shall-
- (a) stop, board, enter, search or impound any vehicle, marine the country vessel or aircraft;
 - (b) break open and search any box, container, package or receptacle including any place that could be used as a receptacle;
 - (c) inspect, count, examine, mark for identification, test, vaccinate, treat, disinfect or take samples from any animal, animal product, animal waste, fodder or fitting or any item or receptacle; and
 - (d) stop the movement or order the movement or mustering of any animal or animal product, for the purpose of examination, testing, vaccination, treatment, disinfection or the taking of samples.
- (2) An Inspector shall for the purpose of identifying animals or animal products, apply special marks.

Power to use force

37. An Inspector shall, where it is necessary, use reasonable force to restrain a person who is apparently acting contrary to a requirement relating to control of notifiable diseases pursuant to this Act from so acting and may require the assistance of the police to ensure compliance with this Act.

Power to ensure compliance in hatcheries and artificial insemination centers

38. -(1) An Inspector shall have the duty to ensure that, regulations and appropriate measures to limit the spread of disease are applied in hatcheries and artificial insemination centers within his area of jurisdiction.
- (2) No person, group of persons or company may keep or use premises for hatching an egg for sale of a chicken unless the person, group of persons or company holds a license issued by the Minister in respect of the premises for that purpose.

(3) No license shall be issued by the Minister unless he is satisfied that proper facilities and adequate resources are available for:

- (a) the maintenance of the premises in a state of hygiene to the satisfaction of the Minister;
- (b) the regular cleansing, disinfecting and fumigating of incubators and equipment used in connection with the hatching of chickens;
- (c) the recording of all eggs used for hatching to enable the property of origin of the eggs to be identified;
- (d) the recording in respect of all chickens hatched;
- (e) of particulars of the property of origin of eggs used for hatching;
- (f) of the date of hatching;
- (g) of particulars of the name and address of the person to whom the chickens are dispatched;
- (h) the date of the dispatches.

(4) No person, group of persons or company may sell or use any egg for hatching for sale unless the egg is a product of a domesticated fowl which has been tested for notifiable or scheduled diseases, as listed by the Minister, at a veterinary diagnostic laboratory appointed for that purpose by the Minister.

Powers to make declarations

39. The Director shall declare any place or area a quarantine or infected or buffer or disease free area after ascertaining status and examining animals pursuant to regulations given under Act.

PART VI

COMPENSATION

Entitlement to compensation

40. -(1). The Minister shall order compensation to be paid to the owner of animal, where physical evidence is provided that an animal is slaughtered or destroyed as consequences of a disease.

(2) The minister may specify the amount to be compensated according to the market value.

Claim for compensation

41. Claims which arise from the destruction of animals, animal products or property shall be according to regulations pursuant to this Act and shall be lodged in a prescribed manner to the Director within thirty days after the death or destruction or such longer period as the Minister may prescribe.

Compensation to be withheld

42. -(1) Compensation may be withheld in whole or in part by the Minister where -

- (a) doubt or dispute arises to the entitlement of a person to receive compensation as stipulated under this Act;
- (b) the owner of or the person having the possession, care or control of animal, animal product or properties in respect of which compensation is claimed has committed a violation or an offence under this Act;
- (c) the animal or animal product at the time it was imported to Tanzania was already affected or contaminated by a disease.

(2) A person who contravenes section 40 or who deliberately breaks, alters, tampers with or removes a seal or other identifying device in contravention of the regulations or forfeits any claim to compensation in respect of animal, animal product or property, commits an offence and shall on conviction be liable to a fine not exceeding one hundred thousand shillings or to imprisonment for a term of not less than six months or to both.

(3) In determining the amount of compensation to be paid under this Act, no allowance for loss of profit occasioned by breach of contract or loss of production or any other consequential losses shall be made.

PART VII

COMPULSORY ANIMAL DISEASES PREVENTION MEASURES

Movement of livestock

43. - No person shall-

- (a) move an animal on foot or by use of a vehicle outside the Inspectors' area of jurisdiction without a permit, or
- (b) move an animal or animal products or animal wastes from outside of the country or introduce animals into any area without a permit.

Issuance of permits

44. The Inspector shall for the purpose of disease control issue permits where -

- (a) he has satisfied himself that animals are examined clinically healthy and are free from diseases;
- (b) the owner has satisfied the Inspector that he has fulfilled conditions under compulsory disease control which include vaccination.

Zoosanitary border post and internal checkpoints

45. -(1) Migrating herds, trade livestock shall be controlled at obligatory border post and internal check points where official Veterinary inspection shall be carried out.

(2) The Director shall be responsible for the establishment and maintenance of border posts and internal check point.

(3) The Minister may by order, announce and vary the border post and internal check points.

Compulsory animal identification

46. -(1) The owner of livestock shall have the duty to take reasonable steps to ensure that his livestock is identified at all times and in a manner specified by the regulations.

(2) The Director may for the purpose of identification, design register and regulate the manufacture, use and distribution of identification devices.

(3) Any person intending to manufacture livestock identification devices shall not make or sell or offer or expose for sale devices intended for identification of livestock unless the person receives a written permit from the Director.

(4) The Inspector shall use special definitive identification during disease outbreaks.

Power to Delegate

47. The Minister may for the purpose of implementing compulsory disease control, delegate powers of prevention and control of diseases to Local Government Authorities.

System for disease control

48. The Director shall, for the purpose of controlling diseases, establish a national epidemiological system.

Declaration of disease free areas

49. -(1) The Minister may, upon consultation with the Director, by order, declare an area to be a Disease Free Zone area and prescribe:

- (a) the use of such area;
- (b) the measure to be taken by owners of cattle within a Disease Free Zone;
- (c) measures to be taken by owners of cattle outside a Disease Free Zone in order to prevent introduction of diseases into such area.

(2) Without prejudice to subsection (1), an area shall be classified disease free if -

- (a) diseases announced by the Director have not occurred for a specified period;
- (b) no notifiable disease has occurred in the area for the past specified period;
- (c) measures to prevent introduction of disease or infection are in place;
- (d) a buffer zone or a natural barrier exists to prevent animals other than livestock to enter the area;
- (e) no diseases announced by the Director have been detected in neighboring areas including wildlife establishments.

(3) An area shall have the disease free status removed by the Director when any of the above mentioned provisions are contravened.

Declaration of chemicals for use in disease control

50. -(1) No person shall test, register or use animal pesticides or animal chemicals for disease control in the country without a written permission of the Director in respect of that particular animal pesticide or animal chemical.

(2) Any person who produces, distributes and stores or sells or deals with pesticide and other registered chemicals shall-

- (a) ensure through research or otherwise the chemical is maintained according to approved standard;
- (b) provide information of any change or anticipated change and that shall be three months before the introduction of the change.

(3) Every pesticide or chemical substance for sale or offer for sale shall bear on the container in Kiswahili and English-

- (a) a trade name and registration number;
- (b) a description of the active ingredients in relation to net weight or volume;
- (c) dose or amount to be used;
- (d) a description of precautions to be taken on tissue or animal;
- (e) a description of treatment in case of emergency;
- (f) instruction on disposal of use of chemicals;

- (g) the name and address of the holder of the registration certificate;
- (h) date of manufacture;
- (i) expiry date;
- (j) batch number; and
- (k) the name of the registration authority.

(4) No person shall -

- (a) distribute, sale or offer or expose for sale any pesticide or chemicals which are not registered or conform to requirements of this section and regulations made under this Act; and
- (b) carry out research or activities related to research on notifiable diseases without a permit from the Director

PART VIII

GENERAL PROVISIONS ON CONTROL OF ANIMAL DISEASES

Restrictions on milk and milk product

51. -(1) The Inspector may, if he is of the opinion that, milk produced for sale from an animal would be deleterious to the health of human beings or unfit for human consumption -

- (a) by written notice given to the dairy farmer upon whose dairy farm the animal is kept -
 - (i) prohibit the use of the animal for the production or preparation of any milk product for the sale for a period as may be determined; and
 - (ii) mark the animal or cause the animal to be marked in a non-permanent manner as may be prescribed by the regulations; or
- (b) after examining the animal -
 - (i) prohibit permanently the use of the animal for production or preparation of any milk product for sale; and
 - (ii) mark the animal or cause the animal to be marked in a permanent way.

(2) A dairy farmer who is given a written notice under subsection (1) shall prevent the use of the animal to which the notice relates for the production or preparation of any dairy product for sale for the time prescribed in the notice.

(3) No person shall use or permit the use of an animal to which the notice relates for the production or preparation of any milk product.

Restrictions on meat and meat products

52. No person shall -

- (a) sell or buy meat from a diseased animal that may affect human health or influence the spread of diseases to other animals or to other areas in the country;
- (b) compound animal feeds using diseased meat or meat product.
- (c) sale or buy meat from an animal affected by any other conditions considered to render the meat unfit for human consumption.

Slaughtering premises ante mortem and post mortem inspection

53. -(1) The slaughterhouse premise or establishment shall be of suitable design, layout and construction in order to facilitate disease detection during ante mortem inspection and postmortem inspection by an Inspector.

(2) An ante mortem inspection shall be carried out within twenty four hours preceding slaughter in a registered slaughterhouse premise or establishment so as to ensure that only those animals that are free from diseases or conditions are permitted to proceed for slaughter.

(3) An Inspector shall ensure that post mortem inspection is carried out on dressed carcass to detect diseases or conditions which prevent the carcass from being passed for human consumption.

(4) Appropriate measures as provided by the regulations shall be instituted upon detection of disease or condition during postmortem inspection where such disease or condition is a threat to human or is capable of spreading to other animals.

Restrictions to importation

54. -(1) No person may bring or cause or permit or allow to be brought into the country any diseased animal, diseased animal product except in accordance with prior authority of the Director or certificate issued by the Director.

(2) No person shall -

(a) bring or cause or permit or allow to be brought into the country any animal, animal product, fodder or thing, contrary to any order or regulation prescribing the introduction of animals, animal products, fodder or thing into the country or without the animals, animal products, fodder or thing being inspected and certified in the prescribed manner;

(b) abandon, allow to stray, drive or cause to be driven or herded any animal, or move or cause to be moved any animal product, fodder or thing introduced in the country, contrary to any order or regulation regarding the introduction and; without the animals, animal product, fodder or thing being inspected and certified in the manner prescribed.

(3) The Director may,

(a) in writing authorize the bringing into the country of any diseased animal or diseased animal products that is specified in the authorization; and

(b) issue a license authorizing the bringing into the country of diseased livestock or livestock products or a class of diseased animal or animal product for the period specified by the Director in the license and may impose conditions on the license.

(4) Importers of animals other than livestock or their products, eggs, gametes or wastes shall comply with the rules and regulations prescribed by the Minister to ensure that imported animals, animal products or animal wastes are free from any notifiable disease:

Restrictions on artificial insemination

55. No person, group of persons or company shall

(a) sell semen from any sire unless, at the time, the semen was collected from a sire registered and approved by the Director.

(b) sell any semen if that person, group of persons or company suspects or has reasonable cause to know the semen is diseased;

- (c) use any premises for the collection of any semen for sale unless the person, persons or company holds a license issued by the Director in respect of those premises;
- (d) conduct a course of training for persons to use semen for the purpose of artificial breeding unless the course and the person, group of persons or body delivering the course have been approved by the Director;
- (e) import semen unless the person, group of persons or company holds a license issued by the Director in respect of that importation.

Use and sale of embryos and ova

56. Restrictions under section 58, shall apply *mutatis mutandis* to all activities related to collection, use and sale of embryos and ova.

Restriction on genetically modified organisms

57. No person shall make or import or use genetically modified organisms of animal origin without a permit from the Director.

Prevention and control of bee diseases

58. The Minister may after consultation with the Minister responsible for wildlife, make regulations relating to the introduction and spread of exotic and natural bee diseases and by such regulations-

- (a) regulate and monitor the introduction including the importation of exotic bees from other countries which may carry bacterial, viral, parasitic and fungal infections that will affect natural honey bee colonies;
- (b) introduce including the importation of honey, bee and hive products must be pasteurized and shall pass specific health certification requirements;
- (c) regulate the movement of bees between Veterinary inspectorate areas; and
- (d) control the occurrence of notifiable bee diseases.

Restrictions on bee keeping

59. No person shall import, export honey, bee and hive products or run, keep or maintain a bee keeping farm or enterprise for purposes of selling to other farmers without a permit from the Director.

Prevention and control of fish diseases

60. The Minister shall after consultation with the Minister responsible for Fisheries, make regulations for -

- (a) assessment of fish health status in the production sites through inspections and standardized procedures;
- (b) eradication of fish diseases by slaughtering of infected stocks, and restocking with fish from approved disease free resources;
- (c) regulating and monitoring the introduction and transportation of fish.

PART IX

MISCELLANEOUS PROVISIONS

Detection and arrest

61. -(1) Where a person is seen or found committing or suspected of being engaged in committing an offence against this Act or any regulation made under this Act, an Inspector or a Veterinarian or a Paraprofessional or Police Officer shall, without warrant, stop and detain the person; and if his name and address or other indications of identity are not known to such Officer and he fails to give them to the satisfaction of the Officer, the Officer may, without warrant, arrest that person.

(2) Where the Officer or Inspector arresting is not a Police Officer, he shall, hand over the offender to a Police Officer or, in the absence of a Police Officer, take the offender, or cause him to be taken, to the nearest police station or local state Authority.

(3) Any Inspector or Veterinarian or Police Officer shall seize and examine any animal, carcass, vehicle, vessel or thing with regard to which he suspects that an offence against the provisions of this Act has been or is being committed and may order the same to be taken back to any area or place wherefrom it may be suspected to have been unlawfully removed or may remove it to any place and detain it there subject to the orders of a Magistrate: Provided that, any seizure and detention so made shall be reported forthwith by the Inspector or Veterinarian or Police Officer to a Magistrate having jurisdiction in the District within which the seizure has been made.

(4) Where it is reported to a Magistrate that any animal or thing has been seized and detained under subsection (2) and the person who is alleged to have committed an offence in respect thereof is unknown, the Magistrate may if he is satisfied that there is reason to believe that such offence has been committed, order the animal or thing to be forfeited.

(5) Where the owner is known but cannot immediately be found, no order shall be made against him until the owner have had an opportunity of appearing before the Magistrate to show cause as to why such order shall not be made.

(6) The Magistrate may order the owner of any animal or thing seized and detained under this section to pay such sum as he may consider reasonable to cover the expenses connected with the removal of such animal or thing to the place of detention, and in the case of an animal, the cost of its maintenance during such detention.

(7) Where the owner fails to pay the sum prescribed by the Magistrate within the time specified in the order, the animal or anything seized shall be forfeited.

Offences and penalties

62. -(1) Any person who -

(a) acts in contravention of or fails to comply with any of the provisions of this Act or any order, direction or prohibition or restriction given lawfully or made there under; or

(b) obstructs an Inspector or a Veterinarian or any other person in the lawful exercise of his powers or the lawful performance of his duties under this Act, commits an offence and is liable on conviction to a fine of not less than three hundred thousand shillings or not more than five hundred thousand shillings or imprisonment for six months or to both such fine and imprisonment.

(2) Where any person is convicted of an offence, the court convicting such person shall in addition to or in lieu of imposing any other punishment, order that the animals or things or any of them in respect of which such offence has been committed be forfeited.

Reports

63. In prosecution for an offence against this Act, a report signed by an Inspector or a Veterinarian as to the presence of disease in any animal or thing examined by him may be accepted as evidence unless the accused person requires the officer to attend as a witness and the court considers his attendance necessary.

64. -(1) The Animal Diseases Ordinance, is hereby repealed. Repeal and savings

(2) Notwithstanding the repeal of the Ordinance under subsection (1), any subsidiary legislation made under the repealed Ordinance, will continue to be enforced until revoked or replaced by the new subsidiary legislation to be made under this Act.

Power to make regulations

65. -(1) The Minister shall, to the extent that is necessary to the control of animal diseases or for averting disease outbreaks and other dangers, issue regulations for carrying out the purposes and provisions of this Act.

(2) Without prejudice to the generality of subsection (1), the Minister may make regulations-

- (a) appointing and empowering Inspectors and any other officer pursuant to this Act;
- (b) prescribing measures for identification of animals at all times for purposes of trace ability and also for specific identification during disease outbreaks;
- (c) prescribing measures for checking outbreaks of all animal diseases including notification, quarantine, disposal and any other measures of disease control;
- (d) prescribing in consultation with Ministers responsible for wildlife, national parks, conservation areas, fisheries, beekeeping, measures governing the control of diseases in animals other than livestock including notification, quarantine, disposal and any other measures of disease control;
- (e) prescribing rules governing compensation to be paid for livestock and animals other than livestock slaughtered, died or destroyed for purposes of disease control and shall include entitlement, modalities, compliance and conditions which may lead to compensation to be withheld;
- (f) prescribing how to categorize a disease as notifiable as well as the specific control and disposal measures including epidemiological technical details of quarantine measures for each notifiable disease;
- (g) prescribing regulations governing movement and transportation of animals, animal products and animal wastes;
- (h) prescribing rules governing the seizure, detention and disposal of any animal in relation to which a breach of this Act or of any regulation, order or direction made or given there under has been committed;
- (i) prescribing compulsory disease control measures for all areas in the country including specifying measures to be taken by owners of animals, Local Government Authorities and Inspectors and Veterinarians;
- (j) prescribing conditions and the tests to be carried out for classification of areas as disease free areas;

- (k) prescribing regulations governing the importation, testing, distribution of acaricides or chemicals for use in animal diseases control including the establishment and maintenance of a register, manner, composition, time, place and codes for proper use for acaricide or chemical;
- (l) prescribing prohibition or restriction of the importation into Tanzania of livestock, animals other than livestock, animal products, animal waste or other material or substance to which this Act applies including vaccines;
- (m) prescribing the manner of declaration of animals, animal products, fomites, vectors, biological agents at port of entry by persons arriving into Tanzania;
- (n) prescribing the manner of exportation, inspection, detection, treatment, destruction, reshipment of any imported livestock, animals other than livestock, animal product, animal waste including packaging and to provide for the manner in which and the conditions subject to which, quarantine stations and post entry quarantine stations shall be, used and such regulations shall comply to international export regulations;
- (o) prescribing the procedures and requirements for establishing and operating hatcheries;
- (p) prescribing the manner, conditions, procedures and requirements for handling and processing milk;
- (q) prescribing the manner, conditions, procedure for handling and processing of meat and meat products;
- (r) prescribing in consultation with the Minister responsible for the Food, Drugs and Cosmetic Act of 2003, regulations governing the inspection of animals to be slaughtered for food and the carcasses thereof, and the construction and management of slaughter houses and animal markets;
- (s) governing the manufacture within the country of any veterinary vaccine or serum of the virus of notifiable diseases or of any other diseases;
- (t) prescribing in consultation with the Minister responsible for wildlife, national parks, fisheries, for export and import of animals other than livestock, animal products and animal wastes.

ANNEX 6. IMPORT/QUARANTINE CHARTS AND TABLES

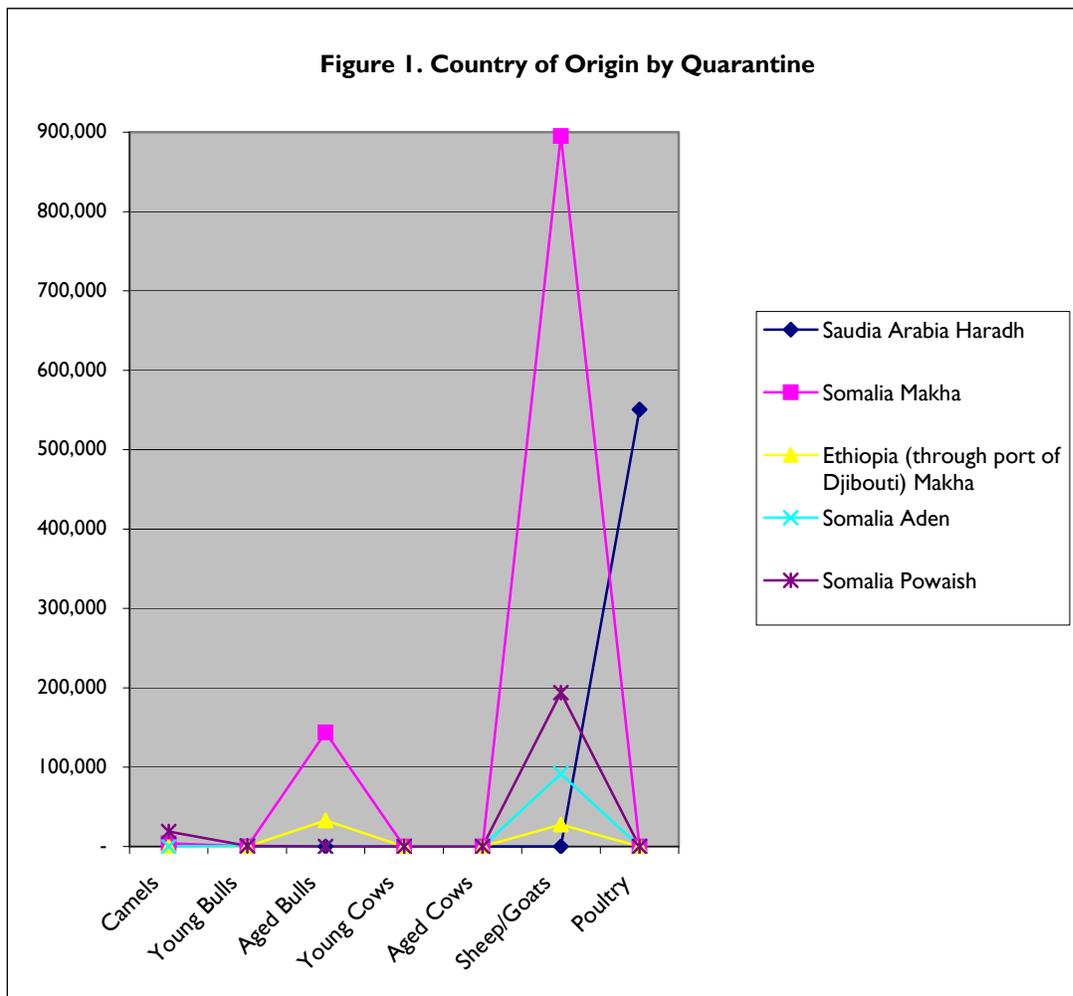
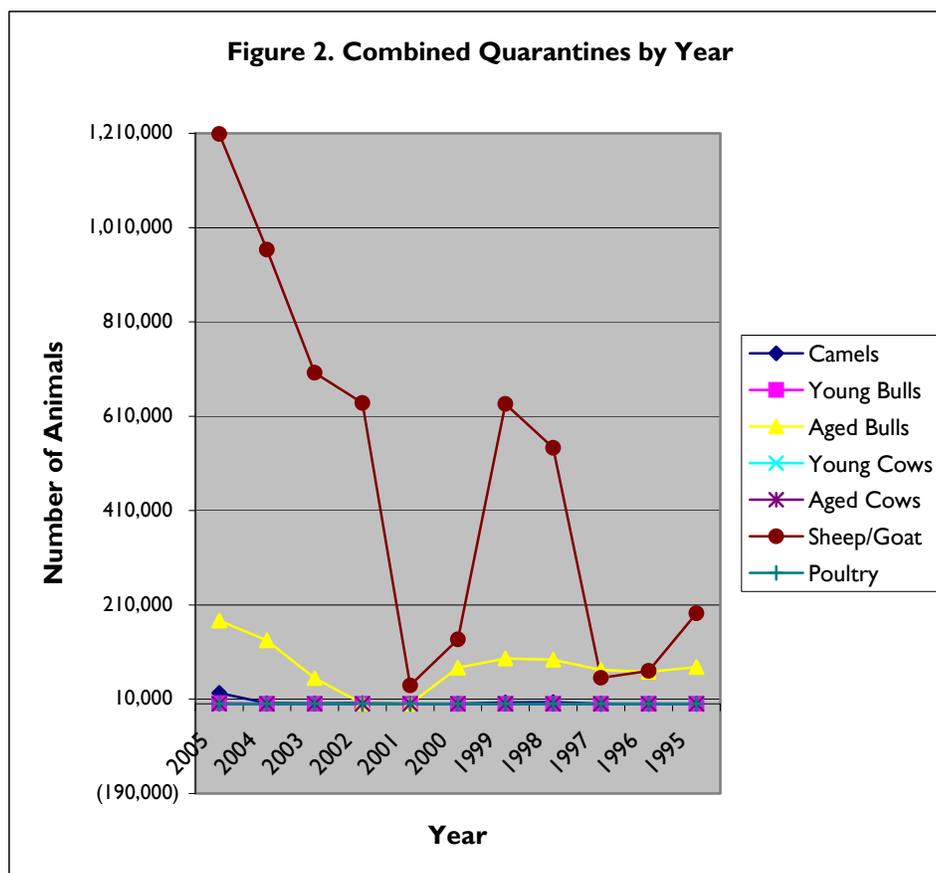


TABLE I. THE NUMBER OF LIVESTOCK QUARANTINED IN 2005							
COMBINED QUARANTINES	CAMELS	YOUNG BULLS	AGED BULLS	YOUNG COWS	AGED COWS	SHEEP/GOATS	POULTRY
Jan	58	0	13,676	0	0	200,734	0
Feb	166	0	10,540	0	0	74,448	0
Mar	219	350	14,142	0	0	38,486	0
Apr	297	315	12,498	0	0	57,372	0
May	244	30	15,875	0	0	61,438	0
Jun	1622	260	11,712	0	0	56,647	0
Jul	2404	346	12,430	0	0	83,244	0
Aug	3456	135	14,192	0	0	89,510	800
Sep	4232	109	11,512	0	0	70,793	0
Oct	1927	0	16,234	0	0	143,710	0
Nov	1086	0	16,346	0	0	124,311	0
Dec	7487	0	27,567	0	0	212,122	0
Totals	23198	1545	176,724	0	0	1212,815	800
Total all							1,415,082



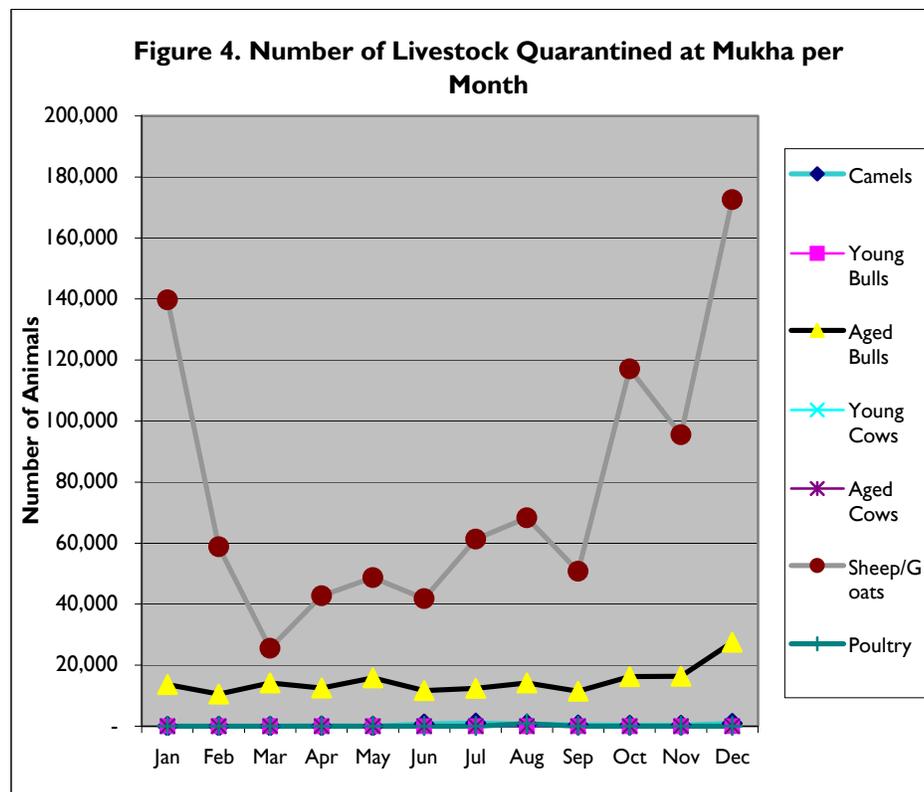
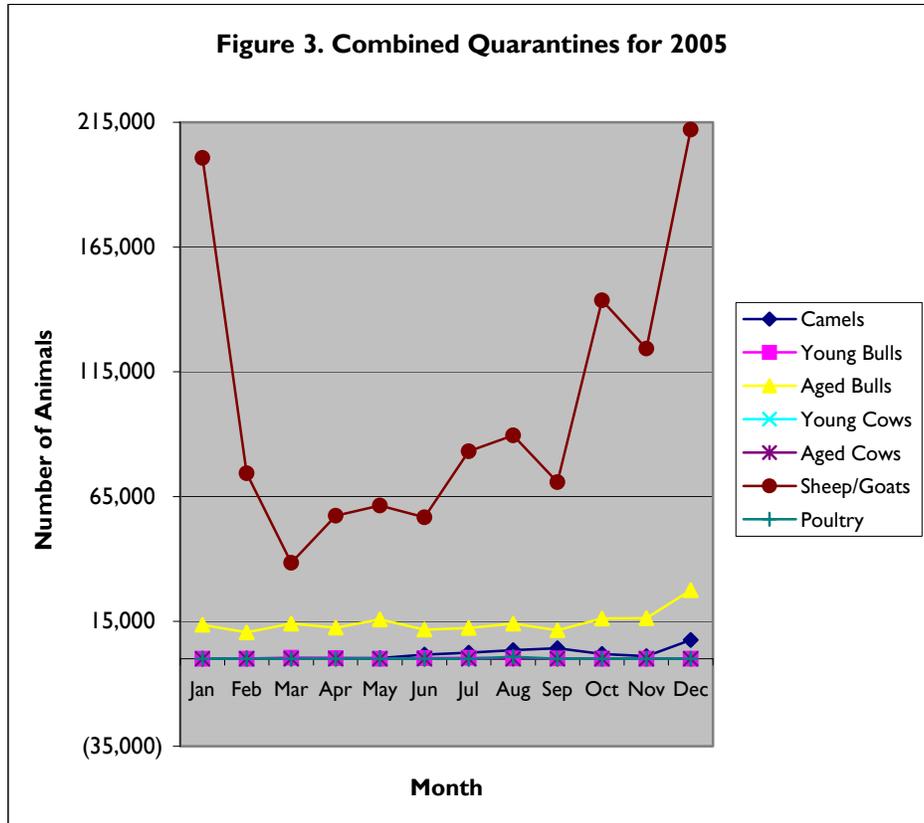
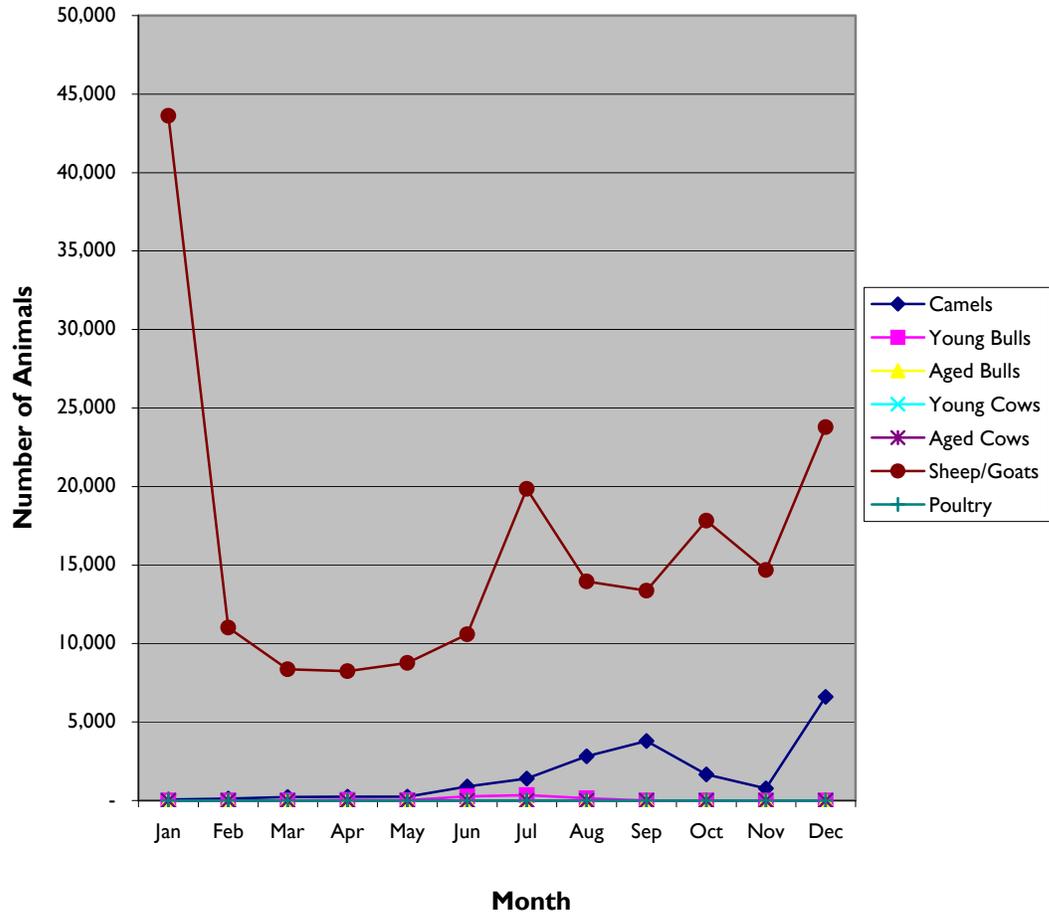


Figure5. Powiash Quarantine



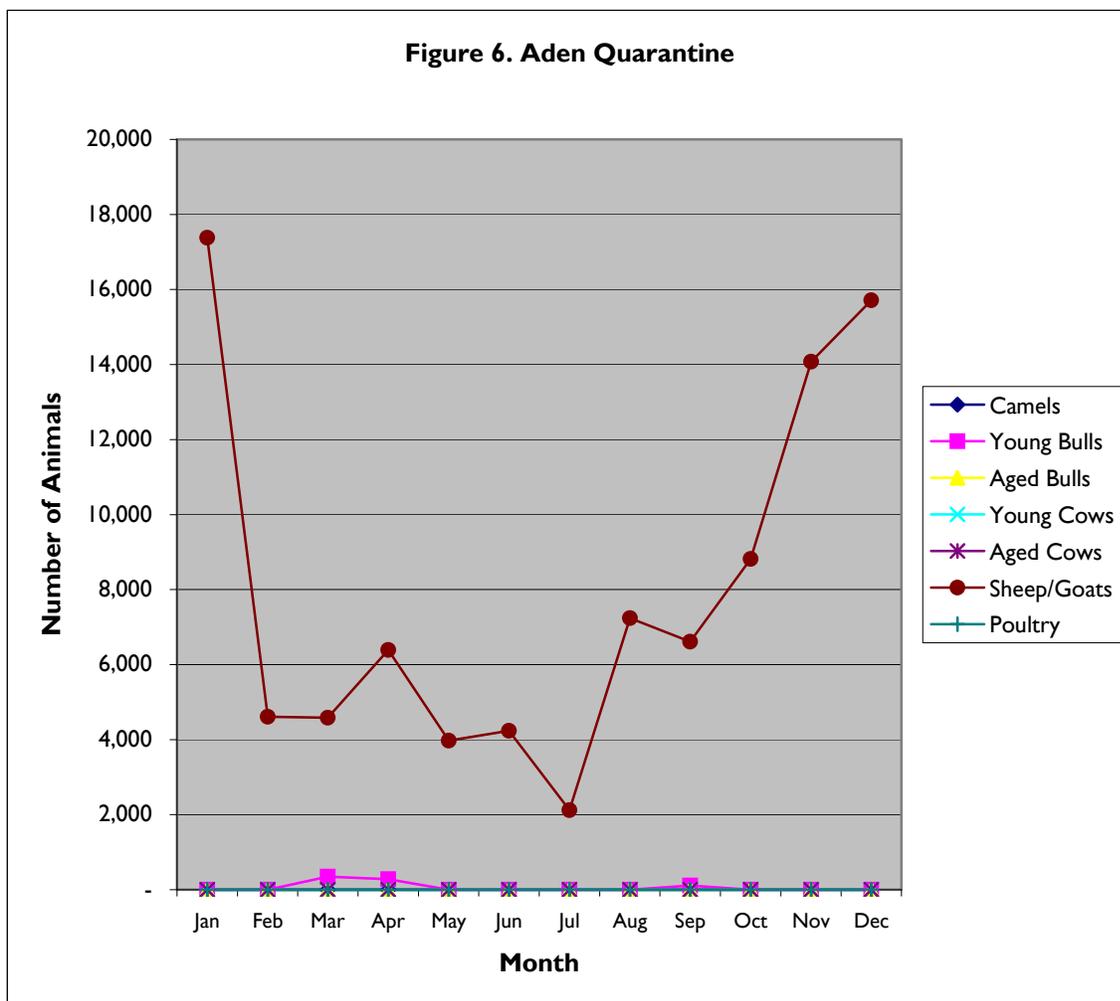


TABLE 2. THE ACTUAL NUMBER OF DAYS OF QUARANTINE

	CAMELS	YOUNG BULLS	AGED BULLS	YOUNG COWS	AGED COWS	SHEEP/ GOATS	POULTRY
Haradh Quarantine							
Average number of days	—	—	—	—	—	—	—
Makha'a Quarantine							
Average number of days	7	—	10	—	—	7	—
Aden Quarantine							
Average number of days	—	15	—	—	—	2-3	—
Powaish Quarantine							
Average number of days	4	4	4	—	—	4	—

TABLE 3. LIVESTOCK PRICE AT POINT OF ORIGN AND YEMENI END USER

Quarantine	CAMELS		YOUNG BULLS		AGED BULLS		YOUNG COWS		AGED COWS		SHEEP/ GOATS		POULTRY	
	Orig.	End	Orig.	End	Orig.	End	Orig.	End	Orig.	End	Orig.	End	Orig.	End
Haradh Quarantine	—	—	—	—	—	—	—	—	—	—	—	—	3.10 \$	3.10\$
Makha'a Quarantine	250\$	307\$	170\$	282\$	300\$	410\$	—	—	—	—	30\$	41\$	—	—
Aden Quarantine	—	—	—	—	—	—	135\$	275\$	—	—	27\$	50	—	—
Powaish Quarantine	180\$	275\$	150\$	265\$	—	—	—	—	—	—	32\$	50\$	—	—

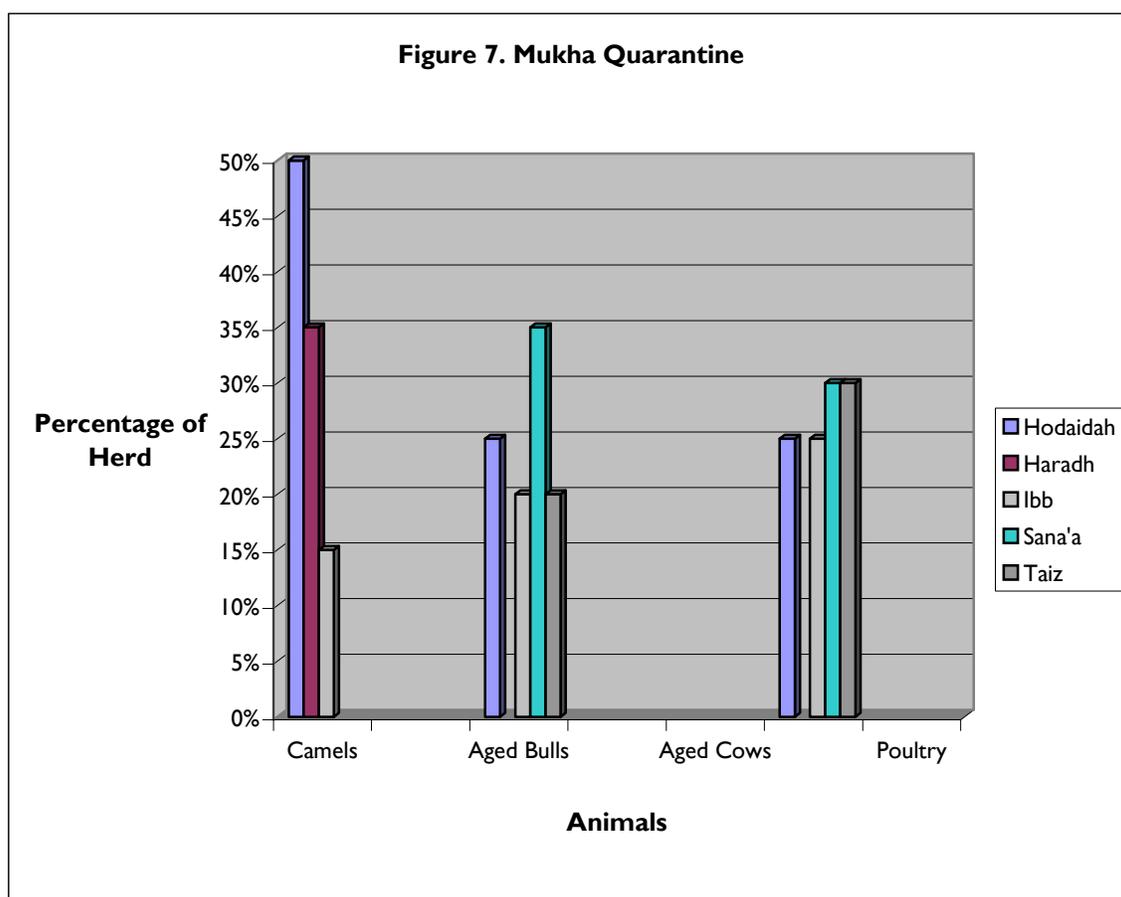
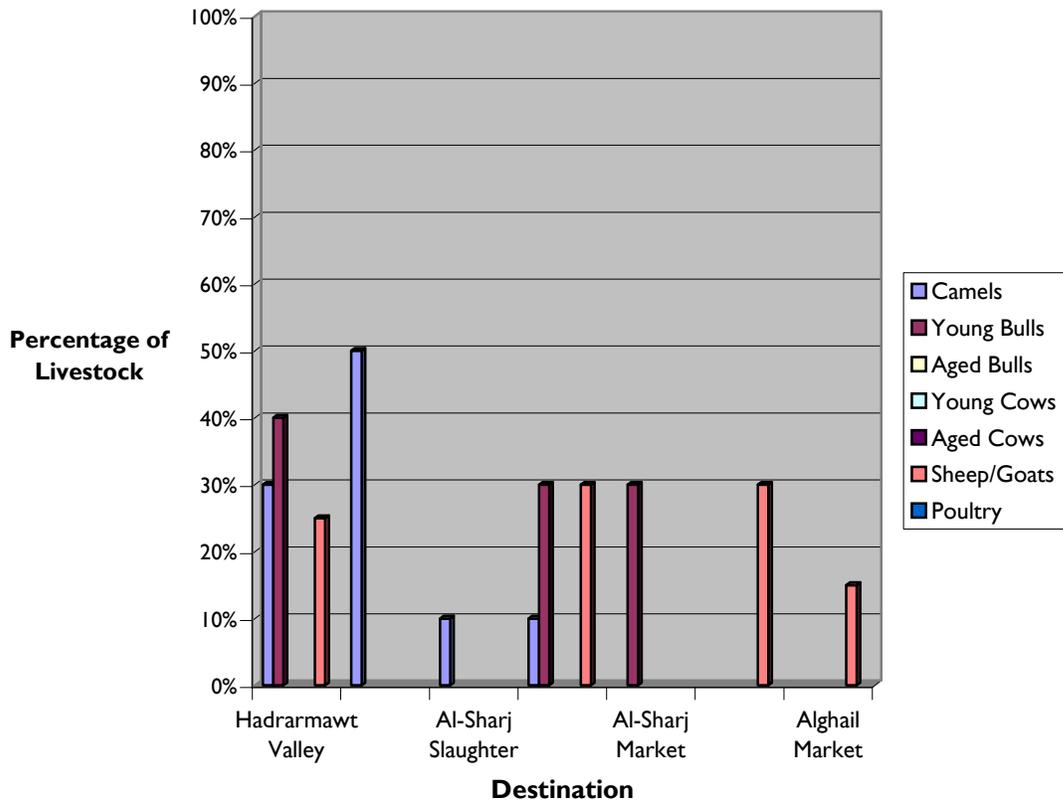


Figure 8. Powaish Quarantine



ANNEX 7. OWNERS/HERDERS CHARTS AND TABLES

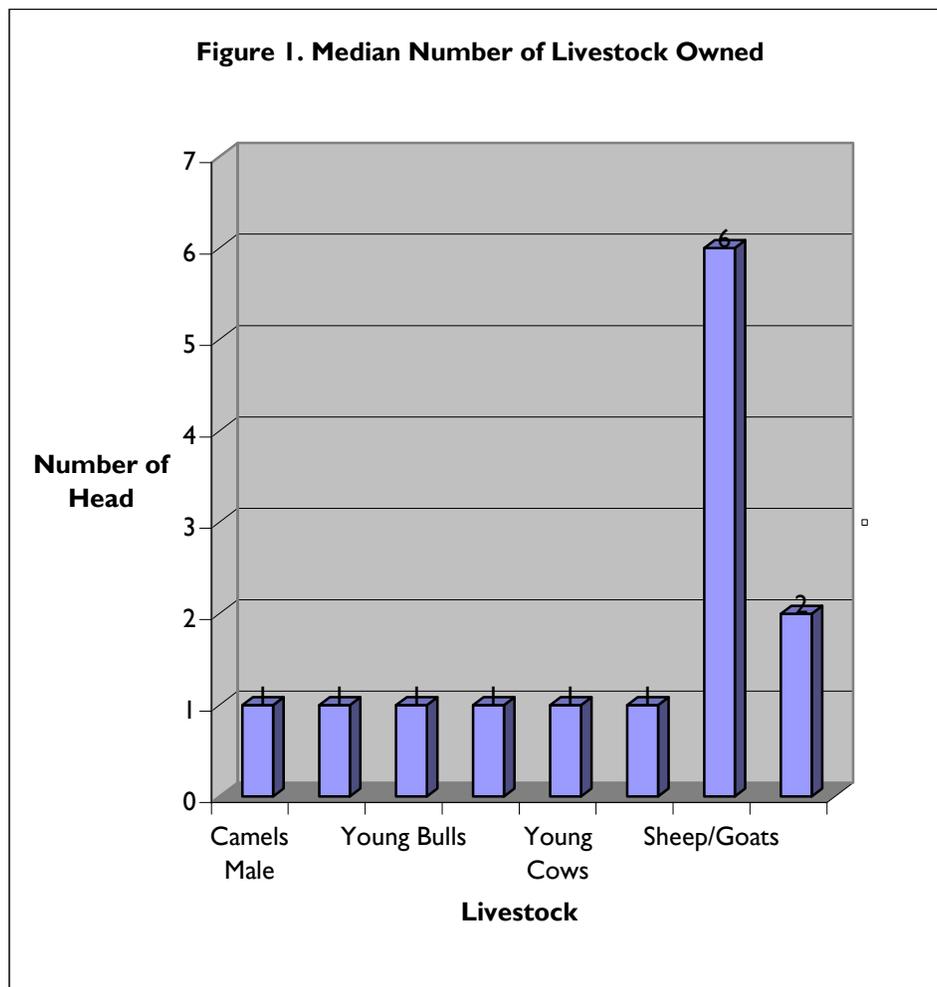


Figure 2. Percentages of Increased and Decreased Animals

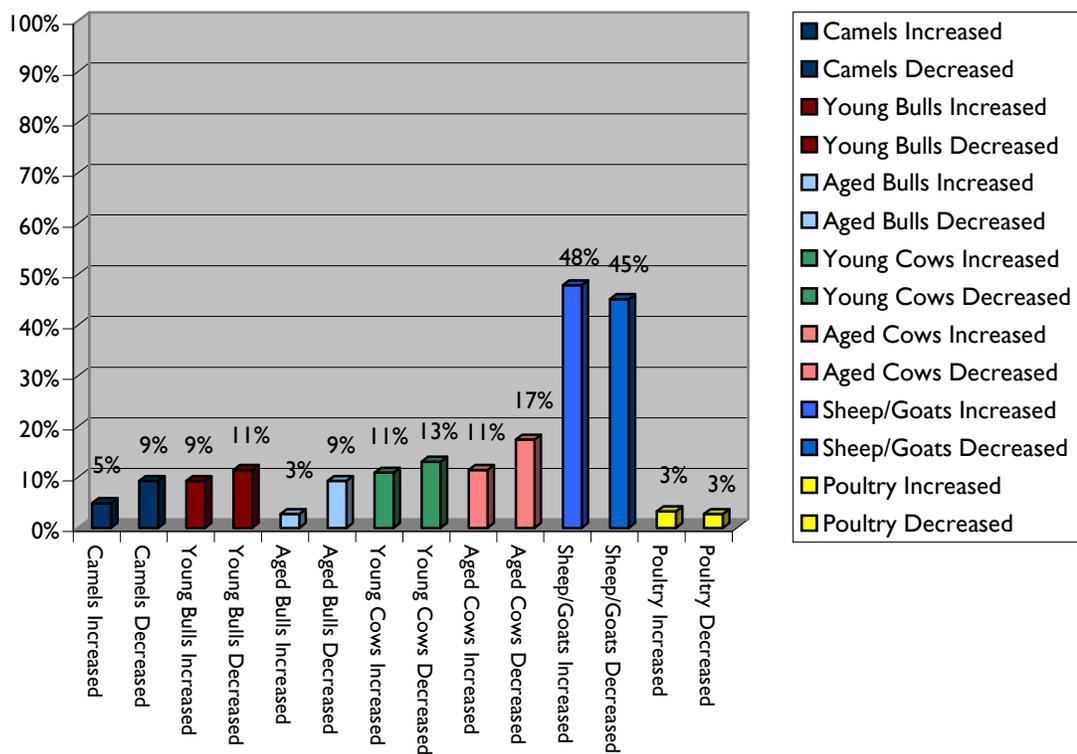
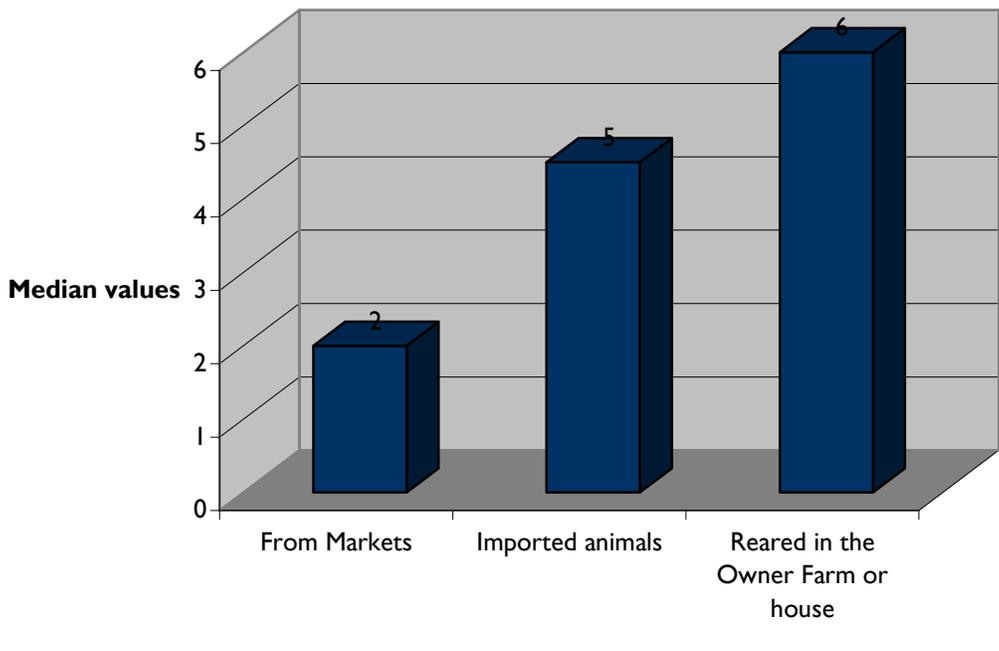


Figure 3. Origin of Animals



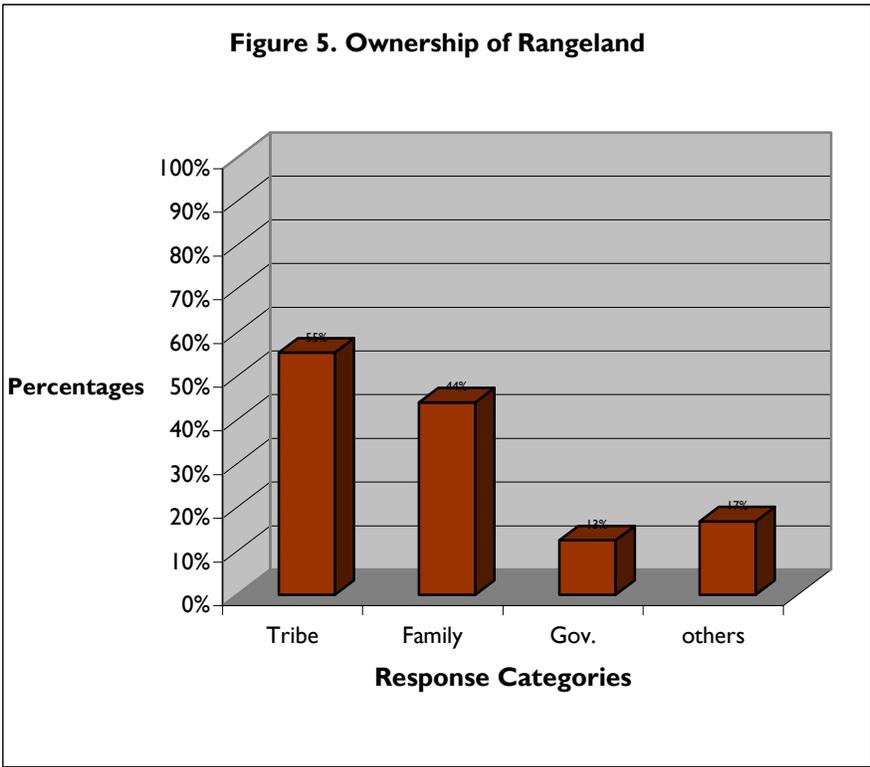
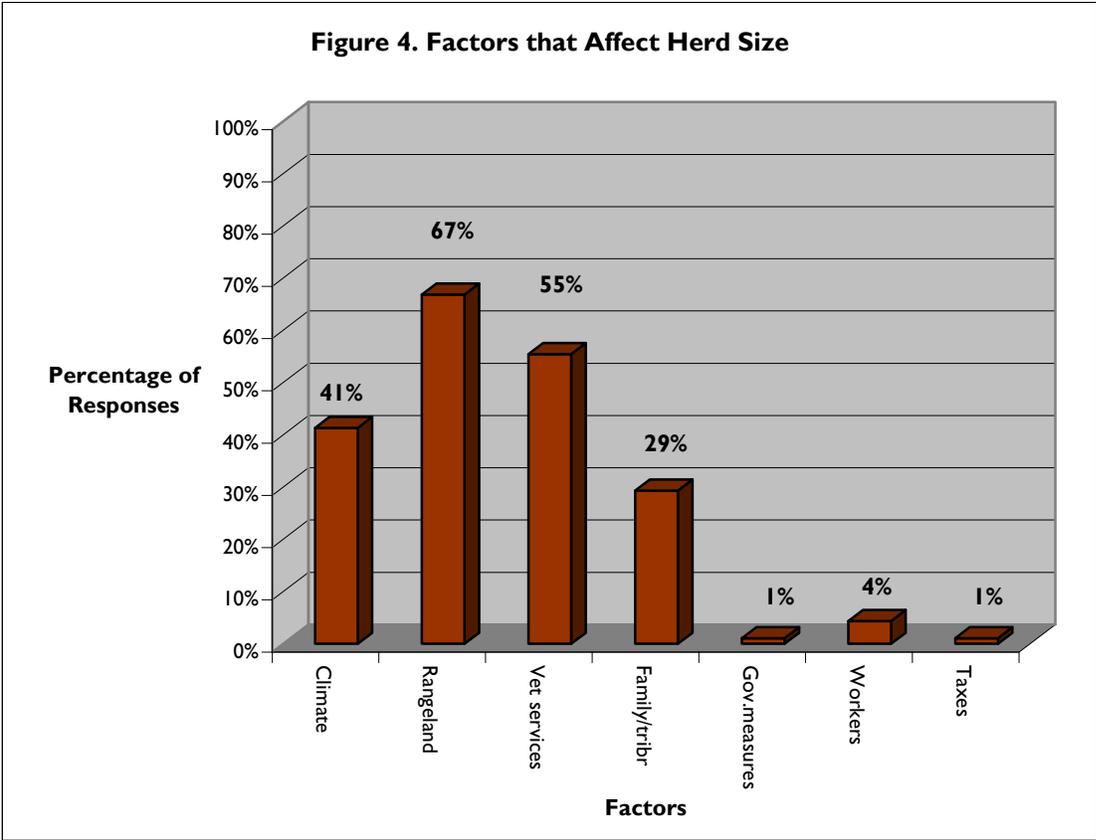


Figure 6. Most Common Disease Conditions

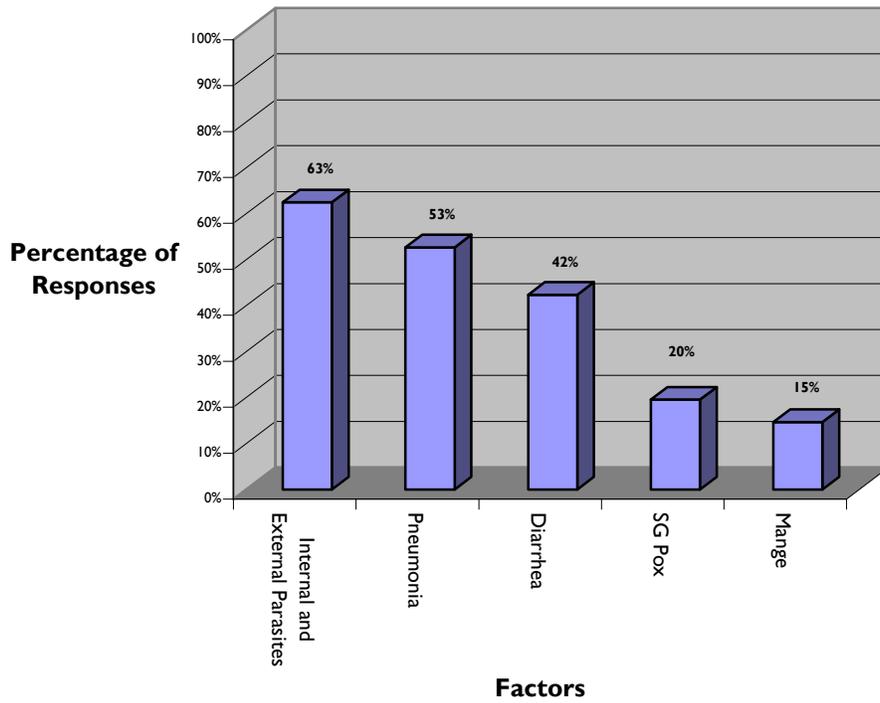
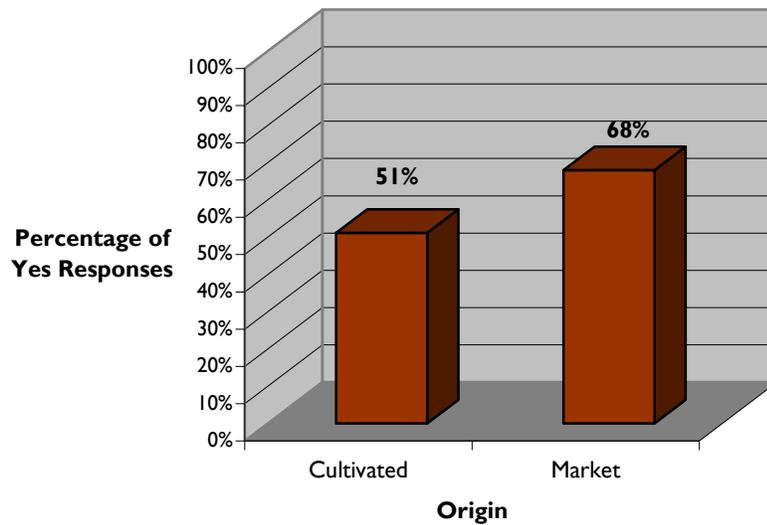


Figure 7. Feed Origin



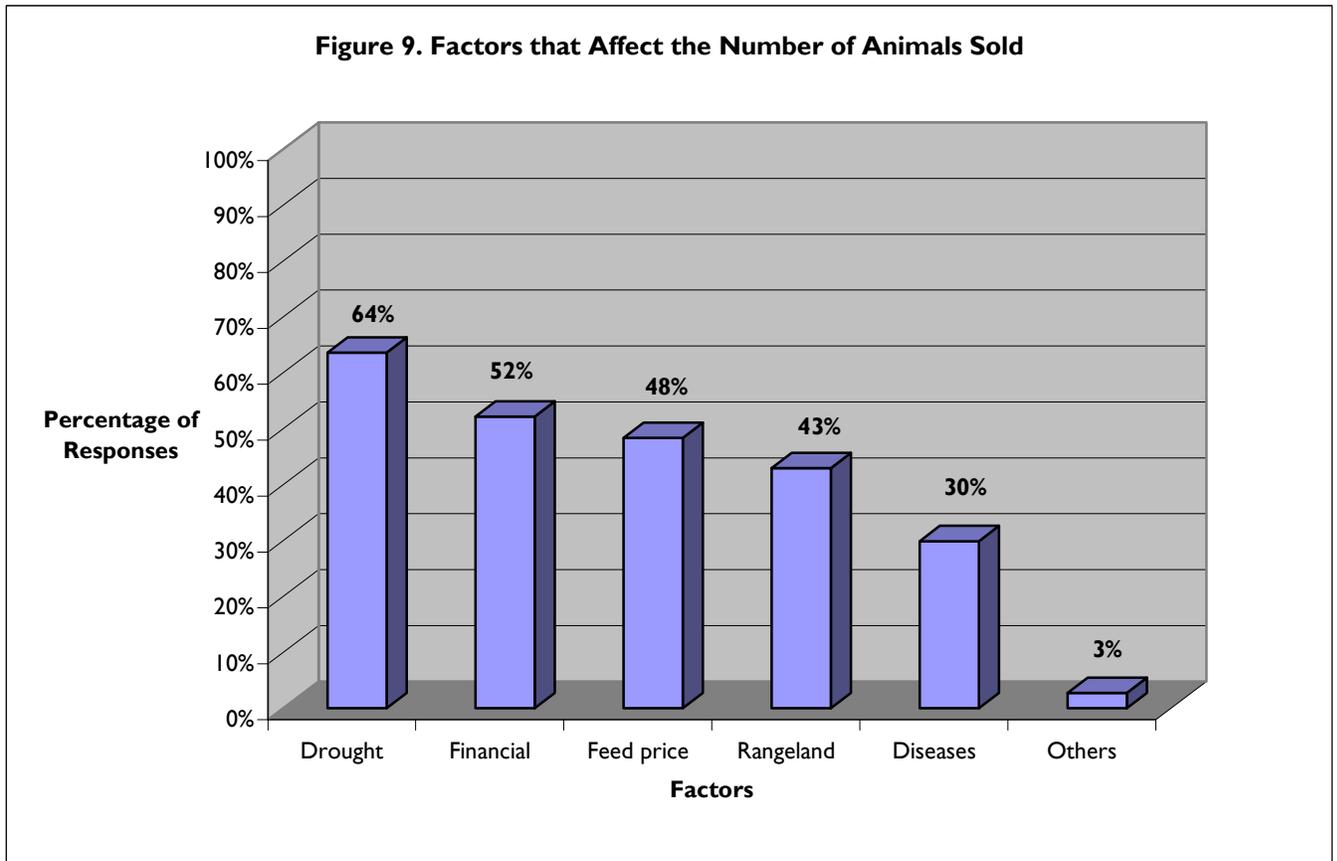
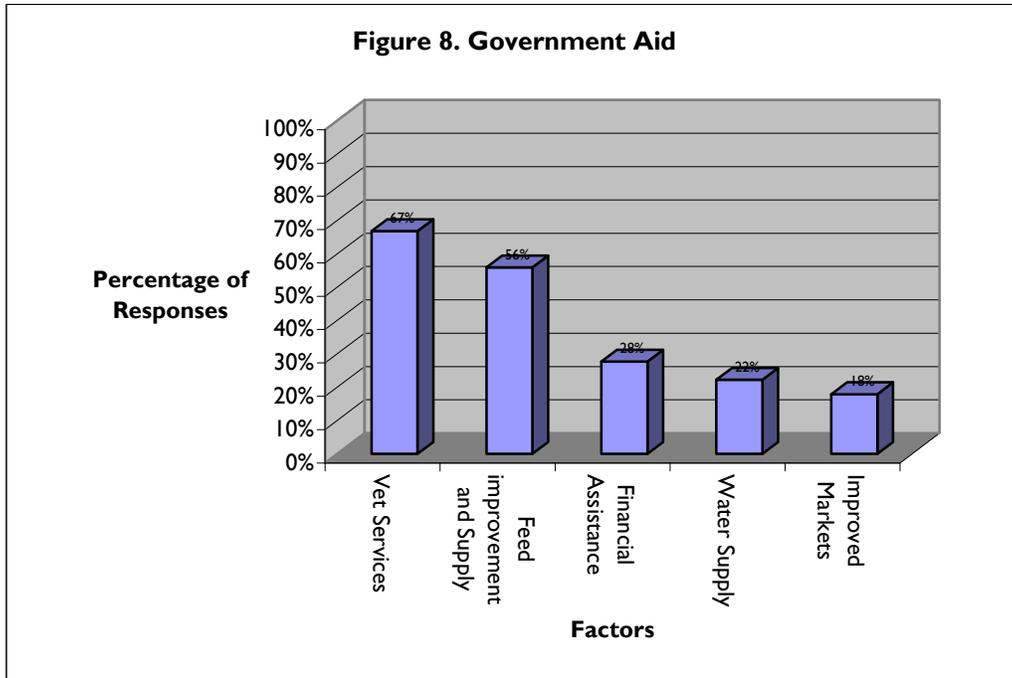


Figure 10. Median % of Animals Sold

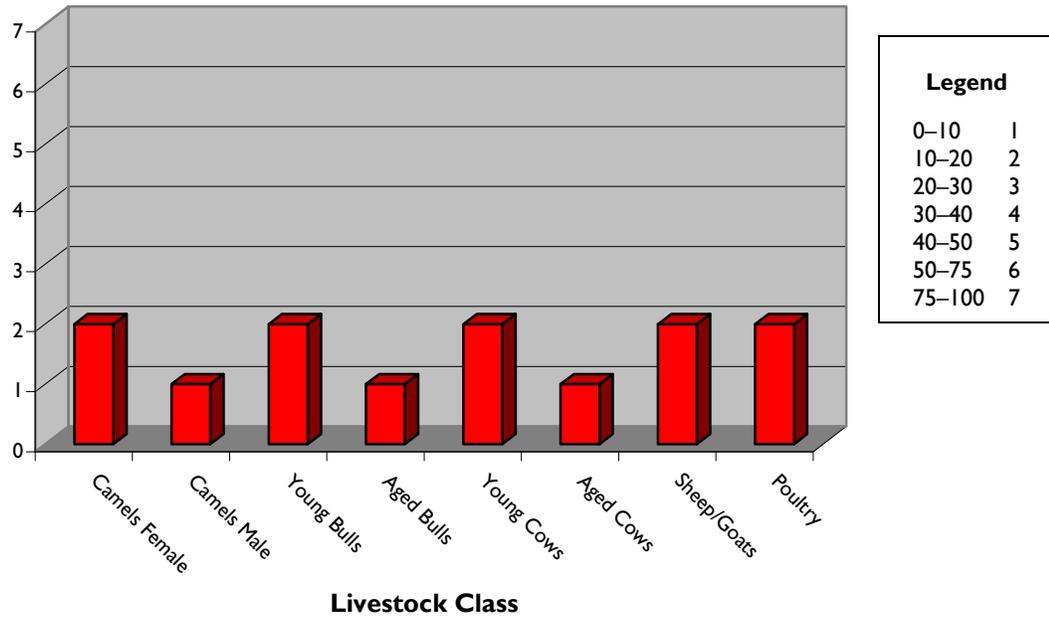
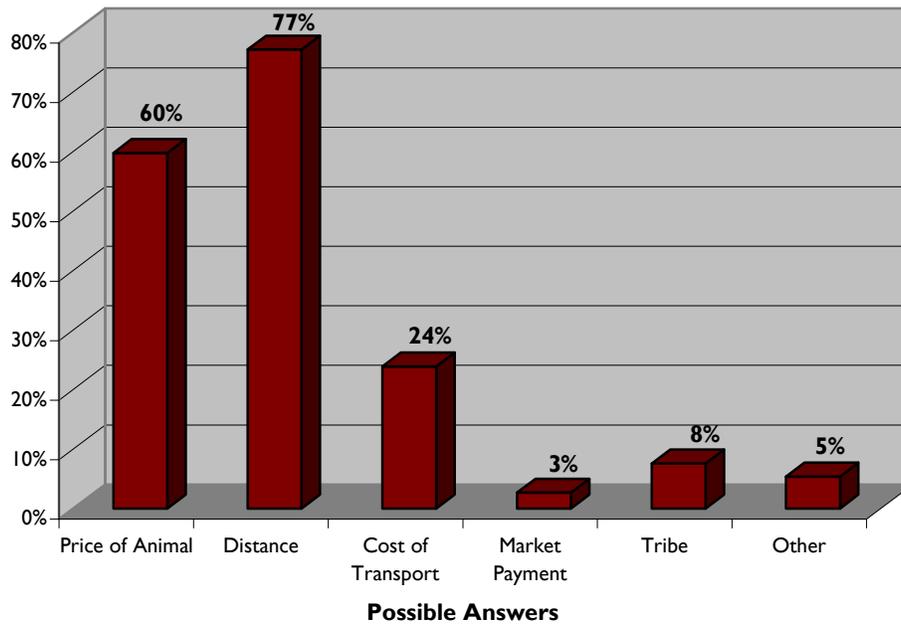
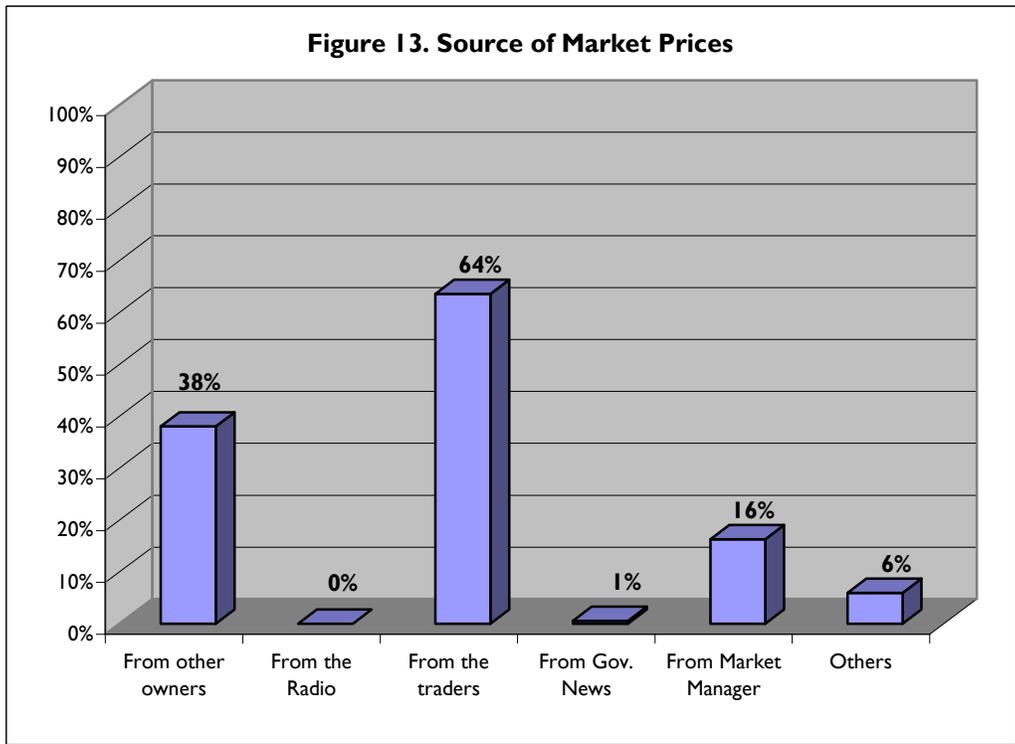
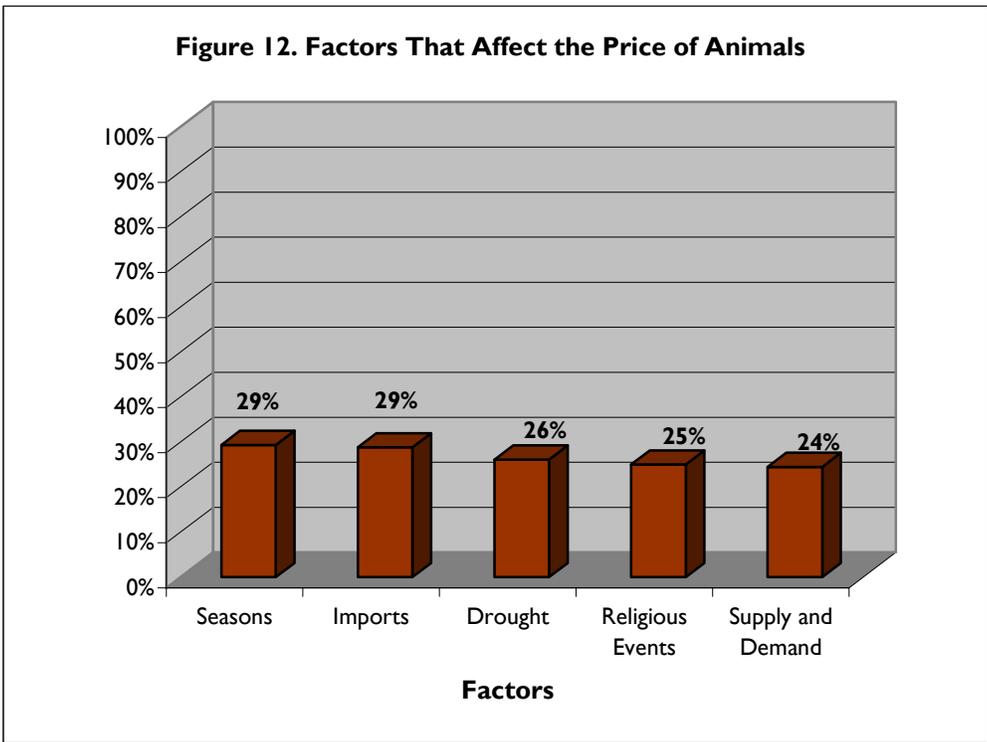
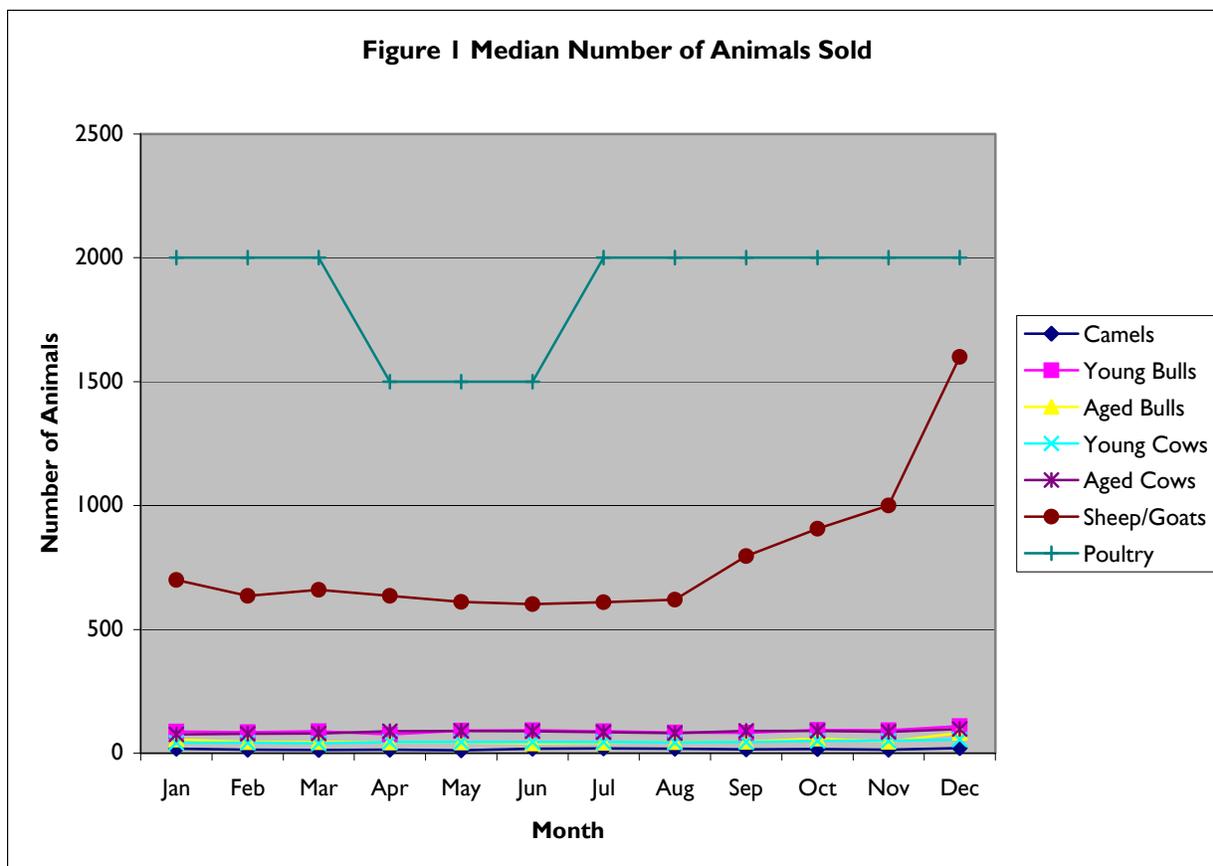


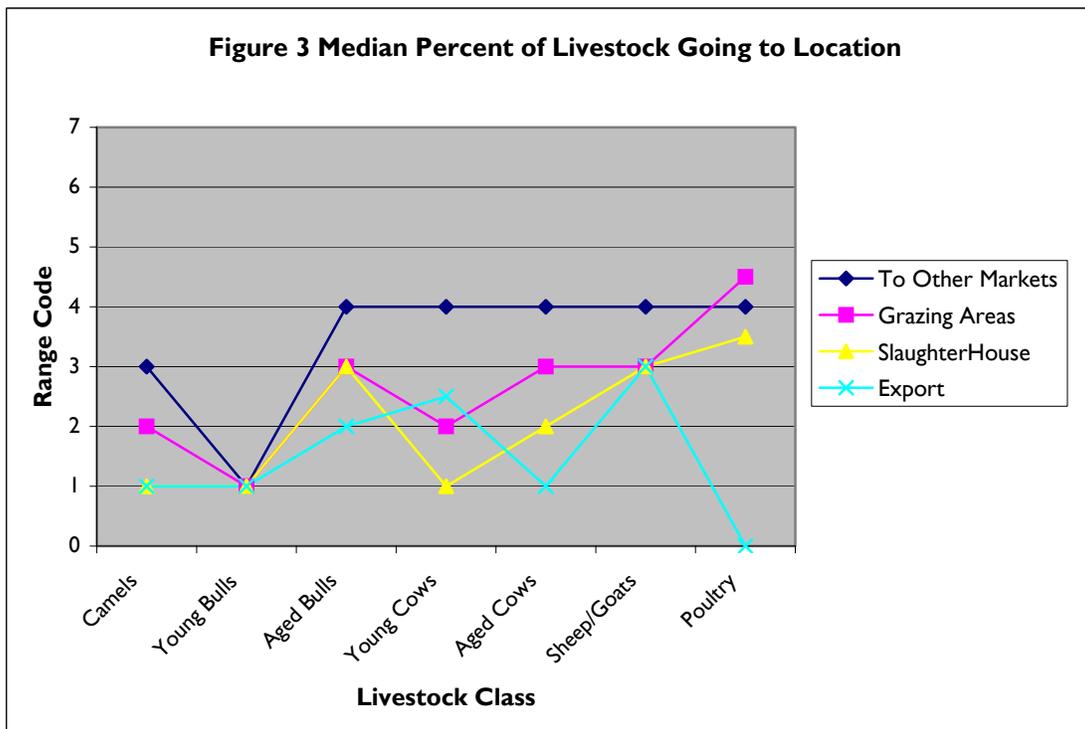
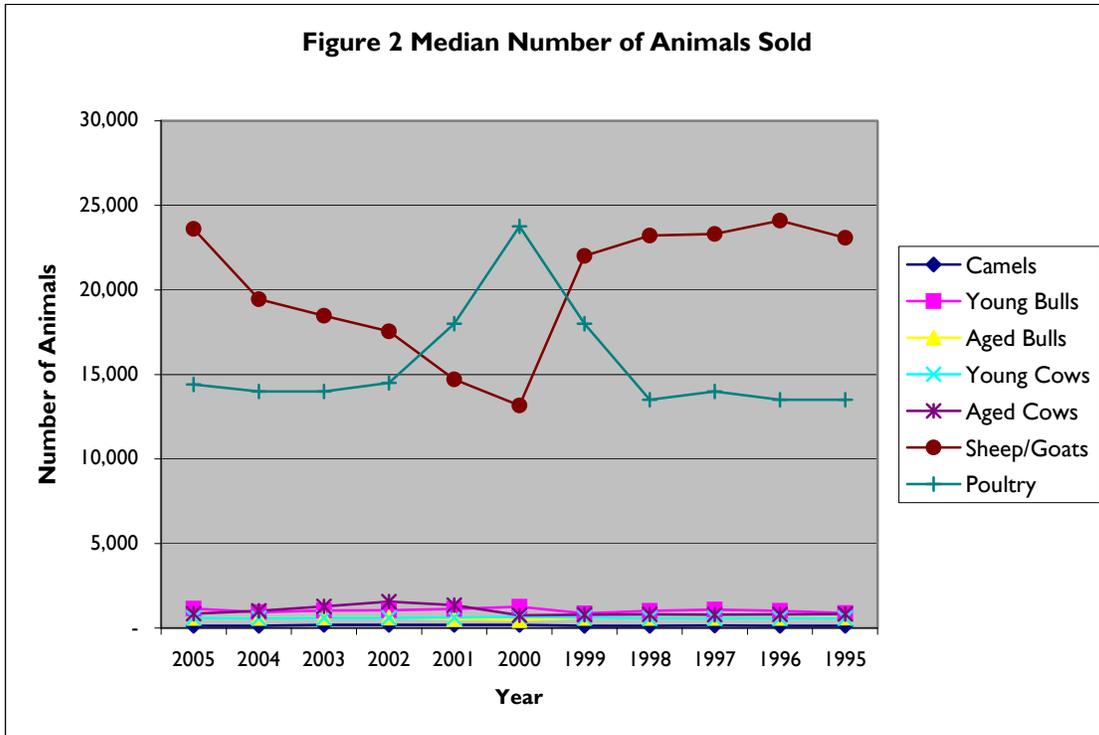
Figure 11. Market Selection Factors





ANNEX 8. MARKET/TRADER CHARTS AND TABLES





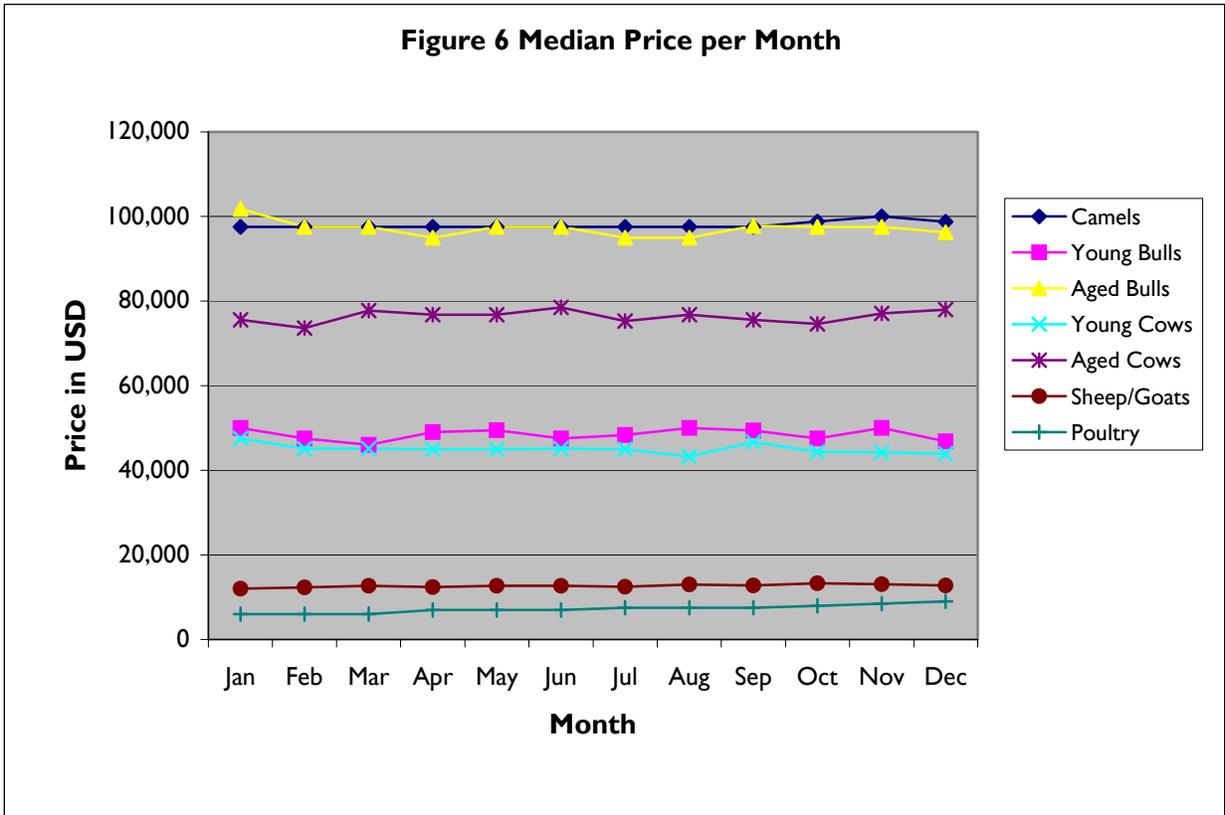
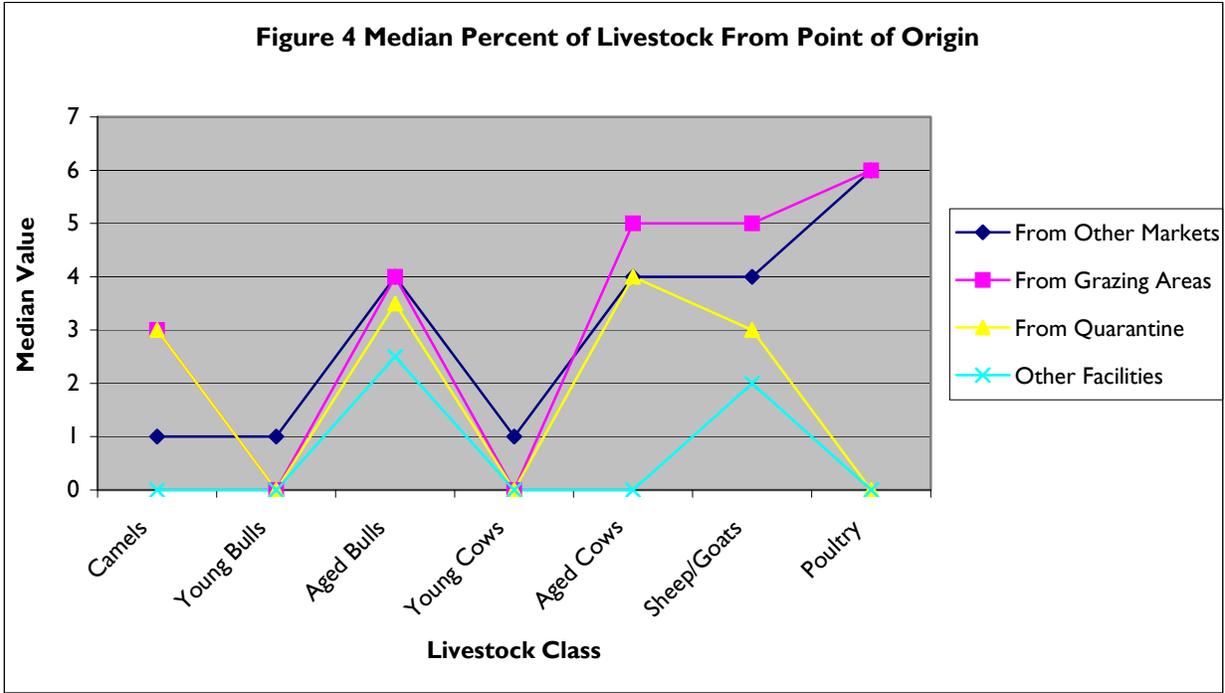


Figure 7 Total Number of Livestock Slaughtered by All Facilities

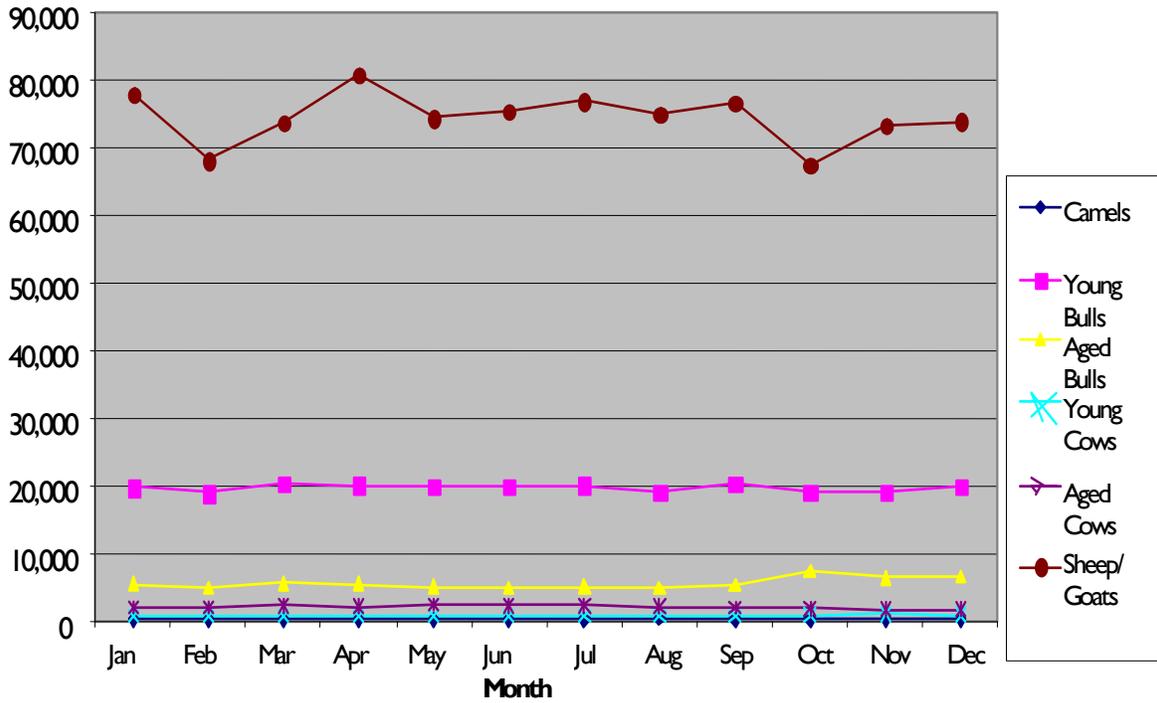
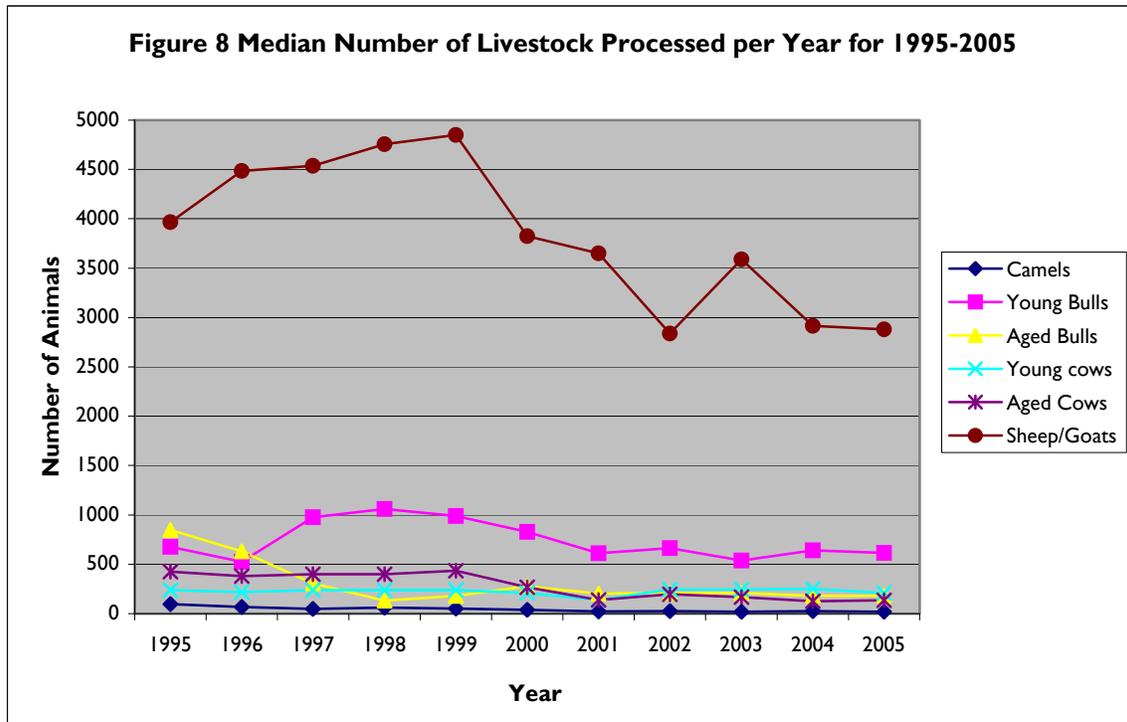
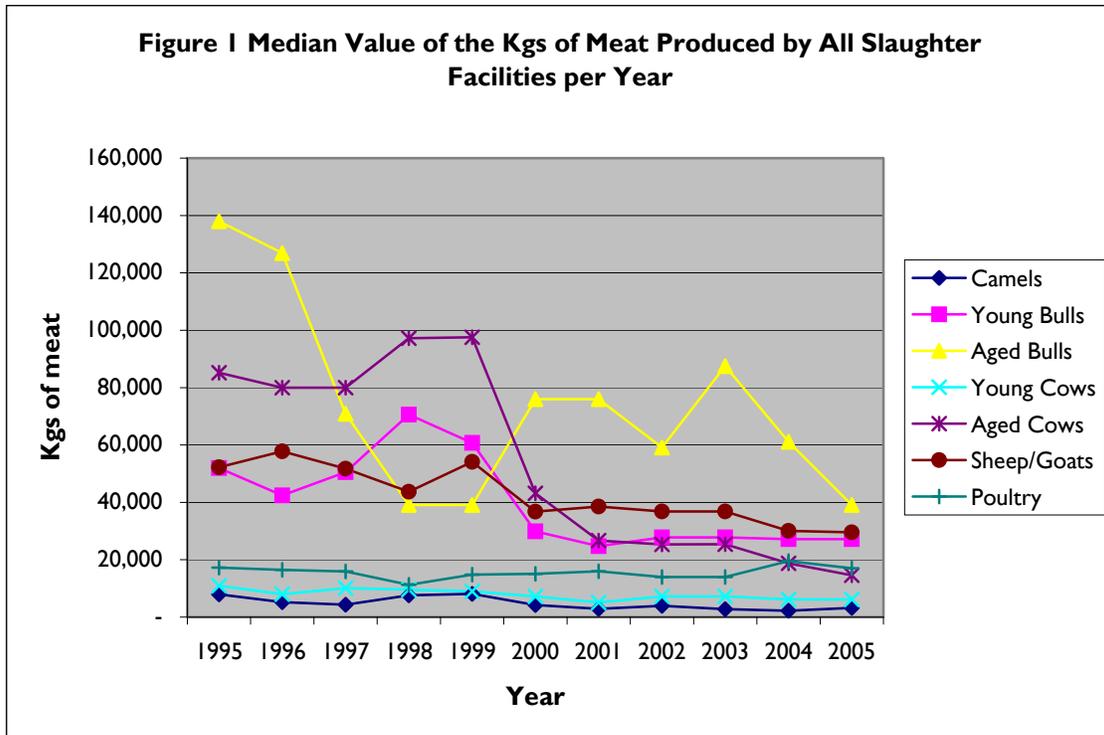


Figure 8 Median Number of Livestock Processed per Year for 1995-2005



ANNEX 9. SLAUGHTER FACILITY CHARTS AND TABLES



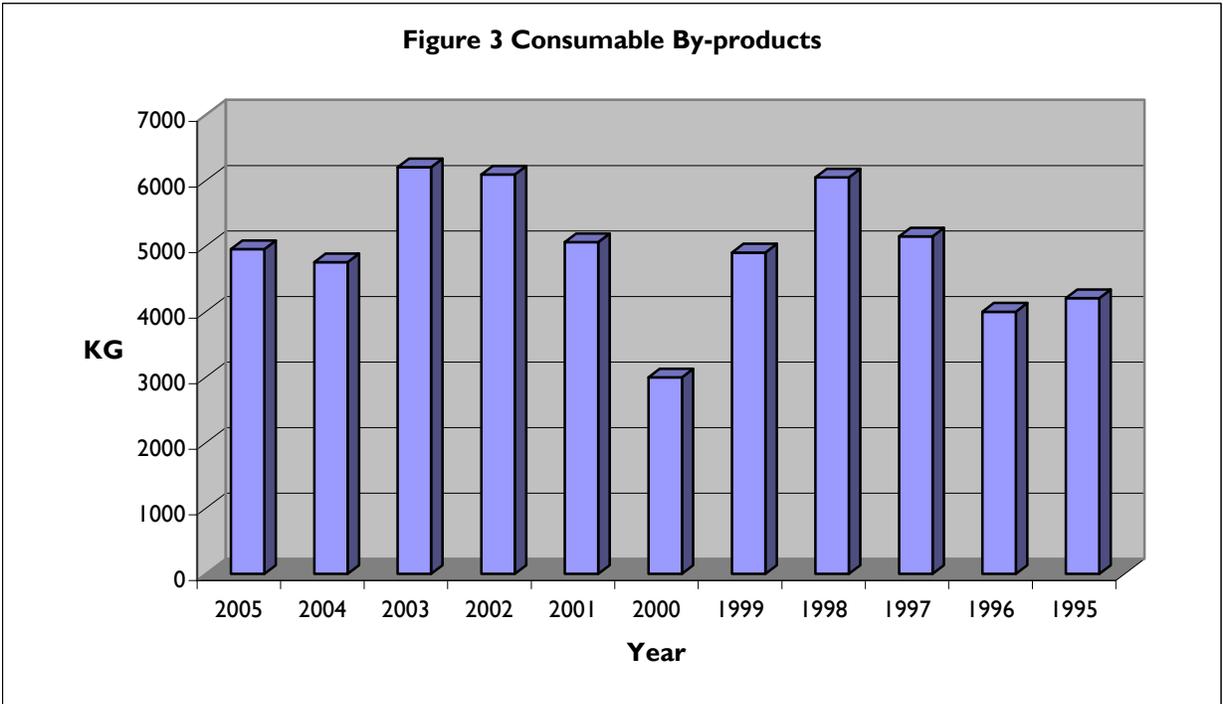
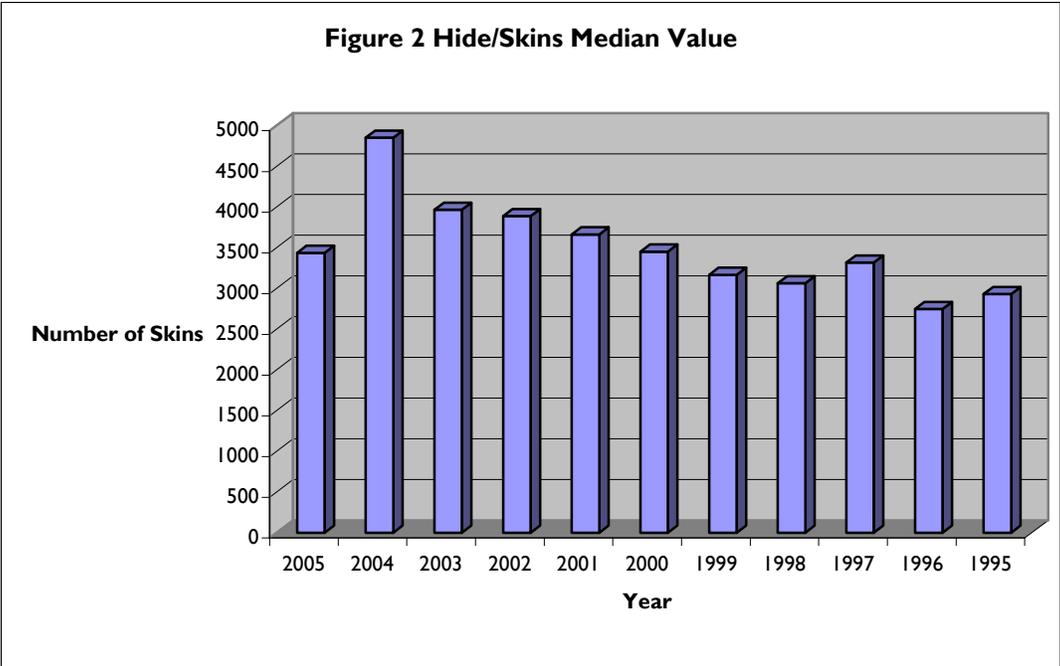


Figure 4 Median Number of Increase w/o Improvement

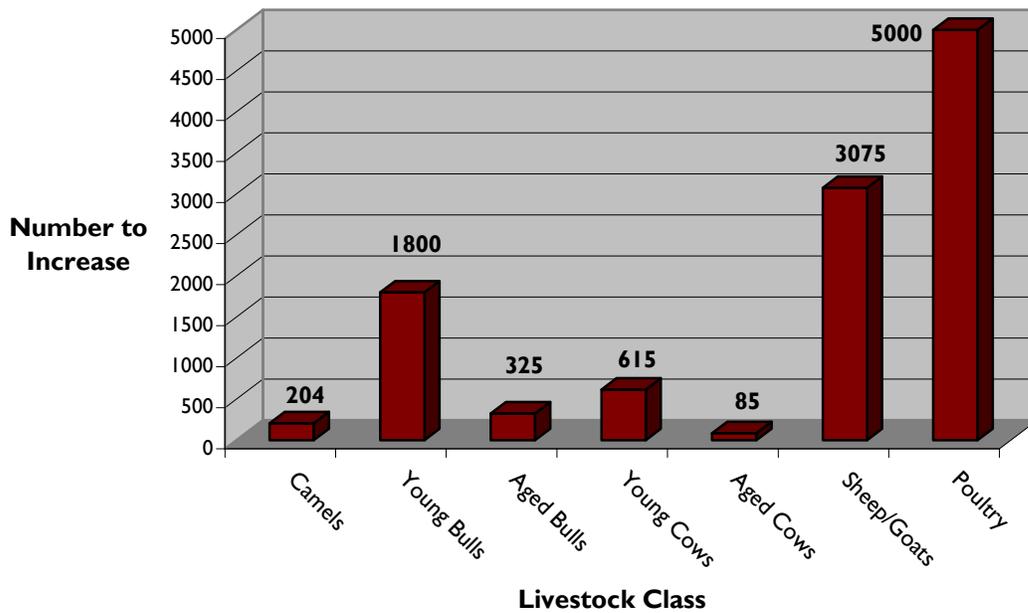


Figure 5 Median Charges Paid for the Processing of Livestock at the Surveyed Facilities

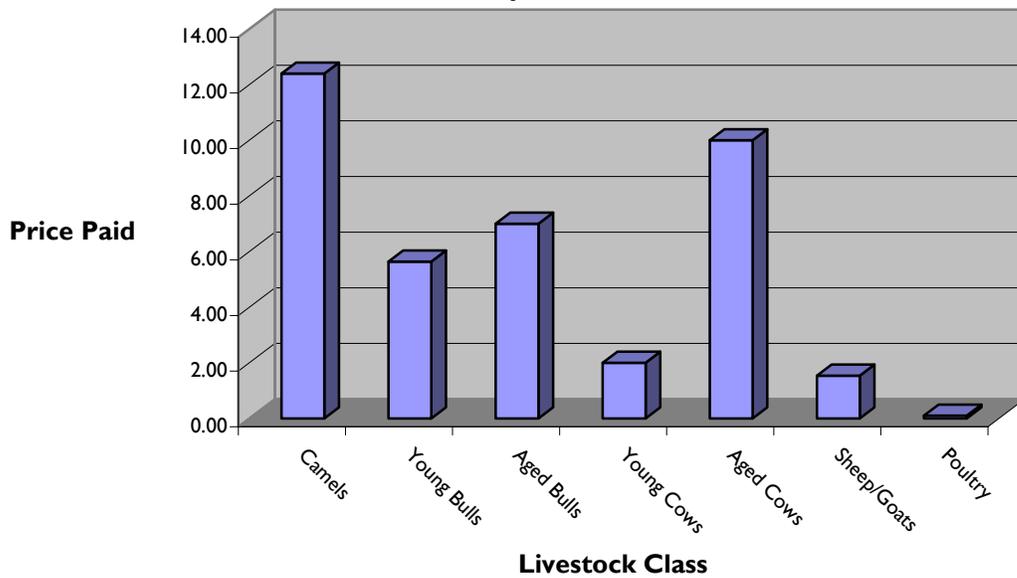


Table 1. Frequency of Diseases Observed at All Slaughter Facilities in 2005

	CAMELS	YOUNG BULLS	AGED BULLS	YOUNG COWS	AGED COWS	SHEEP/ GOATS	POULTRY
Pneumonia	2	3	5	5	4	6	
FMD		1	1		3	10	
Parasites	25	5	18	3	21	15	
Diarrhea						2	10
Mange	1	1				7	
Tuberculosis			1			2	
Fractures		1	1	1	8	2	
Abscesses					18	15	
S & G Pox						19	

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