

BIBLIOGRAPHY

MENCIO, LANDO C. APRIL 2007. Perceptions and Actual Practices of Meat Vendors on Meat Safety and Quality in La Trinidad, Benguet. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

This study was conducted to determine the perceptions and actual practices of meat vendors on meat safety and quality in La Trinidad, Benguet. Specifically, it identified the perceptions and actual practices of the meat vendors on hygienic practices on meat vending, perceptions of meat vendors on quality physical properties of meat and actual quality physical properties of meat displayed.

This study conducted along the Km. 4 to Km. 6, La Trinidad, Benguet, with a total of 20 meat vendors as respondents.

Findings showed that most of the respondents are along the Km. 5 national road. More of the respondents belong to the 31-40 age group and most of them had attained college level. Most of the respondents are the business proprietors, operated for around 1-10 years and half of the respondents had attained training related to meat safety and quality.

Most of the respondents claim that they ensure the safety of meat that they sell and also all of them claim that they ensure the quality physical properties of meat that they sell.

All beef vendors know the standard for color of lean and texture while some knew the standards for firmness and marbling. Most pork and chicken meat vendor knew the standard characteristics of quality meat. Those vendors who knew such standard sold meat with these characteristics.

All or almost all of the respondents knew of acceptable hygienic practices on cleaning inputs, handling inputs and potable water, and that they indeed try to adhere to these standards. On hygienic practice on cold storage, at least half of the respondents were aware.

Most of the respondents in indoor areas were knowledgeable on the hygienic practice on area/place of selling, and that they indeed try to practice these standards.

Most or majority of the respondents in outdoor areas were aware on the hygienic practice on area or place of selling. But in actual practice observed, some of these standards were not applied.

All or almost all of the respondents were aware on the vendor's personal hygienic practice. But in actual practice observed, all were not wearing mask and only few were wearing head covering.

All most or most of the respondents were knowledgeable on hygienic practice on meat marketing (permanent stall). But in actual practice observed, some of the respondents did not strictly maintain stall cleanliness.

Almost all or most of the respondents knew of acceptable hygienic practice on meat marketing (protection and sale of meat products). But in actual practice observed, some of these standards were not met.

Most of the respondents were aware on their responsibility, concerning hygiene and protection of the meat products they handle or sell.

All or almost all of the respondents knew of the hygienic practice on handling and disposal of waste and pest control. In actual practice observed, some of these standards were not practice.

Lastly, majority of the respondents claim that buying price of meat supplies were always high, most of them claim that demand of meat were sometimes low and few claim that meat stall is small in space and monopoly on meat supplies.



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INTRODUCTION

Rationale

Food safety and quality assurance are issues in the present global economy. There is now a wide range of food products are being imported into the country. This provides greater dietary diversity, year round availability and often, lower prices to consumers. Locally, our food industry is also competing by introducing new products. However, consumers are becoming more conscious about the safety and quality of the food that they eat.

In terms of meat, the Consolidated Monthly Slaughter Report of National Meat Inspection Service (NMIS) on July 2006 in Benguet is 552,787 kilograms for the meat of beef, carabeef, pork and chevon. This shows that meat occupies a major portion on the diet of Benguet people.

Delivering safety meat to the table is the culmination of the work of many people, slaughterhouses, transporters, meat vendors and others perform actions every day that may affect the safety of meat. FAO (1991), published that meat comes in contact with dirty hands, clothing, and equipment or facilities results to contamination of the meat.

Sanitation is important to control the environment influences that may badly affect the safety and visual acceptability, appearance and shelf life of meat. Code of Hygienic Practice for Fresh Meat Team, (2005)

Price and Schweiger (1971), stated that quality meat is a combination of traits that provide for an edible product that is attractive in appearance, appetizing, nutritious and palatable after cooking.



Statement of the Problem

1. What are the general demographics and business operations information on the meat vendors?
2. What are the perceptions of meat vendors on standard quality fresh meat of beef, pork and chicken in terms of physical properties?
3. What are the perceptions of meat vendors on correct hygienic practices on fresh meat vending?
4. What are the problems encountered of meat vendors on meat vending?
5. What are the actual practices of meat vendors on hygienic practices on fresh meat vending and actual qualities of meat displayed in terms of physical properties?

Objectives of the Study

1. To determine the general demographics and business operations information on the meat vendors.
2. To determine the perceptions of meat vendors on standard quality fresh meat of beef, pork and chicken in terms of physical properties.
3. To determine the perceptions of meat vendors on correct hygienic practices on fresh meat vending.
4. To determine the problems encountered of meat vendors on meat vending.
5. To determine the actual practices of meat vendors on hygienic practices on fresh meat vending and actual qualities of meat displayed in terms of physical properties.



Importance of the Study

This study was conducted to determine if the meat vendors of La Trinidad, Benguet, specifically, along the Km. 4 to Km. 6 national road have correct perceptions on hygienic practices on meat vending and standard quality physical properties of meat. This also determines if the meat vendors apply the hygienic practices on meat vending and if they have quality meat displayed.



REVIEW OF LITERATURE

Philippine Standard Quality Physical Properties of Meat

Quality beef has (1.) bright red to dark brick red color of lean (2.) firm (3.) moderately coarse texture and (4.) whitish yellow and firm marbling.

Quality pork has (1.) grayish red to pinkish color of lean (2.) firm (3.) coarse texture and (4.) pure white, finely granular and soft marbling.

Quality chicken has (1.) pale but there are also red muscles colors of lean (2.) firm (3.) tender, soft and smooth textured skin and (4.) variable in consistency and color but generally soft and oily marbling.

Code of Hygienic Practice for the Sale of Fresh Meat in the Market

Requirements for Inputs

Cleaning. (1.) All meat particles in the utensils, containers, materials and equipment should be removed before being thoroughly cleansed in lukewarm water with soap and acceptable detergent. (2.) If running water is not used, the wash water should be changed frequently. (3.) Detergents and disinfectants used to clean and disinfect working surfaces, utensils, water outlets and other components should, as far as possible, be non-toxic and non-corrosive. (4.) Detergents and disinfectants must be kept away from areas where meat and meat products are displayed.

Handling. (1.) Containers, utensils and working surfaces for meat handling should be of a non-toxic material, non-corrosive, non-absorbent, free from cracks and easy to clean and disinfect and not be used for any other purposes. (2.) Containers should be



insulated and provided with cover at all times. Containers for carcass, blood and internal organs should be separated and shall be loaded only with one kind of product, or at least, with products not likely to contaminate each other. (3.) Chopping blocks shall be made of even, impervious and easily cleaned materials and free of cracks and crevices. (4.) Previously used containers for substances that are toxic or harmful to human health, such as insecticides, paints or motor oil, etc. must not be use. (5.) Utensils, table surface, cutters, cutting knives, water outlets/faucets and other equipment should be good condition, properly maintained, washed with potable water and disinfected as appropriate. (6.) All utensils, containers and stall materials should be treated before and after the day's work, dried and kept in sanitary container/cabinet.

Cold storage. (1.) Cold storage facilities/freezers should be provided with thermometer, have adequate capacity to maintain a temperature of 50°C or less at all times. (2.) Cold storage rooms/freezers shall be kept clean, free from objectionable odor, and in good repair. The following temperature should be maintained:

- Chilling temperature - 0 to 4°C
- Refrigeration temperature - 5 to 18°C
- Freezing temperature - below 0°C

Potable water. (1.) Water for general purposes (washing inputs and recipients) should be potable. (2.) Water storage (e.q., tanks, drums, etc.) should be covered, kept cleaned and provided with faucet. (3.) Potable water supply should be sufficient for all needs. When not from a public source of potable water, the water must be of similar quality. (4.) Transported potable water should be kept in an appropriate container (easy to clean, non-toxic material fitted with cover) to prevent contamination. (5.) Waste water



must be adequately disposed of and not present a hazard to potable water, surrounding area or meat handlers.

Requirements for the Area or Place of Selling

Indoor areas. (1.) They should be sufficiently of light, kept as clean as possible at all times and situated far from any source of contaminants (rubbish, waste water, animals). Artificial lighting and colored containers/trays is prohibited. (2.) Signboards/stall labels should be placed in an area where it could not be a source of meat contamination. (3.) Meat Inspection Certificate issued for the day should be displayed in a conspicuous place. (4.) Spillages should be cleaned up promptly and meat products debris should not be allowed to accumulate. (5.) No other products aside from meat and meat products shall be sold or displayed in meat area.

Outdoor areas. (1.) Fresh meat products should be sufficiently clean and protected from direct sun, dust fumes and wind. (2.) The area where the fresh meat is displayed for sale should be elevated at least 60 to 70 cm off the ground and suitable for the quantity of meat sale. (3.) The area should be used only during market days. The outdoor area should meet the same requirements specified in indoor areas.

Vendor's personal hygienic practice. (1.) Meat vendors with skin, nose and throat or bowel trouble must not handle meat product until medical clearance has been obtained. Persons with boils or septic cuts must not handle meat/meat products. (2.) Cuts, burn and sores must be covered with waterproof dressings. Fingernails must be kept clean and short and nail polished should not be used. (3.) All meat product handlers/vendors must wear suitable protective clothing, mask and head covering. (4.) Meat handlers/vendors must not smoke or whilst handling open meat products. (5.) Hands must thoroughly



washed after visiting the toilet before handling raw meat, blowing the nose handling refuse or swill, smoking and at frequent intervals during the work period. (6.) If the use of drying cloths by meat handler/vendor is avoidable, they must be kept clean and dry, disposable cloths are preferred. (7.) Meat handlers/vendors should be trained in the hygienic handling of meat products.

Requirements for Meat Marketing

Permanent stall. (1.) The sales stall should be built of solid, resistant and impermeable material and should be sufficiently high to be easily sanitized. (2.) The sales stall and its surroundings should be keep clean, free of litters and odors, in good repair and condition. (3.) Sales table surface should be slopping or incline to allow efficient downward flow of water to the drainage. (4.) Evisceration or any operation other than the cutting and grinding of meat to facilitate its sale is prohibited. (5.) Animals must not be allowed in meat stalls area. Infestations of insects or rodents must be reported immediately to the Market Administrator/Superintendent. (6.) When not in use, the sales stall should be covered. (7.) Adornments, decorative displays, promotional materials and other items may be placed in such away that they do not present a source for meat contamination.

Protection and sale of meat products. (1.) All meat and meat products for sale should come from approved sources such as accredited slaughterhouses, dressing and meat processing plants. (2.) All fresh meat should be properly stamped or branded and issued with a Meat Inspection Certificate. (3.) All meat displayed for sale should be fresh, no indication of spoilage or contamination not adulterated nor misbranded and protected from vermin. (4.) All meat must be displayed according to kind/type. (5.) Due



care shall be taken to prevent fresh meat products from falling to the floor. (6.) Meat should be held in manner where the drip from one piece does not fall on another piece. (7.) Printed or used paper or other similar articles should not be used directly for wrapping or covering meat and meat products. (8.) Meat should not be handled unnecessarily by buyers. (9.) Meat products must not be removed from the cold storage/freezers until required for serving or display. (10.) Use of formalin as preservative, colorants and other poisonous substances are prohibited. (11.) Use tongs in handling meat products to avoid direct contact. (12.) Handling money, tickets, etc. and meat at the same time is not allowed. When this is not possible, wash and disinfect hands before handling and selling meat.

Responsibility of Meat Handlers/Vendors

In addition to the stated requirements, meat handlers/vendors should be responsible for the hygiene and protection of the meat products they handle or sell, and for all aspects related to its safety. They should be authorized and duly licensed by the concerned city or municipal government.

Handling and Disposal of Waste and Pest Control

(1.) Waste containers should kept far from the meat handling area and have a cover, where possible, should be fitted with an automatic closing device. (2.) Waste containers should be of resistant material, waterproof and easy to clean; and (3.) Waste containers should be placed in such a way that they are not in contact with the floor or against a wall. (4.) Wastewater should be collected and disposed of separately from solid



wastes, if possible through direct linkage to the sewage system. It should be disposed of in the public drainage system, and not thrown onto the ground and/or into surface water such as rivers and lakes. (5.) Solid wastes, recyclable and non-recyclable should be kept separate. Their final destination should be according to provincial, city or municipal regulations. (6.) Waste products should be disposed of in such a way as not to attract insects and animals, such as flies, dogs and cats or clog drainage system. (7.) Pest control should be carried out in accordance with provincial, city, municipal and/or national regulations. Authorized technical personnel should only do the application of chemical substances for pest control. The procedure should avoid the contamination of meat, meat vendors/handlers, the public and the environment. (8.) Proper vermin abatement program shall be instituted in the market or authorized outlets.

Meat Trade Practice in La Trinidad, Benguet

According to Tiongan (2007), the usual meat trading practice in La Trinidad, Benguet is “bulto system” meaning meat traders buy directly a livestock/poultry to the backyard raisers by per kilo live weight or dress weight with a consensus price. In addition accredited slaughterhouse does not exist in La Trinidad, Benguet.

Definition of Terms

Abattoir or slaughterhouse. Premises that are approved and registered by the controlling authority in which food animals are slaughtered and dressed for human consumption.

Color of lean. The visual assessment of the color of meat/flesh of beef, pork and chicken.



Contamination. This means direct or indirect transmission of any biological or chemical agent, foreign matter or other substances not intentionally added to food that may compromise food safety or suitability.

Fresh meat. Meat that has not yet been treated in any way other than by modified atmosphere packaging or vacuum packaging to ensure its preservation except that if it has been subjected only to refrigeration, it continues to be considered as fresh.

Hygiene/sanitation. Conditions or practices conducive to health-as related to cleanliness.

Marbling. The visual assessment of the amount of intramuscularly fat interspersed within the lean tissue of beef and pork.

Meat handler/vendor. Person directly involved in the preparation, transport and sale of meat and meat products.

Meat safety. The safetiness of meat based on the Code of Hygienic Practice for the Sale of Meat in the Market.

Meat quality. The quality of meat based on its physical properties.

Perception. The process of selecting, organizing and interpreting information inputs to produce meaning.



METHODOLOGY

Locale and Time of the Study

The research study was conducted at La Trinidad, Benguet. Specifically, along the Km. 4 to Km. 6 national road.

The study was conducted from January to February 2007.

Respondents of the Study

The respondents were meat vendors along the km. 4 to km. 6 national road. There were 20 respondents who were chosen at random.

Data Collection

A survey questionnaire was used as a tool in gathering data and personal observation is also done by the researcher with the used of guide questions.

Data Gathered

1. General demographics and business operations information on the meat vendors.
2. Perceptions of meat vendors on standard quality meat of beef, pork, and chicken in terms of physical properties.
3. Perceptions of meat vendors on correct hygienic practices on fresh meat vending.
4. Problems encountered of meat vendors on meat vending.



5. Actual practices of meat vendors on hygienic practices on fresh meat vending and actual qualities of meat displayed in terms of physical properties.

Data Analysis

The data collected was consolidated, tabulated, and analyzed using frequency counts, and percentage.



RESULTS AND DISCUSSION

This part presents, analyses, and interprets the data gathered such as general demographics and business operations information of the meat vendors along the Km. 4 to Km. 6, La Trinidad, Benguet, the perceptions and actual practices of meat vendors on meat safety and quality and the problems encountered of meat vendors on meat vending.

General Demographics and Business Operations Information of the Respondents

Table 1 presents the general demographics and business operations information of the 20 respondents as to age, gender, civil status, educational attainment, location and ownership of business, number of years into meat vending, attendance to training related to meat safety and quality, source of meat supplies and types of meat sold.

Age. The age of the respondents ranged from 21 to 50 years old as shown in Table 1. More of the respondents (45%) belong to the 31-40 years age group, 7 (35%) belong to the 21-30 age group, and only 4 (20%) belong to the 41-50 age group.

Gender. Most (80%) of the respondents engaged in meat vending are males and only 4 (20%) are females.

Civil status. Out of the 20 respondents, most of them (75%) are married and 5 (25%) are single.

Educational attainment. All of the respondents had their formal education with 14 (70%) either college graduate or undergraduate and 5 (25%) either high school graduate or undergraduate.



Location of the business. As to location of the business, most (70%) of the respondents are located along the Km. 5 national road, 3 (15%) are located along the Km. 4 and another 3 (15%) are located along the Km. 6. All of them are renting the place/stall for meat vending.

Table 1. General demographics and business operations information of the respondents

PARTICULARS	FREQUENCY	PERCENTAGE
Age		
21-30	7	35
31-40	9	45
41-50	4	20
TOTAL	20	100
Gender		
Male	16	80
Female	4	20
TOTAL	20	100
Civil Status		
Married	15	75
Single	5	25
TOTAL	20	100
Educational Attainment		
Elementary	1	5
High School	5	25
College	14	70
TOTAL	20	100



Table 1. Continued...

PARTICULARS	FREQUENCY	PERCENTAGE
Location of the Business		
Along Km. 4	3	15
Along Km. 5	14	70
Along Km. 6	3	15
TOTAL	20	100
Renting the Place/Stall of Selling		
Renting	20	100
Ownership of Business		
Owned	17	85
Not owned	3	15
TOTAL	20	100
Number of Years in Meat Vending		
Below 1 year	2	10
1-10 years	13	65
11 years and above	5	25
TOTAL	20	100
Attendance to Trainings Related to Meat Safety and Quality		
Attended	9	45
Not attended	11	55
TOTAL	20	100
Source of Meat Supplies		
Accredited slaughterhouse	16	80
Accredited slaughterhouse but sometimes not accredited	4	20
TOTAL	20	100



Table 1. Continued...

PARTICULARS	FREQUENCY	PERCENTAGE
Types of Meat Sale		
Pork only	9	45
Beef, pork and chicken	4	20
Pork and chicken	4	20
Chicken only	3	15
TOTAL	20	100

Ownership of business. As to ownership of business, most (85%) of the respondents are the business proprietors and only 3 (15%) do not owned the business.

Number of years into meat vending. Table 1 shows the number of years involved in meat vending by the 20 respondents. Majority (65%) of the respondents have operated around 1-10 years, 5 (25%) for 11 years and above and only 2 (10%) for 1 year and below.

Attendance to training related to meat safety and quality. Eleven (55%) of the respondents claim to have not attended any training on meat safety and quality while 9 (45%) claim to have attended such training.

Source of meat supplies. Out of the 20 respondents, most (80%) claim that their source of meat supplies come from an accredited slaughterhouse while 4 (20%) claim that from an accredited slaughterhouse but sometimes also from non-accredited slaughterhouses. This implies that there is uncertainty in the safetiness of meat sold by only few meat vendors based on source of their meat supplies.

In reality, according to Tiongan (2007), accredited slaughterhouse does not exist



in the municipality.

Types of meat sold. Nine (45%) respondents sell pork only, 4 (20%) sell beef, pork and chicken, another 4 (20%) sell pork and chicken and only 3 (15%) sell chicken meat only. This shows that pork is the more popular meat sold among meat vendors.

Ensuring the Safetiness and Quality of Meat Sold

Table 2 reveals how the 20 meat vendors ensure the safetiness of meat they sell during meat vending and ensuring the quality physical properties of meat they sell.

Ensuring the safetiness of meat for sale during meat vending. Most (95%) of the respondents claim that they apply hygienic practices on meat vending and only 1 (5%) claim to apply only some of the hygienic practices on meat vending.

Table 2. Ensuring the safetiness and quality of meat sold

PARTICULARS	FREQUENCY	PERCENTAGE
Ensuring the Safetiness of Meat for Sale During Meat Vending		
Applying the hygienic practice on on meat vending	19	95
Applying some hygienic practice on meat vending	1	5
TOTAL	20	100
Ensuring the Meat for Sale has Quality Physical Properties		
Choosing the quality physical properties of meat when buying in the source of meat supplies	20	100



Ensuring the meat for sale has quality physical properties. All of the respondents claim that they choose the quality of meat based on physical properties when buying from the source of their meat supplies.

Perceptions on Quality Characteristics of Fresh Beef

Table 3 presents the perceptions of the 4 respondents selling beef on quality characteristics of fresh beef such as color of lean, firmness, texture, and marbling.

Color of lean. All (100%) of the respondents selling beef perceived that bright red to dark brick red is the quality color lean of fresh beef. This implies that all of the beef vendors are knowledgeable on the quality color lean of fresh beef, based on the standard quality color lean of fresh beef, which is bright red to dark brick red.

Firmness. Two (50%) of the respondents selling beef who perceive that quality beef must be firm while the other 2 (50%) say that quality beef should be soft. Based on the standard quality firmness of fresh beef, which is “firm”, only half of the respondents selling beef have correct opinion on quality firmness of beef.

Texture. All (100%) of the respondents selling beef perceived that quality beef should have a moderately coarse texture. This indicates that all of the respondents have correct idea on quality texture of beef, based on the standard quality texture of fresh beef, which is moderately coarse.

Marbling. Most (75%) of the respondents selling beef perceived that whitish yellow and firm is the quality marbling of fresh beef while 1 (25%) perceived yellow and soft. Based on the standard quality marbling of beef, which is “whitish yellow and firm”,



most of the respondents selling beef have correct perceptions on quality marbling of beef.

Table 3. Perceptions on quality characteristics of fresh beef

STANDARD	PERCEPTIONS	F	%
Color of Lean			
Bright red to dark brick red	Bright red to dark brick red	4	100
Firmness			
Firm	Firm	2	50
	Soft	2	50
TOTAL		4	100
Texture			
Moderately coarse	Moderately coarse	4	100
Marbling			
Whitish yellow and firm	Whitish yellow and firm	3	75
	Yellow and soft	1	25
TOTAL		4	100

Actual Quality Characteristics of Beef Displayed/Sold

Table 4 reveals the observed actual quality characteristics of beef displayed by the 4 respondents selling beef in terms of color of lean and marbling.

Color of lean. All (100%) respondents selling beef have a color of lean of beef displayed or sale that is bright red to dark brick red. This implies that beef vendors know the standard quality color of beef and abide by the standard.



Marbling. As to actual quality marbling of beef displayed by the 4 respondents, 3 (75%) of the respondents selling beef have marbling of beef displayed that is whitish yellow while 1 (25%) have marbling of beef displayed that is yellow. This reveals that the respondents who knew of the standard marbling for beef adhered to this standard while the one who didn't know the standard also didn't carry supplies with such standard quality.

Table 4. Actual quality characteristics of beef displayed

STANDARD	ACTUAL DISPLAYED	F	%
Color of Lean			
Bright red to dark brick red	Bright red to dark brick red	4	100
Marbling			
Whitish yellow and firm	Whitish yellow	3	75
	Yellow	1	25
TOTAL		4	100

Perceptions on Quality Characteristics of Fresh Pork

Table 5 presents the perceptions of the 17 respondents selling pork on quality characteristics of fresh pork such as color of lean, firmness, texture, and marbling.

Color of lean. Most of the respondents selling pork (88.2%) perceived that the quality color of lean fresh pork is grayish red to pinkish while only 2 (11.8%) perceived black-red. This shows that most of the meat vendors selling pork have correct perceptions



or familiar on the quality color of lean of fresh pork, based on the standard quality color of lean fresh pork, which is grayish red to pinkish.

Table 5. Perceptions on quality characteristics of fresh pork

STANDARD	PERCEPTIONS	F	%
Color of Lean			
Grayish red to pinkish	Grayish red to pinkish	15	88.2
	Black-red	2	11.8
TOTAL		17	100.0
Firmness			
Firm	Firm	11	64.7
	Soft	5	29.4
	Very soft	1	5.9
TOTAL		17	100.0
Texture			
Coarse	Moderately coarse	9	53
	Coarse	8	47
TOTAL		17	100
Marbling			
Pure white, finely granular and soft	Pure white, finely granular and soft	11	64.7
	Whitish yellow, finely granular and soft	6	35.3
TOTAL		17	100.0



Firmness. As to perceptions on quality firmness of fresh pork, 11 (64.7%) of the respondents selling pork perceive that quality pork must be firm, 5 (29.4%) say that quality pork must be soft while 1 (5.9%) says pork must be very soft. Based on the standard quality firmness of fresh pork, which is “firm”, most of the meat vendors selling pork have correct perceptions on the quality firmness of fresh pork.

Texture. Majority (53%) of the respondents selling pork perceive that the quality texture of fresh pork must be moderately coarse while 8 (47%) say that it must be coarse. This shows that majority of the pork vendors don't have the correct understanding on quality texture for fresh pork. The standard quality texture of fresh pork must be coarse.

Marbling. Majority (64.7%) of the respondents selling pork perceived that the quality marbling of fresh pork is pure white, finely granular and soft while 6 (35.3%) perceived whitish yellow, finely granular and soft. Based on the standard quality marbling of fresh pork, which is “pure white, finely granular and soft”, majority of the pork vendors have correct perceptions on quality marbling of fresh pork.

Actual Quality Characteristics of Pork Displayed/Sold

Table 6 reveals the observed actual quality characteristics of pork displayed by the 17 respondents selling pork in terms of color of lean and marbling.

Color of lean. Fourteen (82.4%) of the respondents selling pork have grayish red to pinkish color of lean of pork displayed and only 3 (17.6%) have black-red color of lean of pork displayed. This implies that those vendors aware of the standard color of lean ensure that they carry such quality stock while those who didn't know the standard had



stocks that were not of quality.

Table 6. Actual quality characteristics of pork displayed

STANDARD	ACTUAL DISPLAYED	F	%
Color of Lean			
Grayish red to pinkish	Grayish red to pinkish	14	82.4
	Black-red	3	17.6
TOTAL		17	100.0
Marbling			
Pure white	Pure white	12	64.7
	Whitish yellow	6	35.3
TOTAL		17	100.0

Marbling. As to actual quality characteristics of marbling of pork displayed, majority (64.7%) of the respondents selling pork have pure white marbling of pork displayed while 6 (35.3%) have whitish yellow of pork marbling displayed. This implies that those vendors aware of the standard marbling ensure that they carry such quality stocks while those who didn't know the standard had stocks that were not of quality.

Perceptions on Quality Characteristics of Fresh Meat of Chicken

Table 7 presents the perceptions of the 11 respondents selling meat of chicken on



quality characteristics of fresh meat of chicken such as color of lean, firmness, texture, and marbling.

Color of lean. Eight (73%) of the respondents selling meat of chicken perceived that the quality color of lean of fresh meat of chicken is pale but there are also red muscles while 3 (27%) perceived pale. This shows that most of the chicken meat vendors are knowledgeable on the quality color lean of fresh meat of chicken, based on the quality color lean of fresh meat of chicken that is pale but there are also red muscles.

Firmness. Most (73%) of the respondents selling chicken meat perceived that the quality firmness of fresh chicken meat is firm while 3 (27%) perceived soft. Based on the standard quality firmness of fresh meat of chicken, which is “firm”, most of the meat vendors selling chicken meat have correct perceptions on quality firmness of fresh meat of chicken.

Texture. Nine (82%) of the respondents selling chicken perceive that the quality texture of fresh meat of chicken must be tender, soft and smooth textured skin while 2 (18%) say that it must be tender. This implies that most of the chicken meat vendors are knowledgeable on quality texture of chicken meat, based on the standard quality texture of fresh meat of chicken, which is tender, soft and smooth textured skin.

Marbling. Majority (63.6%) of the respondents selling chicken meat perceived that the quality marbling of fresh meat of chicken is variable in consistency and color but generally firm, 3 (27.3%) perceived variable in consistency and color but generally soft and oily and only 1 (9.1%) perceived variable in consistency and color but generally firm



and oily. Results show that only 3 (27.3%) of the chicken meat vendors have correct opinion to the quality marbling of fresh meat of chicken, based on the standard quality marbling of fresh meat of chicken that is variable in consistency and color but generally soft and oily.

Table 7. Perceptions on quality characteristics of fresh meat of chicken

STANDARD	PERCEPTIONS	F	%
Color of Lean			
Pale but there are also red muscles	Pale but there are also red muscles	8	73
	Pale	3	27
TOTAL		11	100
Firmness			
Firm	Firm	8	73
	Soft	3	27
TOTAL		11	100
Texture			
Tender, soft and smooth textured skin	Tender, soft and smooth textured skin	9	82
	Tender	2	18
TOTAL		11	100
Marbling			
Variable in consistency and color but generally soft and oily	Variable in consistency and color but generally firm	7	63.6
	Variable in consistency and	3	27.3



	color but generally soft and oily		
	Variable in consistency and color but generally firm and oily	1	9.1
TOTAL		11	100.0

Actual Quality Characteristics of Chicken Meat Displayed/Sold

Table 8 reveals the observed actual quality characteristic of chicken meat displayed of the 11 respondents selling meat of chicken in terms of color of lean.

Color of lean. Most (81.8%) of the respondents selling meat of chicken have pale but there are also red muscles of color of lean of chicken meat displayed while 2 (18.2%) have pale color of lean of chicken meat displayed. This implies that most chicken meat vendors ensure the quality color lean of chicken meat that they sell.

Results show that most respondents are aware of the standard characteristics for quality chicken meat and that these vendors do follow the standard color of lean for the meat they sell.

Table 8. Actual quality characteristics of chicken meat displayed

STANDARD	ACTUAL DISPLAYED	F	%
Color of Lean			
Pale but there are also red muscles	Pale but there are also muscles	9	81.8
	Pale	2	18.2
TOTAL		11	100.0



Perceptions on Hygienic Practice on
Cleaning of Inputs

Table 9 presents the perceptions of the 20 respondents on hygienic practice on cleaning inputs.

There were 17 (85%) of the respondents who agreed that all meat particles in the utensils, containers, materials and equipment should be removed before being thoroughly washed in lukewarm water with soap and acceptable detergent. Three (15%) neither agreed nor disagreed indicating that they didn't know if such practice would be acceptable or unacceptable.

Almost all (95%) of the respondents agreed that if running water is not used, the wash water should be change frequently. Only 1 (5%) respondent was neutral. This shows that one respondent didn't know if such practice would be acceptable or unacceptable.

Almost all (95%) of the respondents agreed that detergents and disinfectants used, as far as possible, be non-toxic and non-corrosive. Only 1 (5%) disagreed.

Table 9. Perceptions on hygienic practice on cleaning of inputs

HYGIENIC PRACTICE ON CLEANING INPUTS	PERCEPTION					
	AGREE		NEUTRAL		DISAGREE	
	F	%	F	%	F	%
1. All meat particles in the utensils, containers, materials and equipment should be removed before being thoroughly washed into lukewarm water with soap and acceptable detergent	17	85	3	15	0	0



2. If running water is not used, the wash water should be changed frequently	19	95	1	5	0	0
3. Detergents and disinfectants used, as far as possible be non-toxic and non-corrosive	19	95	0	0	1	5
4. Detergents and disinfectants used must be kept away from areas where meat and meat products are displayed	20	100	0	0	0	0

All (100%) of the respondents agreed that detergents and disinfectants used must be kept away from areas where meat and meat products are displayed.

Results show that all or almost all of the respondents were knowledgeable of the acceptable hygienic practice on cleaning inputs.

Actual Hygienic Practice on Cleaning Input

Table 10 reveals the observed actual hygienic practice of the 20 respondents on cleaning input.

All (100%) respondents have kept away used detergents and disinfectants from areas where meats are displayed. This implies that all meat vendors truly apply this hygienic practice on cleaning inputs.

Table 10. Actual hygienic practice on cleaning input

HYGIENIC PRACTICE ON CLEANING INPUT	APPLIED		NOT APPLIED	
	F	%	F	%
1. Detergents and disinfectants used are kept away from areas where meat is displayed so as to not contaminate the meat	20	100	0	0



Perceptions on Hygienic Practice on Handling Inputs

Table 11 presents the perceptions of the 20 respondents on hygienic practice on handling inputs.

All (100%) of the respondents agreed that containers, utensils and working surfaces for meat handling should be non-toxic material, non-corrosive and non-absorbent.

Almost all (95%) of the respondents agreed that containers, utensils and working surfaces for meat should be free from cracks, easy to clean and disinfected and should not be used for any other purpose. Only 1 (5%) respondent neither agreed nor disagreed indicating that he/she didn't know if such practice would be acceptable or unacceptable.

Most (90%) of the respondents agreed that containers should be insulated and provided with cover at all times and containers for carcass, blood and internal organs shall be separated and only 2 (10%) respondents were neutral. This shows that few respondents didn't know if such practice would be acceptable or unacceptable.

Most (90%) of the respondents agreed that containers should be loaded with only one kind of product or at least, with products not likely to contaminate each other and 2 (10%) respondents were neutral.

Most (90%) of the respondents agreed that chopping blocks should be made of even, solid and easily cleaned materials and free of cracks and crevices. Only few (10%) neither agreed nor disagreed indicating that they didn't know if such practice would be acceptable or unacceptable.

All (100%) of the respondents agreed that containers previously used that are toxic or harmful to human, such as insecticides, paints or motor oil, etc should not be



used.

All (100%) of the respondents agreed that utensils, table surface, cutters, cutting knives, water outlets or faucets and other equipment should be in good condition, properly maintained, washed with clean water and disinfected as appropriate.

Table 11. Perceptions on hygienic practice on handling inputs

HYGIENIC PRACTICE ON HANDLING INPUTS	PERCEPTION			
	AGREE		NEUTRAL	
	F	%	F	%
1. Containers, utensils and working surfaces for meat handling should be non-toxic material, non-corrosive and non-absorbent	20	100	0	0
2. Containers, utensils and working surfaces for meat should free from cracks, easy to clean and disinfect and not be used for any other purpose	19	95	1	5
3. Containers should be insulated and provided with cover at all times. Containers for carcass, blood and internal organs shall be separated	18	90	2	10
4. Containers shall be loaded only with one kind of product or at least, with products not likely to contaminate each other	18	90	2	10
5. Chopping blocks shall be made of even, solid and easily cleaned materials and free of cracks and crevices	18	90	2	10
6. Containers previously used that are toxic or harmful to human, such as insecticides, paints or motor oil, etc. shall not be use	20	100	0	0
7. Utensils, table surface, cutters, cutting knives, water outlets or faucets and other equipment should be in good condition, properly maintained washed with clean water and disinfected as appropriate	20	100	0	0



8. All utensils, containers and stall materials should be cleaned before and after the day's of work, dried and kept in sanitary containers/cabinet	20	100	0	0
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All (100%) of the respondents agreed that all utensils, containers and stall materials should be cleaned before and after the days of work, dried and kept in sanitary container/cabinet.

Results show that all or almost all respondents were aware of the acceptable hygienic practices on handling inputs.

Actual Hygienic Practice on Handling Inputs

Table 12 reveals the observed actual hygienic practice of the 20 respondents on handling inputs.

Most (80%) of the respondents have chopping blocks made of even, solid and easily cleaned materials and free of cracks and crevices while 4 (20%) of the respondents have chopping blocks that have crevices.

All (100%) of the respondents have table surface and cutting knives are in good condition, and properly maintained.

Results show that some respondents not strict in applying some of the hygienic practice on handling inputs.

Table 12. Actual hygienic practice on handling inputs

HYGIENIC PRACTICE ON HANDLING INPUTS	APPLIED		NOT APPLIED	
	F	%	F	%
1. Chopping blocks are made of even, solid				



and easily cleaned materials and free of cracks and crevices	16	80	4	20
2. Table surface and cutting knives are in good condition and properly maintained	20	100	0	0

Perceptions on Hygienic Practice on Cold Storage

Table 13 presents the perceptions of the 20 respondents on hygienic practice on cold storage.

Majority (65%) of the respondents agreed that cold storage facilities/freezers should be provided with thermometer and should have adequate capacity to maintain a temperature of 50 °C or less at all times while 6 (30%) were neutral and only 1 (5%) disagreed. This implies that some respondents were not aware that cold storage facilities should be provided with thermometer and should be maintain at temperature of 50 °C or less at all times.

All (100%) of the respondents agreed that cold storage rooms/freezers should be kept clean, free from objectionable odor, and in good repair.

Most (80%) of the respondents agreed that chilling temperature should be maintained at 0 to 4 °C, 3 (15%) neither agreed nor disagreed indicating that they don't know the correct maintenance of chilling temperature of cold storage. Only 1 (5%) respondent disagreed.

Majority (65%) of the respondents agreed that refrigeration temperature should be maintained at 5 °C to 18 °C while 7 (35%) respondents were neutral. This implies that some respondents were not knowledgeable on this hygienic practice.

Twelve (60%) of the respondents agreed that freezing temperature should be



maintained at below 0 °C while 5 (25%) neither agreed nor disagreed indicating that they don't know the maintenance of freezing temperature of the cold storage. Only 3 (15%) respondents disagreed.

Table 13. Perceptions on hygienic practice on cold storage

HYGIENIC PRACTICE ON COLD STORAGE	PERCEPTION					
	AGREE		NEUTRAL		DISAGREE	
	F	%	F	%	F	%
1. Cold storage facilities/freezers should be provide with thermometer and should have adequate capacity to maintain a temperature of 50 °C or less at all times	13	65	6	30	1	5
2. Cold storage rooms/freezers shall be kept clean, free from objectionable odor, and in good repair	20	100	0	0	0	0
3. Chilling temperature should be maintain at 0 to 4 °C	16	80	3	15	1	5
4. Refrigeration temperature should be maintain at below 0 °C	13	65	7	35	0	0
5. Freezing temperature should be maintain at below 0 °C	12	60	5	25	3	15

Results shows that at least haft of the respondents were aware of the acceptable hygienic practice on handling inputs.

Perceptions on Hygienic Practice on Potable Water



Table 14 presents the perceptions of the 20 respondents on hygienic practice on potable water.

All (100%) of the respondents agreed that water for general purposes (washing inputs and recipients) should be potable/clean.

Most (90%) of the respondents agreed that water storage (e.g., tanks, drums, etc.) should be covered, keep cleaned and provided with faucet while 2 (10%) were neutral. This implies that few respondents were not aware if such practice would be acceptable or unacceptable.

All (100%) of the respondents agreed that the potable water supply should be sufficient for all needs. When not from a public source of potable water, the water must be of similar quality.

Table 14. Perceptions on hygienic practice on potable water

HYGIENIC PRACTICE ON POTABLE WATER	PERCEPTION			
	AGREE		NEUTRAL	
	F	%	F	%
1. Water for general purposes (washing inputs and recipients) should be potable	20	100	0	0
2. Water storage (e.g., tanks, drums, etc.) should be covered, keep cleaned and provided with provided with faucet	18	90	2	10
3. The potable water supply should be sufficient for all needs. When not from a public source of potable water, the water must be of similar quality	20	100	0	0
4. Transported potable water should be kept in an appropriate container (easy to clean, non-toxic material and fitted with cover) to prevent				



contamination	20	100	0	0
5. Waste water must be adequately disposed to not to create a hazard to potable water, surrounding area or meat handlers	20	100	0	0

All (100%) of the respondents agreed that transported potable water should be kept in an appropriate container (easy to clean, non-toxic material and fitted with cover) to prevent contamination.

All (100%) of the respondents agreed that wastewater must be adequately disposed, not to create a hazard to potable water, surrounding area or meat handlers.

Results show that all or almost all of the respondents are knowledgeable on the acceptable hygienic practices on potable water.

Perceptions on Hygienic Practice in Area or Place of Selling (Indoor Areas)

Table 15 presents the perceptions of the 12 respondents in the indoor areas on hygienic practice in area or place of selling.

Twelve (100%) of the respondents agreed that sufficient light should be available, kept clean as possible at all times and situated far from any source of contaminants (garbage, wastewater, animals).

Most (83.33%) of the respondents agreed that artificial lighting and colored containers/trays must not be use. Two (16.67%) respondents neither agreed nor disagreed indicating that they don't know if such practice would be acceptable or unacceptable.

Most (83.33%) of the respondents agreed that signboards/stall labels should be placed in an area where it could not be a source of meat contamination while (16.67%) of



them were neutral.

All (100%) of the respondents agreed that Meat Inspection Certificate issued should be displayed in a noticeable place.

Almost all (91.67%) of the respondents agreed that spillages should be cleaned up immediately and meat products waste should not be allowed to accumulate. Only 1 (8.33%) was neutral.

There were 9 (75%) of the respondents agreed that no other products aside from meat and meat products shall be sold or displayed in meat area, 2 (16.67%) respondents were neutral. This implies that some respondents didn't know if such practice would be acceptable or unacceptable. Only 1 (8.33%) disagreed.

Table 15. Perceptions on hygienic practice in area or place of selling (indoor areas)

HYGIENIC PRACTICE IN AREA/ PLACE OF SELLING (INDOOR AREAS)	PERCEPTION					
	AGREE		NEUTRAL		DISAGREE	
	F	%	F	%	F	%
1. Sufficient light should be available, kept clean as possible at all times and situated far from any source of contaminants (garbage, wastewater, animals)	12	100	0	0	0	0
2. Artificial lighting and colored containers/trays must not be use	10	83.33	2	16.67	0	0
3. Signboards/stall labels should be placed in an area where it could not be a source of meat contamination	10	83.33	2	16.67	0	0
4. Meat Inspection Certificate issued should be displayed in a noticeable place	12	100.0	0	0	0	0
5. Spillages should be cleaned up immediately and meat products waste should not be						



allowed to accumulate	11	91.67	1	8.33	0	0
6. No other products aside from meat and meat products shall be sold or displayed in meat area	9	75.00	2	16.67	1	8.33

This shows that all or almost all of the 12 meat vendors in indoor areas have correct perception on hygienic practice on area or place of selling.

Actual Hygienic Practice in Area or Place of Selling (Indoor Areas)

Table 16 reveals the observed actual hygienic practice of the 12 respondents in the indoor areas.

There were 9 (75%) of the respondents not using artificial lighting or colored containers and 3 (25%) used artificial lighting. This shows that most of the respondents were aware on the prohibition of using artificial lighting on meat vending.

Most (75%) of the respondents have no other products displayed in meat area while 3 (25%) have other products (e.g. vegetables) displayed in the meat display area. This shows that most of the respondents were aware that other products should not be displayed on the meat display area.

Table 16. Actual hygienic practice in area or place of selling (indoor areas)

HYGIENIC PRACTICE IN AREA/PLACE OF SELLING (INDOOR AREAS)	APPLIED		NOT APPLIED	
	F	%	F	%
1. Not using artificial light or colored trays to not affect the view of buyers in choosing the quality color of lean of meat	9	75	3	25
2. No other products aside from meat and meat products are displayed in meat area to not				



contaminate the meat	9	75	3	25
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Perceptions on Hygienic Practice in Area
or Place of Selling (Outdoor Areas)

Table 17 presents the perceptions of the 8 respondents in the outdoor areas on hygienic practice in area or place of selling.

All (100%) of the respondents agreed that fresh meat products should be sufficiently clean and protected from direct sun, dust, fumes and wind.

Most (87.5%) of the respondents agreed that the area where the fresh meat is displayed for sale should be high at least 60 to 70 cm off the ground and suitable for the quantity of meat for sale. Only 1 (12.5%) was neutral.

There were 5 (62.5%) of the respondents agreed that the area should be used only during market days. Three (37.5%) respondents were neutral. This implies that some respondents didn't know if such practice would be acceptable or not acceptable.

All (100%) of the respondents agreed that sufficient light should be available, kept clean as possible at all times and situated far from any source of contaminants (garbage, waste water, animals).

Most (87.5%) of the respondents agreed that artificial lighting and colored containers/trays must be avoided and 1 (12.5%) was neutral. This implies that one respondent is not aware on the prohibition of using artificial lighting on meat vending.

Most (75%) of the respondents agreed that signboards/stall labels should be placed in an area where it could not be a source of meat contamination and 2 (25%) were neutral.



All (100%) of the respondents agreed that meat Inspection Certificate issued should be displayed in a noticeable place.

All (100%) of the respondents agreed that spillages should be cleaned up promptly and meat products waste should not be allowed to accumulate.

Table 17. Perceptions on hygienic practice in area or place of selling (outdoor areas)

HYGIENIC PRACTICE IN AREA/PLACE OF SELLING (OUTDOOR AREAS)	PERCEPTION			
	AGREE		NEUTRAL	
	F	%	F	%
1. Fresh meat products should be sufficiently clean and protected from direct sun, dust, fumes and wind	8	100	0	0
2. The area where the fresh meat is displayed for sale should be high at least 60 to 70 cm off the ground and suitable for the quantity of meat for sale	7	87.5	1	12.5
3. The area should be used only during market days	5	62.5	3	37.5
4. Sufficient light should be available, kept clean possible at all times and situated far from any source of contaminants	8	100	0	0
5. Artificial lighting and colored containers/trays must be avoided	7	87.5	1	12.5
6. Signboards/stall labels should be placed in an area where it could not be a source of meat contamination	6	75	2	12.5
7. Meat Inspection Certificate issued should be displayed in a noticeable place	8	100	0	0
8. Spillages should be cleaned up promptly and meat products waste should not be allowed to accumulate	8	100	0	0



9. No other products aside from meat and meat products shall be sold or displayed in meat area	5	62.5	3	37.5
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There were (62.5%) of the respondents agreed that no other products aside from meat and meat products shall be sold or displayed in meat area and 3 (37.5%) neither agreed nor disagreed indicating that they didn't know if such practice would be acceptable or unacceptable.

Results show that all or almost all of the respondents in outdoor areas were aware of the acceptable hygienic practice on area or place of selling.

Actual Hygienic Practice in Area or Place of Selling (Outdoor Areas)

Table 18 reveals the observed actual hygienic practice in area or place of selling of the 8 respondents in the outdoor areas.

All (100%) of the respondents have protected their meat displayed from sun.

Six (75%) of the respondents do not protect their meat displayed from dust fumes and wind while 2 (25%) protected their meat displayed. This shows that most of the respondents in outdoor areas not really protect their meat from dust, fumes in wind.

Most (87.5%) of the respondents were not using artificial lighting/colored containers while 1 (12.5%) using artificial lighting. This implies that only one of the meat vendors in outdoor areas affect the sight of the buyers in choosing the quality color of lean of meat.

There were 5 (62.5%) of the respondents do not have other products displayed in meat area while 3 (37.5%) have other products displayed (vegetables, etc.) that are



slightly separated on the meat displayed, because of this there is a tendency that this can cause contamination to the meat displayed.

Table 18. Actual hygienic practice in area or place of selling (outdoor areas)

HYGIENIC PRACTICE IN AREA/ PLACE OF SELLING (OUTDOOR AREAS)	APPLIED		NOT APPLIED	
	F	%	F	%
1. Meat displayed is protected from sun so as to not cause spoilage	8	100	0	0
2. Meat displayed is protected from dust, fumes and wind	2	25.0	6	75.0
3. Not using artificial light to not affect the view of buyer in choosing the quality color of meat	7	25.0	1	12.5
4. No other products aside from meat and meat products are displayed in meat area to not contaminate the meat	5	62.5	3	37.5

Perceptions on Vendor's Personal Hygienic Practice

Table 19 presents the perceptions of the 20 respondents on vendor's personal hygienic practice.

Nineteen (95%) of the respondents agreed that meat handlers/vendors with skin, nose and throat or bowel trouble must not handle meat/meat products until medical clearance has been obtained. Only 1 (5%) respondent was neutral. This shows that one respondent is not aware on this vendor's personal hygienic practice.

All (100%) of the respondents agreed that vendor with boils or septic cuts must



not handle meat/meat products.

Almost all (95%) of the respondents agreed that cuts, burns and sores must be covered with waterproof dressings. Only 1 (5%) respondent was neutral. This shows that one respondent were not aware if such practice would be acceptable or unacceptable.

Most (85%) of the respondents agreed that fingernails must be kept clean and short and nail polished should not be used. Three (15%) neither agreed nor disagreed indicating that didn't know if such practice would be acceptable or not acceptable.

Table 19. Perceptions on vendor's personal hygienic practice

VENDOR'S PERSONAL HYGIENIC PRACTICE	PERCEPTION					
	AGREE		NEUTRAL		DISAGREE	
	F	%	F	%	F	%
1. Meat handlers/vendors with skin, nose and throat or bowel trouble must not handle meat/meat products until medical clearance has been obtained	19	95	1	5	0	0
2. Vendor with boils or septic cuts must not handle meat/meat products	20	100	0	0	0	0
3. Cuts, burns and sores must be covered with waterproof dressings	19	95	1	5	0	0
4. Fingernails must be kept clean and short and nail polished should not be use	17	85	3	15	0	0
5. Meat product vendors must wear suitable protective clothing, mask and head covering	11	55	8	40	1	5
6. Meat handlers/vendors must not smoke while handling open meat products	19	95	1	5	0	0
7. Hands must be thoroughly washed after visiting the toilet before handling raw meat	20	100	0	0	0	0
8. Blowing the nose, handling should refuse/wash	20	100	0	0	0	0



9. Meat handlers/vendors should be trained in the hygienic on handling of meat products	19	95	1	5	0	0
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Majority (55%) of the respondents agreed that meat product handlers/vendors must wear suitable protective clothing, mask and head covering, 8 (40%) were neutral and only 1 (5%) disagreed.

Almost all (95%) of the respondents agreed that meat handlers/vendors must not smoke while handling open meat products. Only 1 (5%) was neutral. This indicates that one respondent didn't know if such practice would be acceptable or unacceptable.

All (100%) respondents agreed that hands must thoroughly wash after visiting the toilet before handling raw meat.

All (100%) respondents agreed that blowing the nose and handling should refuse or wash.

Almost all (95%) of the respondents agreed that meat handlers/vendors should be trained in the hygienic handling of meat products and only 1 (5%) neutral.

Results show that all or almost all of the respondents are knowledgeable on vendor's personal hygienic practice.

Actual Vendor's Personal Hygienic Practice

Table 20 reveals the observed actual vendor's personal hygienic practice of the 20 respondents.

All (100%) of meat vendors do not have skin, nose and throat trouble. This implies that all meat vendors were aware of this hygienic practice on meat vending.

Almost all (95%) of the respondents have clean, short and not polished



fingernails while only 1 (5%) have polished fingernails. This shows that one respondent is not aware on the prohibition of polished fingernails on meat vending.

Ten (50%) of the respondents wear suitable protective clothing and another 10 (50%) not wearing.

All (100%) of the respondents not wearing mask Majority of them (85%) not wearing head covering while only 3 (15%) wear a head covering. This implies that most of the respondents not really apply this hygienic practice on meat vending.

All (100%) of the respondents are not smoking while handling meat products.

Results show that some of the vendor's personal hygienic practice was not strictly applied.

Table 20. Actual vendor's personal hygienic practice

VENDOR'S PERSONAL HYGIENIC PRACTICE	APPLIED		NOT APPLIED	
	F	%	F	%
1. Meat handlers/vendors have skin, nose and throat trouble are not handling meat and meat products to not contaminate the meat	20	100	0	0
2. Fingernails of meat vendors are clean short and not polished to not contaminate the meat	19	95	1	5
3. Meat handlers/vendors wear suitable protective clothing	10	55	10	50
4. Meat handlers/vendors wear mask	0	0	20	100
5. Meat handlers/vendors wear head covering	3	15	17	85
6. Meat handlers/vendors are not smoking while handling meat products to not				



contaminate the meat	20	100	0	0
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Perceptions on Hygienic Practice on Meat
Marketing (Permanent Stall)

Table 21 presents the perceptions of the 20 respondents on hygienic practice on meat marketing (permanent stall).

Almost all (95%) of the respondents agreed that the sales stall should be built of solid, resistant and impermeable material and should be sufficiently high to be easily sanitized. Only 1 (5%) was neutral.

All (100%) respondents agreed that the sales stall and its surroundings should be kept clean, free of litters and odors in good condition.

Seventeen (85%) of the respondents agreed that any operation other than the cutting and grinding of meat to facilitate should be avoided. Three (15%) were neutral. This implies that some of the respondents were not aware if such practice would be acceptable or unacceptable.

All (100%) of the respondents agreed that animals must not be allowed in meat stalls area. Infestations of insects or rodents must be reported immediately to the Market Administrator.

Almost all (95%) of the respondents agreed that when not in use, the sales stall should be covered. Only 1 (5%) neither agreed nor disagreed indicating that he/she don't know if such practice would be acceptable or unacceptable.

All (100%) of the respondents agreed that adornments, decorative displays, promotional materials and other items may be placed in such away that they do not present a source for meat contamination.



Most (85%) of the respondents agreed that sales table surface should be inclined to allow efficient downward flow of water to the drainage. Three (15%) were neutral.

Table 21. Perceptions on hygienic practice on meat marketing (permanent stall)

HYGIENIC PRACTICE ON MEAT MARKETING (PERMANENT STALL)	PERCEPTION			
	AGREE		NEUTRAL	
	F	%	F	%
1. The sales stall should be built of solid, resistant and impermeable material and should be sufficiently high to be easily sanitized	19	95	1	5
2. The sales stall and its surroundings should be kept clean, free of litters and odors in good condition	20	100	0	0
3. Any operation other than the cutting and grinding of meat to facilitate should be avoided	17	85	3	5
4. Animals must not be allowed in meat stalls area. Infestations of insects or rodents must be reported immediately to the Market Administrator	20	100	0	0
5. When not in use, the sales stall should be covered	19	95	1	5
6. Adornments, decorative displays, promotional materials and other items should be placed in such away that they do not present a source for meat contamination	20	100	0	0
7. Sales table surface should be inclined to allow efficient downward flow of water to the drainage	17	85	3	15



Results show that almost all or all of the respondents have correct perceptions on hygienic practice on meat marketing for permanent stall.

Actual Hygienic Practice on Meat Marketing
(Permanent Stall)

Table 22 reveals the observed actual hygienic practice of the 20 respondents on meat marketing (permanent stall).

Most (70%) of the respondents have clean, free of litters and odors and good condition sales stall and 6 (30%) slightly dirty. This implies that some respondents not strictly apply this hygienic practice on meat vending.

Most (60%) of the respondents have sales stall surroundings are clean, free of litter and odors and good condition and 8 (40%) have dusty surroundings because it's along the national road.

Table 22. Actual hygienic practice on meat marketing (permanent stall)

HYGIENIC PRACTICE ON MEAT MARKETING (PERMANENT STALL)	APPLIED		NOT APPLIED	
	F	%	F	%
1. The sales stall is clean, free of litters and odors and good condition to not contaminate the meat	14	70	6	30
2. The sales stall surroundings are clean, free of litters and odors and good condition to not contaminate the meat	12	60	8	40
3. No other operation than cutting and grinding of meat to facilitate its sale	20	100	0	0
4. No animals in the stall area so as to not cause contamination of the meat	20	100	0	0



5. Adornments, decorative displays, promotional materials and other items placed in such away that they do not present a source for meat contamination	20	100	0	0
--	----	-----	---	---

All (100%) of the respondents have no operation than cutting and grinding of meat to facilitate its sale.

All (100%) of the respondents have no animals in the stall area to not cause contamination on the meat.

All (100%) of the respondents have placed away adornments, decorative displays, promotional materials and other items in such away that they do not present a source for meat contamination.

Results show that all or almost all of the meat vendors know the hygienic practice on meat marketing. However, observed actual practice showed that some were not strict in maintaining stall cleanliness.

Perceptions on Hygienic Practice on Meat Marketing (Protection and Sale of Meat Products)

Table 23 presents the perceptions on hygienic practice on meat marketing (protection and sale of meat products) of the 20 respondents.

Almost all (95%) of the respondents agreed that all meat and meat products for sale should come from approved sources such as accredited slaughterhouses. Only 1 (5%) was neutral. This implies that one respondent was not aware if such practice would be acceptable or not acceptable.

All (100%) of the respondents agreed that all meat displayed for sale should be fresh, no indication of spoilage or contamination, not adulterated nor misbranded and



protected from vermin (e.g. cockroaches etc.).

Most (90%) of the respondents agreed that all meat must be displayed according to kind/type. Only 2 (10%) were neutral.

Most (90%) of the respondents agreed that due care shall be taken to prevent fresh meat products from falling to the floor. Only 2 (10%) were neutral.

Most (75%) of the respondents agreed that printed or used paper or other similar articles should not be used directly for wrapping or covering meat while 5 (25%) were neutral.

Most (70%) of the respondents agreed that buyers should not handle meat unnecessarily while 5 (25%) were neutral. Only 1 (5%) disagreed. This implies that some of the respondents were not aware if such practice would be acceptable or not acceptable.

There were 13 (65%) of the respondents agreed that handling money, tickets, etc. and meat at the same time is prohibited. When this is not possible, wash and disinfects hands before handling and selling meat while 6 (30%) were neutral. Only 1 (5%) disagreed.

Most (90%) of the respondents agreed that all fresh meat should be properly stamped or branded and issued with a Meat Inspection Certificate. Two (10%) were neutral.

Most (85%) of the respondents agreed that meat products must not be removed from the cold storage/freezers until required for display while 2 (10%) were neutral. Only 1 (5%) was disagreed.

Most (80%) respondents agreed that use of formalin as preservative, colorants and other poisonous substances are prohibited while (15%) respondents disagreed. Only 1



(5%) was neutral. This shows that some of the respondents were not aware that using of formalin as preservatives is prohibited.

Majority (55%) of the respondents agreed that use tongs/gloves in handling meat products to avoid direct contact while 7 (35%) were neutral. Only 2 (10%) disagreed.

Majority (75%) of the respondents agreed that meat should be held in manner where the drip form one piece does not fall on another piece while 4 (20%) were neutral. Only 1 (5%) respondent disagreed.

Results show that at least majority of the respondents have correct opinions on hygienic practices on protection and sale of meat products.

Table 23. Perceptions on hygienic practice on meat marketing (protection and sale of meat products)

HYGIENIC PRACTICE ON MEAT MARKETING (PROTECTION AND SALE OF MEAT PRODUCTS)	PERCEPTION					
	AGREE		NEUTRAL		DISAGREE	
	F	%	F	%	F	%
1. All meat and meat products for sale should come from approved sources such as accredited slaughterhouses	19	95	1	5	0	0
2. All meat displayed for sale should be fresh, no indication of spoilage or contamination not adulterated nor misbranded and protected from vermin (e.g. cockroaches etc.)	20	100	0	0	0	0
3. All meat must be displayed according to kind/type	18	90	2	10	0	0
4. Due care shall be taken to prevent fresh meat products from falling to the floor	18	90	2	10	0	0
5. Printed or used paper or other articles should not be used directly for wrapping or covering meat	15	75	5	25	0	0



6. Meat should not be handled unnecessarily by buyers	14	70	5	25	1	5
7. Handling money, tickets, etc. and meat at the same time is prohibited. When this is not possible, wash and disinfect hands before handling and selling meat	13	65	6	3	1	5

Table 23. Continued...

HYGIENIC PRACTICE ON MEAT MARKETING (PROTECTION AND SALE OF MEAT PRODUCTS)	PERCEPTION					
	AGREE		NEUTRAL		DISAGREE	
	F	%	F	%	F	%
8. All fresh meat should be properly stamped or branded and issued with a Meat Inspection Certificate	18	90	2	10	0	0
9. Meat products must not be removed from the cold storage/freezers until required for display	17	85	2	10	1	5
10. Use of formalin as preservative, colorants and other poisonous substances should not be use	16	80	1	5	3	15
11. Use tongs/gloves in handling meat products to avoid direct contact	11	55	7	35	2	10
12. Meat should be held in manner where the drip from one piece does not fall on another piece	18	90	2	10	0	0

Actual Hygienic Practices on Meat Marketing
(Protection and Sale of Meat Products)

Table 24 reveals the observed actual hygienic practice on meat marketing (protection and sale of meat products) of the 20 respondents.

Out of 20 respondents, 17 (85%) have meat displayed for sale look fresh and no



indication of spoilage while 3 (15%) have meat displayed not fresh.

Most (90%) of the respondents have meat displayed according to type and 2 (10%) added two kinds of meat on one tray.

There were 13 (65%) of the respondents that held meat displayed in manner where the drip from one piece does not fall on another piece while 7 (35%) not held in manner.

All (100%) of the respondents do not use tongs/gloves in handling meat products to avoid direct contact.

Results show that some respondents not strictly maintaining some of the hygienic practices on protection and sale of meat products.

Table 24. Actual hygienic practice on meat marketing (protection and sale of meat products)

HYGIENIC PRACTICE ON MEAT MARKETING (PROTECTION AND SALE OF MEAT PRODUCTS)	APPLIED		NOT APPLIED	
	F	%	F	%
1. All meat displayed for sale is fresh and no indication of spoilage	17	85	3	15
2. Meat displayed according to kind/type	18	90	2	10
3. Meat held in manner where the drip from one piece does not fall on another piece so that if one piece is contaminated it will not affect the other meat	13	65	7	35
4. Using tongs/gloves in handling meat products to avoid direct contact	0	0	20	100

Perceptions on Responsibility of Meat



Handler/Vendors

Table 25 presents the perceptions of the 20 respondents on responsibility of meat vendors.

Most (90%) of the respondents agreed that meat handlers/vendors should be responsible for the hygiene and protection of the meat products they handle or sale and 2 (10%) were neutral. This shows that most of the respondents were aware of their responsibilities on meat vending.

Table 25. Perceptions on responsibility of meat vendors

RESPONSIBILITY OF MEAT HANDLER/VENDORS	PERCEPTION			
	AGREE		NEUTRAL	
	F	%	F	%
Meat handlers/vendors should be responsible for the hygiene and protection of the meat products they handle or sale	18	90	2	10

Perceptions on Hygienic Practice on Handling and Disposal of Waste and Pest Control

Table 26 presents the perceptions of the 20 respondents on hygienic practice on handling and disposal of waste and pest control.

Almost all (95%) of the respondents agreed that waste containers should be kept far from the meat handling and have a cover and, where possible, should be fitted with an automatic closing device. Only 1 (5%) respondent disagreed.

All (100%) of the respondents agreed that waste containers should be of resistant material, waterproof and easy to clean.



Most (85%) of the respondents agreed that waste containers be placed in such a way that they are not in contact with the floor or against a wall. Three (15%) were neutral, indicating that they didn't know if such practice is acceptable or unacceptable.

Most (90%) of the respondents agreed that waste water should be collected and disposed of separately from solid wastes, if possible through direct linkage to the sewage system. It should be disposed of in the public drainage system, and not thrown onto the ground and/or into surface water such as rivers and lakes. Only 2 (10%) neither agreed nor disagreed indicating that they didn't know if such practice would be acceptable or unacceptable.

Almost all (95%) of the respondents agreed that solid wastes, recyclable and non-recyclable should be kept separate. Only 1 (5%) was neutral. This shows that one respondent was not knowledgeable on this hygienic practice on meat vending.

All (100%) of the respondents agreed that waste products should be disposed of in such a way as not to attract insects and animals, such as flies, dogs and cats.

Most (85%) of the respondents agreed that pest control should be carried out in accordance with provincial, city, municipal and national regulations. Three (15%) were neutral. This implies that few respondents were not aware if this hygienic practice would be acceptable or unacceptable.

There were 13 (65%) of the respondents agreed that the application of chemical substances for pest control should only be done by authorized technical personnel. Seven (35%) respondents were neutral. This implies that few respondents were not knowledgeable on this hygienic practice.

All (100%) of the respondents agreed that the procedure on chemical application



should avoid the contamination of meat, meat vendors/handlers, and the public in the environment.

Result shows that all or almost all of the respondents are aware of the hygienic practice on handling and disposal of waste and pest control

Table 26. Perceptions on hygienic practice on handling and disposal of waste and pest control

HYGIENIC PRACTICE ON HANDLING AND DISPOSAL OF WASTE AND PEST CONTROL	PERCEPTION					
	AGREE		NEUTRAL		DISAGREE	
	F	%	F	%	F	%
1. Waste containers should be kept far from the meat handling and have a cover and, where possible, should be fitted with an automatic closing device	19	95	0	0	1	5
2. Waste containers should be of resistant material, waterproof and easy to clean	20	100	0	0	0	0
3. Waste containers be placed in such a way that they are not in contact with the floor or against the wall	17	85	3	5	0	0
4. Waste water should be collected and disposal of separately from solid waste, if possible through direct linkage to the sewage system. It should disposed of in the public drainage system, and not thrown unto the ground and/ or into surface water such as rivers and lakes	18	90	2	10	0	0
5. Solid wastes, recyclable and non-recyclable should be kept separated	19	95	1	5	0	0
6. Waste products should be disposed of in such a way as not to attract insects and animals, such as flies dogs and cat	20	100	0	0	0	0
7. Pest control should be carried out in accordance with provincial, city, municipal and/or national regulations	17	85	3	15	0	0



8. The application of chemical substances for pest control should only be done by authorized technical personnel	13	65	7	35	0	0
9. The procedure on chemical application should avoid the contamination of meat, meat vendors/ handlers, and the public in the environment	20	100	0	0	0	0

Actual Hygienic Practices on Handling and Disposal of Waste

Table 27 reveals the observed actual hygienic practice on handling of waste of the 8 respondents.

Seven (87.5%) of the respondents have kept away their waste containers and only 1 (12.5%) have waste container near on the meat displayed. This implies that only one respondent has a tendency for the meat he/she sells to be contaminated.

Waste containers of the 8 respondents have no cover. This shows that all of the respondents have tendency that the meat they sell can be contaminated from flies coming to the waste containers.

There were six (75%) of the respondents have waste containers that are waterproof while 2 (15%) respondents have not waterproof.

Table 27. Actual hygienic practice on handling and disposal of waste

HYGIENIC PRACTICE ON HANDLING AND DISPOSAL OF WASTE	APPLIED		NOT APPLIED	
	F	%	F	%
1. Waste containers should be kept far in the meat display area	7	87.5	1	12.5
2. Waste containers should have cover	0	0	8	100
3. Waste containers should be waterproof	6	75	2	15



4. Waste containers should not contact with the floor or against the wall	6	75	2	15
---	---	----	---	----

Most (75%) of the respondents have waste containers that were contact with the floor or against the wall and only 2 (15%) have not in contact with the floor but it contact with the wall.

Result show that some of the respondents were not strict in maintaining some of the hygienic practice on handling and disposal of waste.

Problems Encountered on Meat Vending

Table 28 presents the problems encountered of the 20 meat vendors on meat vending such as price, demand and other problems on meat vending.

Buying price of meat supplies. There were 11 (55%) of the meat vendors responded that the price of meat supplies are always high, 8 (40%) sometimes high and only 1 (5%) sometimes price of meat supplies is fair to other meat vendors but not fair to other meat vendors.

Demand. Most (85%) of the meat vendors responded sometimes low, 2 (10%) always low and only 1 (5%) low on pick season. This shows that majority of the meat vendors has a quite good business.

Other problems on meat vending. Two meat vendors reply other problems on meat vending as follows (1) meat stall is small in space and (2) monopoly on meat supplies.



Table 28. Problems encountered on meat vending

PROBLEMS ENCOUNTERED ON MEAT VENDING	FREQUENCY	PERCENTAGE
Buying Price of Meat Supplies		
Always high	11	55
Sometimes high	8	40
Sometimes price of meat supplies is fair to other meat vendors but not the same to other meat vendors	1	5
TOTAL	20	100
Demand		
Always low	2	10
Sometimes low	17	85
Low on peak season	1	5
TOTAL	20	100
Other Problems on Meat Vending		
Meat stall is small in space	1	5
Monopoly on meat supplies	1	5



SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study was conducted to determine the perceptions and actual practices of meat vendors on meat safety and quality in those along the Km. 4 to Km. 6, La Trinidad, Benguet. Specifically, it identified the perceptions and actual practices of the meat vendors on hygienic practice on meat vending, perceptions of meat vendors on quality physical properties of meat and actual quality physical properties of meat displayed.

The study consisted of 20 meat vendors selected randomly from the said area. A survey questionnaire and personal observation with the use of guide question was used to collect the information. Frequency and percentage was carried out as the analytical tool used.

Findings showed that more of the respondents engaged on meat vending belong to the 31-40 years age group, most are males, married and attained college level. As to location of the business most of the respondents are along Km. 5, La Trinidad, Benguet. Most of them owned the business, pork was the most popular meat sold, operated for around 1-10 years and half of the respondents attained training related to meat safety and quality.

Most of the respondents claim that they ensure the safety of meat that they sell and also all of them claim that they ensure the quality physical properties of meat that they sell.

All beef vendors know the standard for color of lean and texture while some knew the standards for firmness and marbling. Most pork and chicken meat vendor knew



the standard characteristics of quality meat. Those vendors who knew such standard sold meat with these characteristics.

All or almost all of the respondents knew of acceptable hygienic practices on cleaning inputs, handling inputs and potable, and that they indeed try to adhere to these standards. On hygienic practice on cold storage, at least half of the respondents were aware.

Most of the respondents in indoor areas were knowledgeable on the hygienic practice on area/place of selling, and that they indeed try to practice these standards.

Most or majority of the respondents in outdoor areas were aware on the hygienic practice on area or place of selling. But in actual practice observed, some of these standards were not applied.

All or almost all of the respondents were aware on the vendor's personal hygienic practice. But in actual practice observed, all were not wearing mask and only few were wearing head covering.

Almost all or most of the respondents were knowledgeable on hygienic practice on meat marketing (permanent stall). But in actual practice observed, some of the respondents did not strictly maintain stall cleanliness.

Almost all or most of the respondents knew of acceptable hygienic practice on meat marketing (protection and sale of meat products). But in actual practice observed, some of these standards were not met.

Most of the respondents were aware on their responsibility, concerning hygiene and protection of the meat products they handle or sell.

All or almost all of the respondents knew of the hygienic practice on handling



and disposal of waste and pest control. In actual practice observed, some of these standards were not practice.

Lastly, majority of the respondents claim that price of meat supplies were always high, most of them claim that demand of meat were sometimes low and few claim that meat stall is small in space and monopoly on supplies.

Conclusions

The following conclusions were made based on the findings of the study:

1. Most of the respondents engaged on meat vending are males, married, attained college level and owned the business. Most of them are along the Km. 5 national road and operated around 1-10 years.

2. Most of the respondents claim that they are knowledgeable of hygienic standards for meat quality and ensure the safety of meat that they sale by adhering to these standards. However, some of these hygienic standards were not being followed by some of the meat vendors.

3. Only half of the 20 respondents had attended training/s related to meat safety and quality, that's why some of them are not aware on the hygienic practices on meat vending and standard quality physical properties of meat.

Recommendations

Based on the results of the study, the following are recommended to ensure the safety and quality physical properties of meat that the meat vendors sell.

1. The local government office that is responsible on ensuring quality and safe



meat sold to consumers must embark on continually educating or reminding vendors on hygienic standards for meat vending.

2. The local government office concerned with product safety must continually monitor the vendor's hygienic practices.

3. The local government should look into the possibility of establishing an accredited slaughterhouse in the municipality to ensure the safety and quality of meat supplies for human consumption.



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APPENDICES

Appendix A. Communication Letter

Benguet State University
College of Agriculture
Department of Agriculture Economics
and Agribusiness Management
La Trinidad, Benguet

January 2007

Sir/Madam:

The undersigned is a fourth year Bachelor of Science in Agribusiness (BSAB) student majoring in Enterprise Management. I am presently conducting a research entitled "PERCEPTIONS OF MEAT VENDORS ON MEAT SAFETY AND QUALITY IN LA TRINIDAD, BENGUET" in partial fulfillment for the requirements of the course AB 200.

In this connection, may I ask a portion of your precious time to answer the attached questionnaire. Please answer it correctly and honestly for the success of this study. Rest assured that information you will give be kept with utmost confidentiality.

Thank you very much for your cooperation.

Respectfully yours,

(Sgd.) LANDO C. MENCIO
Researcher

Noted by:

CLIFTON D. LLANES (Sgd.)
Adviser



Appendix B. Survey Questionnaire

I. GENERAL INFORMATION

Please answer the following by filling the blanks with the necessary information and putting check mark in the choices.

A. Name:(optional)_____

B. Age:_____

C. Sex:_____

D. Civil Status:_____

E. Educational Attainment

- No formal education
- Elementary graduate
- High school graduate
- College graduate

F. Location of business _____

G. Do you rent the place/stall of selling the meat?

- Yes
- No

If no, please specify _____

H. Do you owned the business?

- Yes
- No

I. Number of year(s) in business

- Below 1 year
- 1 year
- 2 years

Others, please specify _____

J. Had you attended training(s) or informed about the safety and quality of fresh meat vending by concern authorities?

- Yes
- No

If yes, who did the training(s) or information?

K. Source of meat supplies

- Accredited slaughterhouse
- Not accredited slaughterhouse
- Accredited slaughterhouse but sometimes not accredited slaughterhouse

Others, please specify _____

L. Type(s)/kind(s) of meat that you sale?

- Beef
- Pork
- Chicken

Others, please specify _____

M. How do you ensure that the meat you sale is/are quality in terms of physical



- properties?
- Choosing the quality meat when buying in the slaughterhouse(s).
- Buying any meat available in the slaughterhouse(s) without considering quality.
- Others, please specify
-

- N. How do you ensure that the meat you sale is/are safe?
- Applying the hygienic practice on meat vending.
- Applying some hygienic practice on meat vending.
- Others, please specify
-

II. QUALITY CHARACTERISTICS OF FRESH MEAT

Please answer the following by putting check mark within the space provided.
Answer only the type(s) or kind(s) of meat that you sell.

A. BEEF

- | | | |
|---|------------------------------------|--|
| 1. Color of lean | 2. Firmness | 3. Texture |
| <input type="checkbox"/> Bright red to dark brick red | <input type="checkbox"/> Firm | <input type="checkbox"/> Moderately coarse |
| <input type="checkbox"/> Grayish red to pinkish | <input type="checkbox"/> Soft | <input type="checkbox"/> Very coarse |
| <input type="checkbox"/> Black-red | <input type="checkbox"/> Very soft | <input type="checkbox"/> Coarse |
| 4. Marbling | | |
| <input type="checkbox"/> Whitish yellow and firm | | |
| <input type="checkbox"/> Yellow and firm | | |
| <input type="checkbox"/> Yellow and soft | | |

B. PORK

- | | | |
|---|------------------------------------|--|
| 1. Color of lean | 2. Firmness | 3. Texture |
| <input type="checkbox"/> Black-red | <input type="checkbox"/> Firm | <input type="checkbox"/> Coarse |
| <input type="checkbox"/> Grayish red to pinkish | <input type="checkbox"/> Soft | <input type="checkbox"/> Moderately coarse |
| <input type="checkbox"/> Pale | <input type="checkbox"/> Very soft | <input type="checkbox"/> Very coarse |
| 4. Marbling | | |
| <input type="checkbox"/> Pure white, finely granular and soft | | |
| <input type="checkbox"/> Whitish yellow, finely granular and soft | | |
| <input type="checkbox"/> Yellow, finely granular and soft | | |

C. CHICKEN

- | | | |
|---|------------------------------------|--|
| 1. Color of lean | 2. Firmness | 3. Texture |
| <input type="checkbox"/> Pale | <input type="checkbox"/> Firm | <input type="checkbox"/> Tender |
| <input type="checkbox"/> Black-red | <input type="checkbox"/> Soft | <input type="checkbox"/> Tender, soft and smooth textured skin |
| <input type="checkbox"/> Pale but there are also red muscles | <input type="checkbox"/> Very soft | <input type="checkbox"/> Not tender |
| 4. Marbling | | |
| <input type="checkbox"/> Variable in consistency and color but generally soft and oily. | | |
| <input type="checkbox"/> Variable in consistency and color but generally firm. | | |
| <input type="checkbox"/> Variable in consistency and color but generally firm and oily. | | |



III. HYGIENIC PRACTICE ON MEAT VENDING

Please answer the following by putting check mark within the provided space.

HYGIENIC PRACTICE ON INPUTS

- | <u>A. Cleaning</u> | Agree | Neutral | Disagree |
|---|-------|---------|----------|
| 1. All meat particles in the utensils, containers, materials and equipment should be removed before being thoroughly washed into lukewarm water with soap and acceptable detergent. | () | () | () |
| 2. If running water is not used, the wash water should be changed frequently. | () | () | () |
| 3. Detergents and disinfectants used, as far as possible, be non-toxic and non-corrosive. | () | () | () |
| 4. Detergents and disinfectants used must be kept away from areas where meat and meat products are displayed. | () | () | () |
|
 | | | |
| <u>B. Handling</u> | Agree | Neutral | Disagree |
| 1. Containers, utensils and working surfaces for meat handling should be non-toxic material, non-corrosive, and non-absorbent. | () | () | () |
| 2. Containers, utensils and working surfaces for meat should free from cracks, easy to clean and disinfect and not be used for any other purpose. | () | () | () |
| 3. Containers should be insulated and provided with cover at all times. Containers for carcass, blood and internal organs shall be separated. | () | () | () |
| 4. Containers shall be loaded only with one kind of product or at least, with products not likely to contaminate each other. | () | () | () |
| 5. Chopping blocks shall be made of even, solid and easily cleaned materials and free of cracks and crevices. | () | () | () |
| 6. Containers previously used that are toxic or harmful to human, such as insecticides, paints or motor oil, etc shall not be use. | () | () | () |
| 7. Utensils, table surface, cutters, cutting knives, water outlets or faucets and other equipment should be in good condition, properly maintained, washed with | () | () | () |



clean water and disinfected as appropriate.

- | | Agree | Neutral | Disagree |
|--|-------|---------|----------|
| 8. All utensils, containers and stall materials should be cleaned before and after the day's of work, dried and kept in sanitary container/cabinet. | () | () | () |
| C. <u>Cold Storage</u> | | | |
| 1. Cold storage facilities/freezers should be provided with thermometer and should have adequate capacity to maintain a temperature of 50 °C or less at all times. | () | () | () |
| 2. Cold storage rooms/freezers shall be kept clean, free from objectionable odor, and in good repair. | () | () | () |
| 3. Chilling temperature should be maintain at 0 to 4 °C | () | () | () |
| 4. Refrigeration temperature should be maintain at 5 °C to 18 °C | () | () | () |
| 5. Freezing temperature should be maintain at below 0 °C | () | () | () |
| D. <u>Potable Water</u> | | | |
| 1. Water for general purposes (washing inputs and recipients) should be potable. | () | () | () |
| 2. Water storage (e.g., tanks, drums, etc.) should be covered, keep cleaned and provided with faucet. | () | () | () |
| 3. The potable water supply should be sufficient for all needs. When not from a public source of potable water, the water must be of similar quality. | () | () | () |
| 4. Transported potable water should be kept in an appropriate container (easy to clean, non-toxic material and fitted with cover) to prevent contamination. | () | () | () |
| 5. Waste water must be adequately disposed of and not present a properly, to not create a hazard to potable water, surrounding area or meat handlers. | () | () | () |

HYGIENIC PRACTICE IN AREA OR PLACE OF SELLING

- | | Agree | Neutral | Disagree |
|--|-------|---------|----------|
| A. <u>For Indoor Areas Only</u> | | | |
| 1. Sufficiently light should be available, kept clean as possible at all times and situated far from any source of contaminants (garbage, waste water, animals). | () | () | () |



- | | Agree | Neutral | Disagree |
|--|-------|---------|----------|
| 2. Artificial lighting and colored containers/trays must be prohibited. | () | () | () |
| 3. Signboards/stall labels should be placed in an area where it could not be a source of meat contamination. | () | () | () |
| 4. Meat Inspection Certificate issued should be displayed in a noticeable place. | () | () | () |
| 5. Spillages should be cleaned up immediately and meat products waste should not be allowed to accumulate. | () | () | () |
| 6. No other products aside from meat and meat products shall be sold or displayed in meat area. | () | () | () |
| B. <u>For Outdoor Areas Only</u> | | | |
| 1. Fresh meat products should be sufficiently clean and protected from direct sun, dust, fumes and wind. | () | () | () |
| 2. The area where the fresh meat is displayed for sale should be high at least 60 to 70 cm off the ground and suitable for the quantity of meat for sale. | () | () | () |
| 3. The area should be used only during market days. | () | () | () |
| 4. Sufficiently light should be available, kept clean as possible at all times and situated far from any source of contaminants (garbage, waste water, animals). | () | () | () |
| 5. Artificial lighting and colored containers/trays must be avoided. | () | () | () |
| 6. Signboards/stall labels should be placed in an area where it could not be a source of meat contamination. | () | () | () |
| 7. Meat Inspection Certificate issued should be displayed in a noticeable place. | () | () | () |
| 8. Spillages should be cleaned up promptly and meat products waste should not be allowed to accumulate. | () | () | () |
| 9. No other products aside from meat and meat products shall be sold or displayed in meat area. | () | () | () |
| C. <u>Vendor's Personal Hygienic Practice</u> | | | |
| 1. Meat handlers/vendors with skin, nose and throat or | () | () | () |



bowel trouble must not handle meat/meat products until medical clearance has been obtained.

- | | Agree | Neutral | Disagree |
|--|-------|---------|----------|
| 2. Vendor with boils or septic cuts must not handle meat/meat products. | () | () | () |
| 3. Cuts, burns and sores must be covered with waterproof dressings. | () | () | () |
| 4. Fingernails must be kept clean and short and nail polished should not be used. | () | () | () |
| 5. Meat product handlers/vendors must wear suitable protective clothing, mask and head covering. | () | () | () |
| 6. Meat handlers/vendors must not smoke while handling open meat products. | () | () | () |
| 7. Hands must thoroughly washed after visiting the toilet before handling raw meat. | () | () | () |
| 8. Blowing the nose, handling should refuse or wash. | () | () | () |
| 9. Meat handlers/vendors should be trained in the hygienic handling of meat products. | () | () | () |

HYGIENIC PRACTICE ON MEAT MARKETING

A. For Permanent Stall Only

- | | Agree | Neutral | Disagree |
|--|-------|---------|----------|
| 1. The sales stall should be built of solid, resistant and impermeable material and should be sufficiently high to be easily sanitized. | () | () | () |
| 2. The sales stall and its surroundings should be kept clean, free of litters and odors in good condition. | () | () | () |
| 3. Any operation other than the cutting and grinding of meat to facilitate should be avoided. | () | () | () |
| 4. Animals must not be allowed in meat stalls area. Infestations of insects or rodents must be reported immediately to the Market Administrator. | () | () | () |
| 5. When not in use, the sales stall should be covered. | () | () | () |
| 6. Adornments, decorative displays, promotional materials and other items may be placed in such away | () | () | () |



that they do not present a source for meat contamination.

Agree Neutral Disagree

7. Sales table surface should be incline to allow efficient downward flow of water to the drainage. () () ()

B. Protection and Sale of Meat Products

Agree Neutral Disagree

1. All meat and meat products for sale should come from approved sources such as accredited slaughterhouses. () () ()
2. All meat displayed for sale should be fresh, no indication of spoilage or contamination, not adulterated nor misbranded and protected from vermin (e.g. cockroaches etc.) () () ()
3. All meat must be displayed according to kind/type. () () ()
4. Due care shall be taken to prevent fresh meat products from falling to the floor. () () ()
5. Printed or used paper or other similar articles should not be used directly for wrapping or covering meat. () () ()
6. Meat should not be handled unnecessarily by buyers. () () ()
7. Handling money, tickets, etc. and meat at the same time is prohibited. When this is not possible, wash and disinfect hands before handling and selling meat. () () ()
8. All fresh meat should be properly stamped or branded and issued with a Meat Inspection Certificate. () () ()
9. Meat products must not be removed from the cold storage/freezers until required for display. () () ()
10. Use of formalin as preservative, colorants and other poisonous substances should not be use. () () ()
11. Use tongs/gloves in handling meat products to avoid direct contact. () () ()
12. Meat should be held in manner where the drip form one piece does not fall on another piece. () () ()

RESPONSIBILITY OF VENDORS

Agree Neutral Disagree

1. Meat handlers/ vendors should be responsible for the hygiene and protection of the meat products they handle or sale. () () ()



HYGIENIC PRACTICE ON HANDLING AND DISPOSAL OF WASTE AND PEST CONTROL

- | | Agree | Neutral | Disagree |
|--|-------|---------|----------|
| 1. Waste containers should be kept far from the meat handling and have a cover and, where possible, should be fitted with an automatic closing device. | () | () | () |
| 2. Waste containers should be of resistant material, waterproof and easy to clean. | () | () | () |
| 3. Waste containers be placed in such a way that they are not in contact with the floor or against a wall. | () | () | () |
| 4. Waste water should be collected and disposed of separately from solid wastes, if possible through direct linkage to the sewage system. It should be disposed of in the public drainage system, and not thrown onto the ground and/or into surface water such as rivers and lakes. | () | () | () |
| 5. Solid wastes, recyclable and non-recyclable should be kept separate. | () | () | () |
| 6. Waste products should be disposed of in such a way as not to attract insects and animals, such as flies dogs and cat. | () | () | () |
| 7. Pest control should be carried out in accordance with provincial, city, municipal and/or national regulations. | () | () | () |
| 8. The application of chemical substances for pest control should only be done by authorized technical personnel. | () | () | () |
| 9. The procedure should avoid the contamination of meat, meat vendors/handlers, the public in the environment. | () | () | () |

IV. PROBLEMS ENCOUNTERED ON MEAT VENDING

A. Price of Meat Supplies

- () Always high
 () Sometimes high
 Others, please specify

1. _____
 2. _____



B. Demand

- () Always low
- () Sometimes low
- Others, please specify

- 1. _____
- 2. _____
- 3. _____

Other problems encountered on meat vending?

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



Appendix C. Guide Questions for Personal Observation

I. Quality Characteristics of Meat Displayed in Terms of Physical Properties

MEAT	COLOR OF LEAN	MARBLING
Beef		
Pork		
Chicken		

II. Sanitary Practices on Fresh Meat Vending

SANITARY PRACTICES ON INPUTS	APPLIED	NOT APPLIED
A. Cleaning		
1. Detergents and disinfectants used are kept away from areas where meat is displayed to not contaminate the meat.		
B. Handling		
1. Chopping blocks are made of even, solid and easily cleaned materials and free of cracks and crevices so that small particles of the chopping blocks will not be included on meat that will be chop.		
2. Table surface and cutting knives are in good condition, and properly maintained to not cause contamination on meat.		
SANITARY PRATICES IN AREA/PLACE OF SELLING		
A. Indoor Areas		
1. Artificial lighting and colored containers are not used to not affect the buyers in choosing the right color of meat lean.		
2. No other products aside from meat and meat products are displayed in meat area to not contaminate the meat.		
B. Outdoor Areas		
1. Meat displayed is protected from sun to not cause spoilage.		
2. Meat displayed is protected from dust, fumes and wind.		
3. Artificial lighting and colored containers are not used to not affect the buyers in choosing the right color of meat lean.		
4. No other products aside from meat and meat products are displayed in meat area to not contaminate the meat.		
C. Vendor's Personal Hygienic Practice		
1. Meat handlers/vendors have skin, nose and throat trouble are not handling meat and meat products to not contaminate the meat.		



	APPLIED	NOT APPLIED
2. Fingernails of meat vendors are clean short and not polished to not contaminate the meat.		
3. Meat handlers/vendors wear suitable protective clothing.		
4. Meat handlers/vendors wear mask.		
5. Meat handlers/vendors wear head covering.		
6. Meat handlers/vendors are not smoking while handling meat products to not contaminate the meat.		
SANITARY PRACTICES ON MEAT MARKETING		
A. Permanent Stall		
1. The sales stall is clean, free of litters and odors and good condition to not contaminate the meat.		
2. The sales stall surroundings are clean, free of litters and odors and good condition to not contaminate the meat.		
3. No other operation than cutting and grinding of meat to facilitate its sale.		
4. No animals in the stall area to not cause contamination of the meat.		
5. Adornments, decorative displays, promotional materials and other items placed in such away that they do not present a source for meat contamination.		
B. Protection and Sale of Meat Products		
1. All meat displayed for sale is fresh and no indication of spoilage.		
2. Meat displayed according to kind/type.		
3. Meat held in manner where the drip from one piece does not fall on another piece so that if one piece is contaminated it will not affect the other meat.		
4. Using tongs/gloves in handling meat products to avoid direct contact.		
SANITARY PRATICES ON HANDLING AND DISPOSAL OF WASTE		
1. Waste containers should be kept far from the meat display area.		
2. Waste containers should have cover.		
3. Waste container should be waterproof.		
4. Waste containers should not contact with the floor or against the floor.		

