

**Economic Feasibility of a Multi-Species Slaughter/Processing Facility in
Northeastern Nevada**

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EXECUTIVE SUMMARY

This study was requested by a Nevada Woolgrowers Association in an effort to identify new markets for their sheep/lamb products and gauge the financial potential of local sheep/lamb slaughter facility in northeastern Nevada. Hence, the purpose of this study is to evaluate the economic feasibility of a producer-owned entity to slaughter, process, and market locally grown meat products in Nevada, as well as gauge the interest level of ranchers in northeastern Nevada in forming a business entity to slaughter, process, and market their livestock.

A mail survey of livestock producers was conducted during the winter of 2007, in which 101 producers responded. The results indicate that just over 44% of surveyed livestock producers would be willing to invest money, time, or both in this venture, meaning the business entity may have 44 producer members at its inception. Overall the producers were interested in this business and the willing to invest some start-up capital. There is definitely enough demand for the services of the business to generate the necessary supply of livestock for the business to operate profitably. The location of potential member ranches based on producer survey results indicate that the processing facility should be located in Elko, Nevada,

During the fall of 2007, a survey of residents in Nevada was conducted to gain an understanding of consumer perception and purchasing behavior for meat products. Survey respondents rated meat safety and freshness as the most important factors in their decision-making process as it pertains to meat purchases. Concerns about food safety and freshness naturally provide a need for locally grown and processed products. Interestingly, 98% of the respondents consume meat products at least once a week, with

29% consuming meat products 5-10 times a week. Meat consumption among the Hispanic sub sample was even greater. This demand for meat products is impressive. Approximately 27% of the survey respondents purchase some amount of their meat products at butchers/specialty stores and 22% of the survey respondents purchase some amount of their meat products at health food stores. These consumers tend to be highly educated at mid-income levels and are concerned about environmental issues and generally supportive of local agriculture. This constitutes as target market for local meats. All product packing, promotion, and distribution decisions should be made with the target market in mind.

In the economic feasibility section we find that the multi-species slaughter and processing facility would be profitable given the costs and revenues estimated for this study. However, the sensitivity analysis shows that the facility's economic feasibility is very sensitive to changes in both costs and revenues. At a 20% increase in costs or a 20% decrease in revenues the facility is no longer making a profit. Due to this sensitivity, current economic conditions resulting in declines in restaurant sales and the prevalence of meat recalls and slaughter facility closures, it is our recommendation that the facility not be constructed at this time. Should economic conditions and livestock pricing improve, the facility would have a higher probability for success.

I. INTRODUCTION

The sheep industry in Nevada and surrounding states is currently very unstable due to market uncertainties. This is occurring at a time when public land management agencies are beginning to recognize the importance of herded sheep production systems in natural resource management. Sheep as well as goats can graze rangelands and reduce the occasional rangeland fires.

Although lamb prices have rebounded to higher levels in the last two years, Nevada sheep producers are aware of some basic facts: 1) Lamb prices have fluctuated wildly over the last ten years, with prices below break-even levels in four of those years; 2) without exception, Nevada lamb prices are lower than those in neighboring states due to the state's remote location from slaughter and processing plants; and 3) wholesale and retail prices of lamb products have been very stable for the last ten years and are higher than in neighboring states, due to Nevada's remote location. The demand for lamb products is rapidly growing due to expansion in the tourism and restaurant industries, the migration to Nevada of employees and retirees from traditional lamb consuming sectors, and the rapidly growing Hispanic and Asian population (now estimated at more than 30% of Nevada population) that readily consume meat from goats and mature sheep. With the current statewide emphasis on consumer interest in "Nevada grown" products, the sheep industry believes there is a need to seriously consider a slaughter and processing facility that will meet Nevada consumer demands and increase profitability of existing Nevada sheep producers which potentially would encourage increased sheep production.

The sheep industry is justifiable concerned about the impact of dramatic increases in imported lamb in the last three years, but this increased level of imports has not

affected wholesale or retail lamb prices in the Great Basin Area. The reality in the Great Basin region is that lamb producers are dealing with what approaches a monopoly. In the western portion of the region, Superior Lamb of Dixon, California (over 50% of total U.S. lamb supply) is basically the only buyer of slaughter lambs. Monfort of Colorado offers some competition in the eastern portion of the region, but at significantly discounted prices due to distance and freight charges. To further complicate the issue, Superior Lamb is the largest importer of lamb, from its own slaughter plant in Australia, and supply contracts with New Zealand slaughter plants. This source of imported lamb has been used to further reduce live lamb market prices in the region.

According to the 2002 Nevada agricultural statistics (NASS, 2004), 15 of Nevada's total 327 farms that raise sheep produce approximately 87 percent of total state sheep production. Given that 5% of total farms that raise sheep produce approximately 87% of the state's sheep production, this permits the proposed sheep slaughter and processing plant to procure a uniform product. Also for the remaining 95% of the state's sheep farms, a sheep slaughter and processing facility in Northwestern Nevada would allow them to break their existing market isolation and allow them a vehicle to penetrate the urban Nevada tourism markets.

Based on these data, and the recognition by sheep producers in the region that they cannot survive with existing market conditions, the University of Nevada, Reno, Department of Resource Economics and the University Center for Economic Development have conducted an in-depth feasibility study for a multi-species producer-owned slaughter and processing plant to be located in Northeastern Nevada.

This study is subdivided into four major sections, including the production and slaughter demand assessment (section II), a market assessment (section III), a business operations plan (section IV), and a marketing recommendations section (section V). Finally, the results are summarized in the summary and recommendations section (section VI).

The demand assessment looks at the interest and commitment level of livestock producers in developing a production/slaughter facility in the geographic area of study. The two issues of primary importance are the number of livestock local producers wish to send through the facility, and their commitment to the facility in terms of start-up capital investment. This section also discusses the preferred location of the potential slaughter/production facility, the types of business services livestock producers would like the facility to provide, and their current ranch marketing plan. This assessment will provide an overview of the production needs of the business, the services to be offered, and the business structure best suited to potential member ranch owners.

The marketing assessment evaluates consumer demand for meat products in Nevada. This includes consumer preferences for cut types, meat characteristics and quantity demanded. Due to the demand for lamb and goat within the Hispanic population, consumer preferences are also detailed for the Hispanic sub sample of the consumer data. Additionally, a store and restaurant survey in Nevada was conducted to assess the demand for Nevada beef and lamb products in high-end and Hispanic restaurants, as well as butcher shops.

The business plans uses projected production, operation costs, and sales revenues from the production and marketing assessments to compute profit projections, operational

budgets, and the start-up capital required for the business. The business plan also provides the necessary information for business ownership establishment, including start-up and investment capital requirements.

II. LIVESTOCK PRODUCER INTEREST

A mail survey of livestock producers throughout Nevada was conducted during the winter and spring months of 2007. Surveys were sent to 672 producers, and 101 surveys were returned and considered complete for a response rate of 15%.

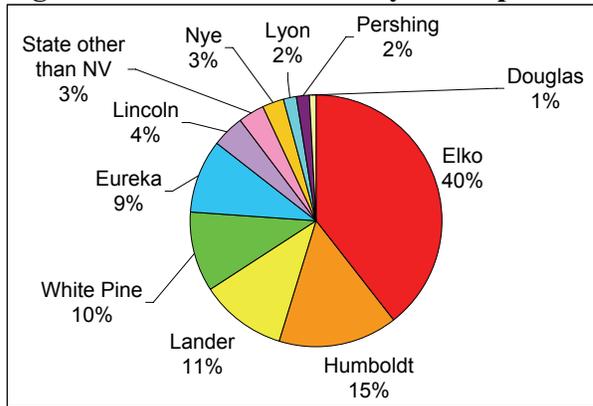
The survey was composed of three sections. The first section collected information about the respondent's livestock operation, such as the respondents' title and number of years in the industry, as well as the operation's location and acreage. The second section asked questions relating to the operation's current production and marketing methods, including annual livestock production and calving seasons, direct marketing techniques, and the number of employees working for the operation. The final section of the survey sought to determine respondents' interest in the potential meat slaughtering/processing facility, asking questions about the functions the respondent would like the facility to perform, how the facility might change the respondents' production processes, and whether the respondent would be interested in investing in the facility. A copy of the producer survey can be found in Appendix A.

Producer Survey Results

Demographics

Respondents were asked to provide the name of the Nevada county/counties where their operation is located (Figure 2.01). Just less than half of respondents, 40% (46) said their operation is located in Elko County, 15% (18) said they are located in Humboldt County, 11% (13) said they are located in Lander County, 10% (12) said they are located in White Pine County, 9% (11) said they are in Eureka County, 4% (5) of respondents said their operation is located in Lincoln County, 3% (3) said they are located in Nye County, 2% each (2 responses each) of respondents said they are located in Lyon and Pershing Counties, and 1% (1) of respondents said their operation is in Douglas County. The remaining 3% (4) of respondents said their operation was located in a state other than Nevada. Please note that these responses sum to more than 101 (the number of respondents there were to the survey) because respondents were allowed to provide more than one county in their response to this question. Of the 101 respondents, 94% (91 respondents) said they were the owner or manager of their operation, 81% (78 respondents) of respondents had been in the business for 21 or more years, while 15% (14 respondents) of respondents had been in the business for 11 to 20 years. The completed surveys represented a total of 11,358,674 active acres.

Figure 2.01: Location County of Respondent's Operation by County



Current Production

Survey respondents were asked to give a description of the types of livestock they are currently producing on an annual basis, the calving season for each livestock type, and a description of any special production methods that are followed (such as feed type, use of hormones, etc.). The results of this question are presented in Table 2.01.

Producers said they are raising a total of 75,440 head of cattle and calves each year, and that 27,803 (37% of total) are raised following both natural production processes and grass-, forage-, or pasture-fed practices. Another 3,362 (4% of total) head of cattle/calves are being raised on a grass/grain or pasture/feedlot mix. The other 59% of cattle are raised following practices unspecified by respondents.

Respondents said they are raising 29,717 head of lamb each year, and that 3,197 (11% of total) are raised following natural and grass-, forage-, or pasture-fed practices.

The remaining 89% are raised following practices unspecified by respondents.

Respondents said they are producing 4,120 head of sheep per year, and that 120 (3% of total) are raised following natural and grass-, forage-, or pasture-fed methods. The other 4,000 head of sheep (97%) are raised following a grass/grain or pasture/feedlot feed mix.

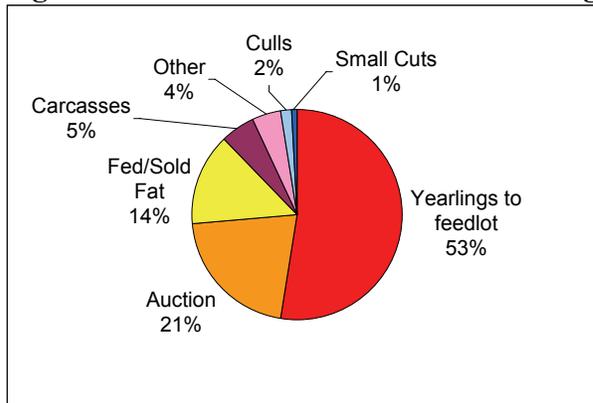
Respondents said they are producing 80 head of goat each year, and that all 80 (100%) are raised following natural and grass-, forage-, or pasture-fed practices.

Table 2.01: Respondent’s Current Livestock Production

Livestock Type	Head Produced/Year	Natural & Grass- /Forage-/Pasture- Fed	Grass/Grain or Pasture/Feedlot Mix
Cattle/Calves	75,440	27,803 (37%)	3,362 (4%)
Lamb	29,717	3,197 (11%)	---
Sheep	4,120	120 (3%)	4,000 (97%)
Goats	80	80 (100%)	---

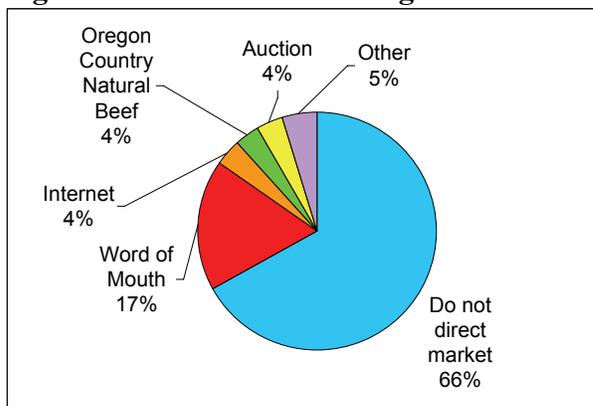
In order to gain an understanding of how producers are currently selling their livestock products, respondents were asked to describe their current marketing methods (Figure 2.02). Over half of the respondents, 53% (60 respondents) said they sell their livestock to feedlots as yearlings, 21% (24) said they sell their livestock at auctions, with 9 of those respondents (8% of total response) specifying that they use video auctions, 14% (16) said they feed their livestock and sell them fat, 5% (6) said they sell their livestock as either quarter, half, or whole carcasses directly to consumers, 2% (2) said they slaughter and process culls, and 1% (1) said they sell their livestock as small cuts directly to consumers, packaged and boxed. The remaining 4% (5) indicated that they use “other” methods of selling their livestock, but did not specify the methods.

Figure 2.02: Producer’s Current Marketing Methods



To further examine the direct marketing channels currently being used by Nevada’s meat producers, the survey respondents were asked which outlets and methods they use to direct market their products to their customers (Figure 2.03). Although 66% (57 respondents) of respondents said they do not currently direct market to customers, 17% (14) said they use word of mouth, and 4% each (3 responses each) direct market over the internet, at auctions, and through the Oregon Country Natural Beef cooperative. The remaining 5% (4) of respondents said they use “other” direct marketing methods, and described them as farmers’ markets (1%, 1 response), newspapers and magazines (1%, 1), through a dealer (1%, 1) and through a feedlot (1%, 1).

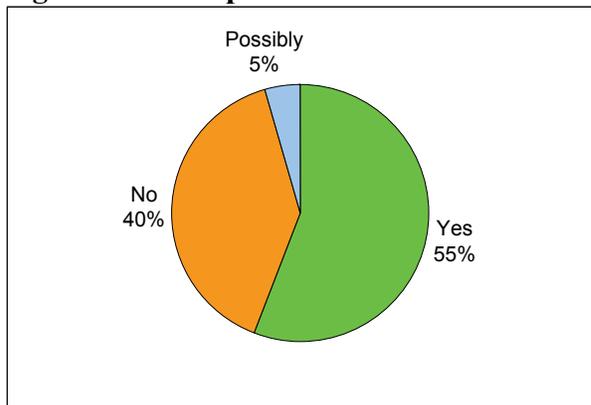
Figure 2.03: Direct Marketing Outlets Used by Producers



Producer Interest

Because the proposed slaughtering and processing facility would be costly to build and operate, there is a potential need for producers to make an initial investment in the facility. Survey respondents were provided with a description of the proposed slaughtering and processing facility and were told that in order for such a proposal to become a reality, some level of financial contribution may be necessary. Respondents were asked whether or not they would be interested in making a financial contribution to the facility (Figure 2.04). Slightly more than half of respondents, 55% (49 respondents) said they would be willing to make a financial contribution, while 40% (35) said they would not be interested in making a contribution, and the remaining 5% (4) said they were unsure, but would possibly be interested in making a financial contribution to the proposed facility.

Figure 2.04: Respondents Interest in Financial Contribution

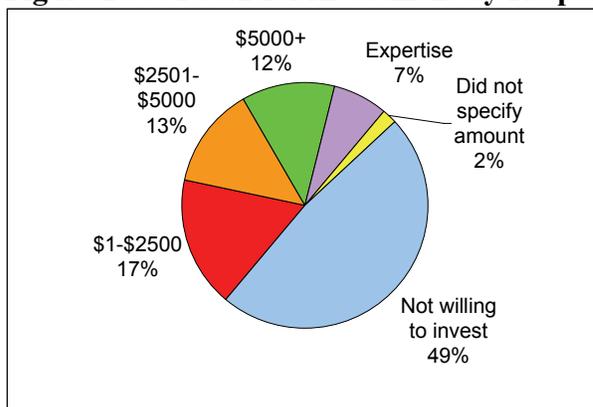


Next, respondents were asked to provide a range of dollar amounts they would consider contributing for the upstart of the proposed facility (Figure 2.05). Slightly less than half of respondents, 49% (47 respondents), said they were not willing to invest in the proposed facility, while 17% (17 respondents) of respondents said they would consider making an investment between \$1 and \$2500, 13% (13) said they would consider

investing between \$2501 and \$5000, and 12% (12) of respondents said they would consider investing more than \$5000. Of the remaining respondents, 7% (7 respondents) said they would be willing to contribute their expertise to the facility in lieu of a financial contribution, while another 2% (2) said they were willing to invest, but preferred to not specify a dollar amount at the time. Overall, 44% (44 respondents) of respondents said they were willing to invest money in the proposed facility.

Of the respondents who said they were willing to lend their expertise, four respondents said they would provide general expertise to the entity, and one respondent each said they would lend expertise related to business operations, purchasing, direct sales, and feed lot construction. Please note that this sums to greater than the seven respondents who said they were willing to provide expertise because respondents were allowed to offer more than one area of expertise.

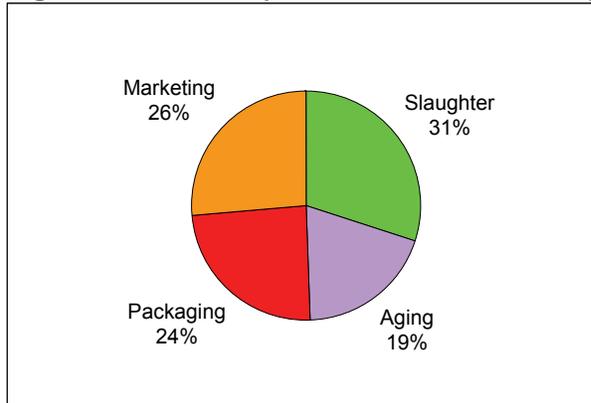
Figure 2.05: Potential Investment by Respondents



Respondents were asked to describe the functions they would like to have the potential facility perform (Figure 2.06). The responses to this question were that 31% (66) of respondents want the facility to perform meat slaughtering functions, 26% (58) would like the facility to perform product marketing functions, 24% (54) of respondents want the facility to perform meat packaging functions, and the remaining 19% (42) of

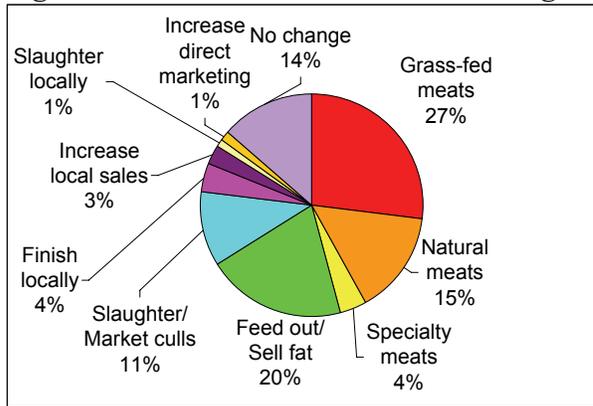
respondents would like the proposed facility to perform meat aging functions. Please note that this sums to greater than 116 because respondents were allowed to choose more than one proposed function.

Figure 2.06: Facility Functions Preferred by Respondents



To gain a more complete understanding of how the potential facility would affect local livestock production operations, survey respondents were asked to consider how they thought their operation might change if the proposed facility became a reality (Figure 2.07). Altogether, 46% (34 respondents) of respondents said they would start producing more specialty meats, with 27% (20) specifying that they would start marketing grass-fed meats, 15% (11) natural meats, and the other 4% (3) not specifying exactly how they would differentiate their specialty meats. Another 20% (15) of respondents said they would begin to feed out their livestock and/or start selling livestock fat, 11% (8) said they would turn to slaughtering and marketing culls, 4% (3) said they would finish their livestock locally as opposed to shipping it out, 3% (2) said they would try to increase their local (Nevada) sales, and 1% each (1 response each) said they would slaughter all livestock locally and increase their direct marketing efforts. The remaining 14% (10) said the proposed facility would have no impact on their production or operation.

Figure 2.07: Potential Production Changes Due to Presence of Facility



Finally, producers were asked to estimate how many head of livestock they would be willing to send to the proposed facility for slaughter and processing each year (Table 2.02). Producers said they would be interested in sending an annual total of 9,824 head steer; 3,912 cull cattle; 16,429 lamb; 10,000 sheep; and 1,200 mutton.

Table 2.02: Producer Interest in Sending to Facility

Livestock type	Number (head)
Steer	9,824
Cull cattle	3,912
Lamb	16,429
Sheep	10,000
Mutton	1,200

III. CURRENT AND POTENTIAL LIVESTOCK MARKETS

Consumer Survey Description

During the fall of 2007, a consumer survey was administered to residents of Nevada, Arizona, Utah, and New Mexico in an effort to gather more information about consumer perception and purchasing behavior of meat products. The survey was conducted several different ways: an in-person format presented to attendants of the Salsa y Salsas Festival in Carson City on September 15 and attendants of the Hispanic Heritage Festival in Reno on September 16; through a mail survey of a random sampling of residents in Nevada, Arizona, Utah, and New Mexico, who were given the option of filling out the paper survey and mailing it back, or filling out an electronic survey online; and through a mail survey of a random sampling of Hispanic households in Nevada, Arizona, Utah, and New Mexico, who were also given the option of filling out the hard copy of the survey or filling it out online. A total of 965 surveys were returned and considered complete for analysis.

Hispanic households were targeted in part because one of the goals of this study was to determine preferences for sheep, lamb, and goat meats, which are traditionally consumed in greater proportions by the Hispanic community than the Caucasian community that makes up a slight majority of residents of Nevada (58.9% of Nevada's population considered themselves "white and not Hispanic" according to the U.S. Census Bureau's 2006 estimates). Additionally, this study sought to examine the market for meats that can be produced from cull cattle, one of which is carne asada meat, a traditional Hispanic dish. Finally, persons identifying themselves as Hispanic make up an important percentage of the population in the Southwestern United States, including

24.4% of Nevada's 2006 population (compared to 14.8% nationwide, U.S. Census Bureau, 2006). The results of the consumer surveys will first be discussed considering the entire respondent population, and then the results of the Hispanic sub sample will be presented.

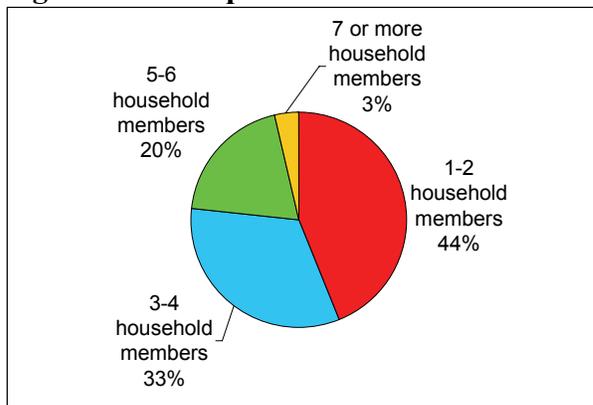
There were 20 versions of the survey, however, aside from pricing differences, the surveys were all the same, regardless of the method of administration (in-person, mail, or Internet). The survey was comprised of four major sections. The first section of the survey collected information as to the respondent's shopping preferences, weekly meat consumption, and preferences for meat attributes. The second section of the survey asked respondents to provide information as to the types of meat their households had purchased in the past month, which can be used as a proxy for average monthly meat consumption. The third section collected information about pricing and consumer preferences for and knowledge of conventional, organic, and natural grass-fed meats. The fourth section of the survey consisted of basic demographic questions designed to give a better understanding of certain trends among respondents and their purchasing and consumption behaviors. A copy of one version of the survey can be found in Appendix B.

Consumer Survey Results: Entire Sample

Demographics: Entire Sample

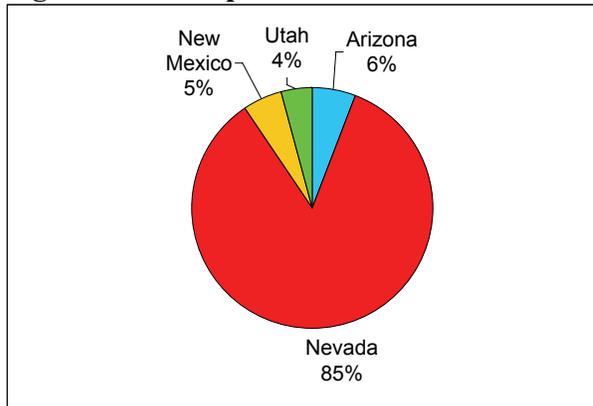
Respondents were asked to provide demographic information to give an idea of who meat consumers in the southwest are. Figure 3.01 shows the household size of respondents, with 44% (402 respondents) having a household size of 1-2 people and 33% (302) with a household size of 3-4 members, while 20% (181) of respondents had a household size of 5-6 people, and the remaining 3% (32) of respondents had 7 or more household members. Forty-eight respondents (5% of total sample) did not answer the question.

Figure 3.01: Respondent Household Size



To ensure that the majority of responses were coming from residents of Nevada, and to see the geographic distribution of the non-Nevada sample population, respondents were asked to provide their state of residency (Figure 3.02). The majority of respondents, 85% (756 respondents), were from Nevada, 6% (52) were from Arizona, 5% (47) were from New Mexico, and the remaining 4% (37) were from Utah. Seventy respondents (7% of total sample) did not answer the question.

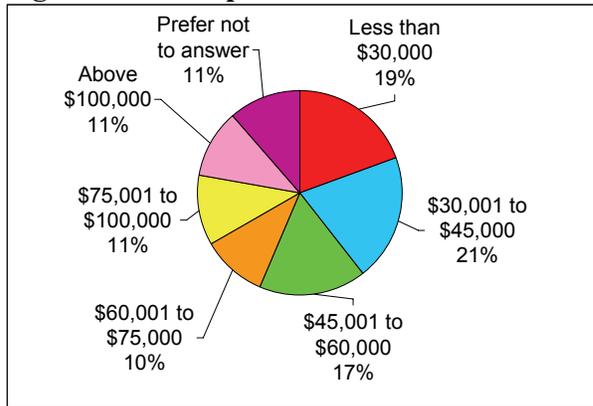
Figure 3.02: Respondents' State of Residency



Gender, marital status, and the presence of children in a household can greatly affect consumer preferences. Because of this, respondents were asked to provide information as to whether they were male or female, married or single, and whether or not they have children. A slight majority of respondents, 53% (485 respondents), said they were female, 64% (581) said they were married, and 51% (464) of respondents said they had children in their household.

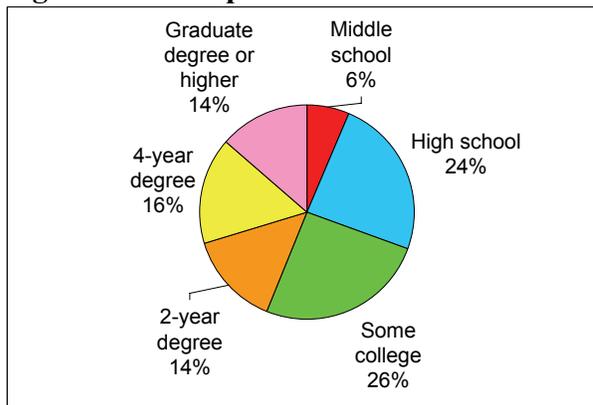
Respondents were asked to provide their household's annual income range (Figure 3.03). Nineteen percent (175 respondents) of respondents said their household earn less than \$30,000 per year, 21% (183) said their household earns between \$30,001 and \$45,000, 17% (153) of respondents said their household earns \$45,001 to \$60,000, 10% (93) earn between \$60,001 and \$75,000, 11% (101) earn between \$75,001 and \$100,000, and 11% (97) of respondents said their household earns more than \$100,000 per year. Respondents were given the option of not responding to this question, which an additional 11% (103 respondents) chose, while another 60 respondents (6% of total sample) did not answer the question.

Figure 3.03: Respondents' Household Income



Respondents were asked to provide the highest level of education they had completed (Figure 3.04). A small portion, 6% (59 respondents) of respondents, said they had completed middle school, 24% (219) had completed high school, 26% (232) had completed some college, 14% (128) had a two-year degree, 16% (147) had a four-year degree, and the remaining 14% (124) had completed a graduate degree or higher level of education. Fifty-six respondents (6% of total sample) did not answer the question.

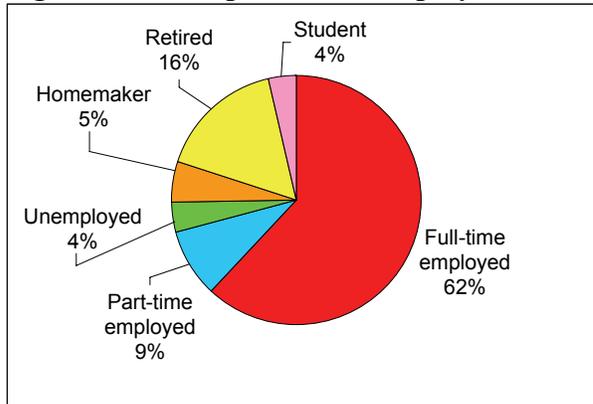
Figure 3.04: Respondents' Level of Education



Respondents were asked to provide their employment status (Figure 3.05). Sixty-two percent (565 respondents) of respondents said they are full-time employed, 9% (83) were part-time employed, 4% (35) were unemployed, 5% (48) were homemakers, 16%

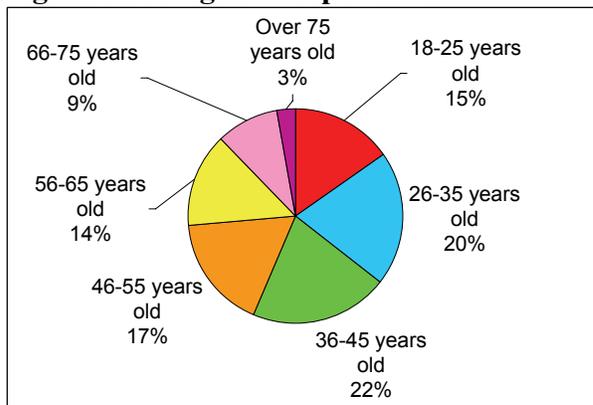
(149) were retired, and the remaining 4% (34) of respondents were students. Fifty-one respondents (5% of total sample) did not answer the question.

Figure 3.05: Respondents' Employment Status



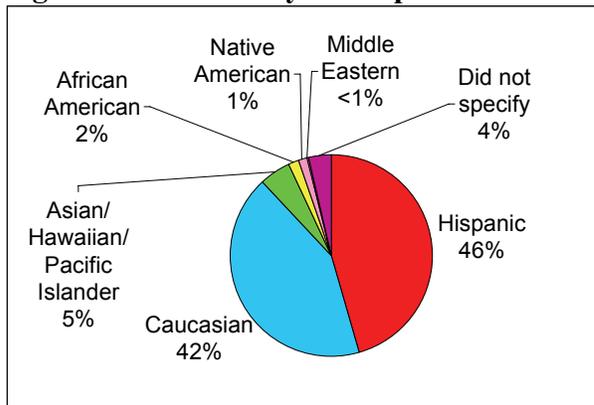
Respondents were asked to provide their age range (Figure 3.06). Fifteen percent (139 respondents) of respondents said they were between 18 and 25 years old, 20% (184) said they were between 26 and 35, 22% (189) said they were between 36 and 45, 17% (157) said they were between 46 and 55, 14% (130) said they were between 56 and 65, 9% (86) said they were between 66 and 75, and the remaining 3% (24) of respondents said they were over 75 years old. Fifty-six respondents (6% of total sample) did not answer the question.

Figure 3.06: Age of Respondents



Respondents were asked to provide their ethnicity, so that preferences could be analyzed separately by ethnicity (Figure 3.07). Nearly half of respondents, 46% (408 respondents), described themselves as Hispanic, while 42% (378) considered themselves Caucasian, 5% (45) described themselves as being Asian, Hawaiian, or Pacific Islander, 2% (15) described themselves as African American, 1% (13) said they were Native American, less than 1% (2) of respondents described themselves as Middle Eastern, and the remaining 4% (33) chose not to specify their ethnicity. Seventy-one respondents (7% of total sample) did not answer the question.

Figure 3.07: Ethnicity of Respondents

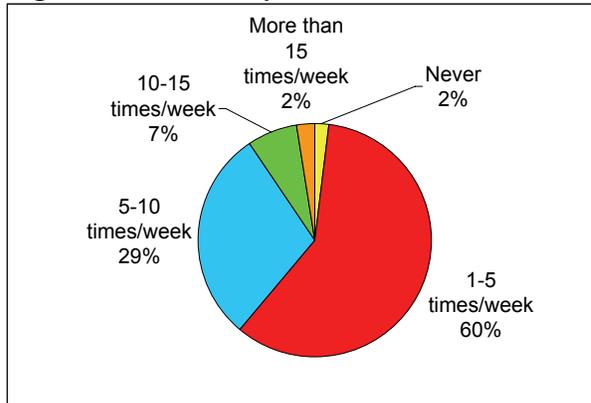


Meat Consumption and Purchasing History: Entire Sample

To ensure that the survey reached the household member most likely to understand the household's meat consumption and purchasing preferences, respondents were asked if they were the primary shopper for their household. Seventy-seven percent (737 respondents) of respondents confirmed that they are their household's primary shopper, while the other 23% (222) said they are not. Six respondents (0.6% of total sample) did not respond to the question.

Respondents were asked to estimate how many times per week their household consumes meat products (Figure 3.08). More than half of the respondents, 60% (569 respondents), said they eat meat between 1 and 5 times per week; 29% (282) said they eat meat between 5 and 10 times per week; 7% (67) said they eat meat between 10 and 15 times each week, and 2% (24) of respondents said they consume meat more than 15 times per week. Two percent (19) of respondents said they never eat meat, while 4 respondents (0.4% of total sample) did not answer the question.

Figure 3.08: Weekly Household Meat Consumption



Survey respondents were presented with a list of various purchasing outlets at which a consumer may buy meat products, and were asked to estimate the percentage of their total meat purchases they typically make from each outlet (Table 3.01). Fifty-five percent (530 respondents) of respondents purchase 76-100% of their meat at conventional grocery stores, while 15% (145) of respondents purchase 51-75% of their meat at conventional groceries, 9% (88) of respondents purchase 26-50% of their meat from conventional groceries, and 12% (113) of respondents purchase 1-25% of their meat at conventional grocery stores. Nine percent (89 respondents) of respondents do not purchase meat at conventional grocery stores.

Two percent (24 respondents) of respondents purchase 76-100% of their meat from a butcher or specialty meat store, 1% (14) purchase 51-75% of their meat from a butcher or specialty store, 5% (53) purchase 26-50% of their meat from a butcher or specialty store, and 18% (170) purchase 1-25% of their meat from a butcher or specialty store. Seventy-three percent (704 respondents) of respondents do not purchase meat from butcher and specialty stores. It is important to note that although a smaller amount of respondents purchased large percentages of meat from butchers and specialty stores, 26% of respondents purchased some proportion of their meat from this type of outlet.

Two percent (22 respondents) of respondents purchase 76-100% of their meat from health food stores, while 3% (27) purchase 51-75% of their meat from health food stores, 3% (32) purchase 26-50% of their meat from health food stores, and 13% (127) purchase 1-25% of their meat from health food stores. Seventy-eight percent (757 respondents) of respondents do not purchase meat from health food stores. As with butchers and specialty stores, it is worth noting that although fewer respondents purchased their meat in large quantities from health food stores, a decent percentage (21%) purchased at least some of their meat there.

One percent (13 respondents) of respondents purchase 76-100% of their meat directly from the farmer, 2% (17) purchase 51-75% of their meat from the farmer, 1% (14) purchase 26-50% of their meat directly from the farmer, and 4% (43) of respondents purchase 1-25% of their meat directly from the producer. Ninety-one percent (878 respondents) of respondents do not purchase meat directly from the farmer.

One percent (6 respondents) of respondents purchase 76-100% of their meat on the Internet, less than 1% (4) purchase 51-75% of their meat on the Internet, 1% (7)

purchase 26-50% of their meat on the Internet, and 2% (18) respondents purchase 1-25% of their meat on the Internet. Ninety-six percent (930 respondents) of respondents do not purchase meat from the Internet.

Table 3.01: Meat Purchasing Outlets Used by Respondents

Purchasing Outlet	76-100% of total purchases	51-75% of total purchases	26-50% of total purchases	1-25% of total purchases	Do not purchase at this outlet
Conventional grocery store	55% (530)	15% (145)	9% (88)	12% (113)	9% (89)
Butcher/Specialty store	2% (24)	1% (14)	5% (53)	18% (170)	73% (704)
Health food store	2% (22)	3% (27)	3% (32)	13% (127)	78% (757)
Direct from farmer	1% (13)	2% (17)	1% (14)	4% (43)	91% (878)
Internet	1% (6)	<1% (4)	1% (7)	2% (18)	96% (930)

Respondents were presented with a list of various types of beef, pork, sheep/lamb, and goat cuts and were asked to estimate how many pounds of each their household had consumed in the previous month (Tables 3.02-3.05). Based on the data provided by respondents as to their household sizes, the average household size for this sample of respondents was found to be 3 members. In the following paragraphs, “household” implies a unit of 3 consumers.

The beef cut most consumed was carne asada, at an average of just over seven pounds per month. Households consumed an average of between six and seven pounds of beef carnitas, ground beef, prime rib, and preformed meatballs and hamburger patties. Respondents consumed between five and six pounds of beef chuck, beef stew meat, sir loin steak, rib eye steak, tri-tip, beef roast, and beef tripe.

Table 3.02: Average Monthly Household Beef Product Consumption

Beef Cut Type	Average Household Consumption (lbs/month)
Carne asada	7.05 lbs/mo
Beef carnitas	6.57
Ground beef	6.55
Prime rib	6.19
Preformed meatballs/patties	6.00
Beef chuck	5.95
Beef stew meat	5.85
Sir loin	5.77
Rib eye	5.67
Tri-tip	5.53
Beef roast	5.50
Beef tripe	5.23

The pork cut most consumed by survey respondents was pork carnitas, with an average of 6.15 pounds per month, closely followed by ground pork at just over six pounds. Respondents consumed an average of between five and six pounds of pork cutlets, pork loin, pork ribs, pork shoulder, pork leg, pork chops, and pork feet. Respondents consumed an average of just less than five pounds of bacon per month.

Table 3.03: Average Monthly Household Pork Product Consumption

Pork Cut Type	Average Household Consumption (lbs/month)
Pork carnitas	6.15 lbs/mo
Ground pork	6.09
Pork cutlets	5.99
Pork loin	5.65
Pork ribs	5.61
Pork shoulder	5.51
Pork leg	5.48
Pork chops	5.26
Pork feet	5.16
Bacon	4.83

The sheep/lamb cuts most commonly consumed on an average monthly basis by respondents were lamb shank, at 5.96 pounds per month, and lamb loin, at 5.90 pounds per month. Respondents consumed between five and six pounds of mutton, lamb breast, rack of lamb, leg of lamb, and whole lamb. Respondents consumed between four and five pounds of lamb chops and lamb shoulder.

Table 3.04: Average Monthly Household Sheep/Lamb Product Consumption

Sheep/Lamb Cut Type	Average Household Consumption (lbs/month)
Lamb shank	5.96 lbs/mo
Lamb loin	5.90
Mutton	5.73
Lamb breast	5.68
Rack of lamb	5.65
Leg of lamb	5.51
Whole lamb	5.29
Lamb chops	4.77
Lamb shoulder	4.33

The goat cut type most commonly consumed by respondents on an average basis were goat loin, at 7.63 pounds per month, and goat leg, at 7.38 pounds per month. Respondents consumed an average of between six and seven pounds of goat stew meat, goat ribs, and whole goat. Respondents consumed slightly less than six pounds of goat belly and just under five pounds per month of goat shoulder.

Table 3.05: Average Monthly Household Goat Product Consumption

Goat Cut Type	Average Household Consumption (lbs/month)
Goat loin	7.63 lbs/mo
Goat leg	7.38
Goat stew meat	6.43
Goat ribs	6.25
Whole goat	6.07
Goat belly	5.98
Goat shoulder	4.76

Meat Attribute Preferences: Entire Sample

Survey respondents were presented with a list of meat attributes and were asked to rate the importance of each attribute when they consider making a meat purchase. Respondents were given the choice of “Not important,” “Slightly important,” “Somewhat important,” “Very important,” and “Extremely important.” These ratings were coded on a scale of 1 to 5, where 1 indicated the attribute was “Not important,” and 5 indicated that

it was “Extremely important.” Each attribute was then analyzed individually to determine the average rating of each attribute, as well as the proportion of respondents who chose each rating category (i.e. “Not important,” “Extremely important,” etc.). The results of the attribute rating are presented in three figures, with the attributes receiving the highest average rating presented together (Figure 3.09), followed by the attributes receiving the middle ratings (Figure 3.10), and finally, the attributes receiving the lowest average ratings (Figure 3.11).

The attributes receiving the highest average ratings from respondents were food safety concerns, freshness, taste/texture, tenderness, price, and leanness (Figure 3.09). These attributes received average ratings between 3.83 and 4.43, indicating that on average, respondents found these attributes to be “Somewhat” to “Extremely” important.

Recent food safety scares, such as *Bovine Spongiform Encephalopathy* (BSE, or “mad cow disease”) have sparked a new interest in meat safety. To determine whether or not these issues have had an effect on consumers in and around Nevada, respondents were asked to rate the importance of the safety of a meat product when considering a purchase. Sixty-six percent (566 respondents) of respondents rated meat’s safety assurances as extremely important and 22% (194) rated it as very important, while only 6% (56) rated it as somewhat important, 3% (29) rated it as slightly important, and another 3% (27) rated meat’s safety assurances as not important when considering a meat purchase. Overall, 94% (816) of respondents rated meat’s safety as a more important attribute, while the other 6% (56) considered it a less important attribute. Ninety-three respondents (10% of total sample) did not answer the question. The average rating of food safety was 4.43.

Meat's freshness is a quality that can be observed through visual inspection of the product, and may lead the consumer to make assumptions as to the taste and quality of the meat. Over one-half of respondents, 57% (523 respondents) rated freshness as extremely important, 34% (310) of respondents rated freshness as very important, 4% (39) rated it as somewhat important, 2% (16) rated it as slightly important, and 2% (23) of respondents rated freshness as not important. Overall, 96% (872) of respondents rated freshness as a more important attribute, while 4% (39) rated it as a less important attribute. Fifty-four respondents (6% of total sample) did not answer the question. The average rating of freshness was 4.42.

While each consumer's perception of a meat product's taste is subjective, certain meat attributes may enhance meat's flavor. Fifty-six percent (481 respondents) of respondents rated taste/flavor as extremely important and 33% (291) rated it as very important, while only 6% (51) rated it as somewhat important, 2% (19) rated it as slightly important, and 3% (29) rated taste and flavor as not important when considering a meat purchase. Overall, 94% (823) of respondents rated taste/flavor as a more important attribute, while 6% (48) rated it as a less important attribute. Ninety-four respondents (10% of total sample) did not answer the question. Taste and flavor received an average rating of 4.35.

Tenderness refers to the amount of force necessary to chew the meat, and may be affected by factors such as the cut of the meat and the meat's fat content. Meat that has a tender consistency may be more attractive to consumers than meat that is tough. Thirty-five percent (307 respondents) of respondents rated tenderness as extremely important, 42% (377) rated it as very important, 15% (132) rated it as somewhat important, 4% (33)

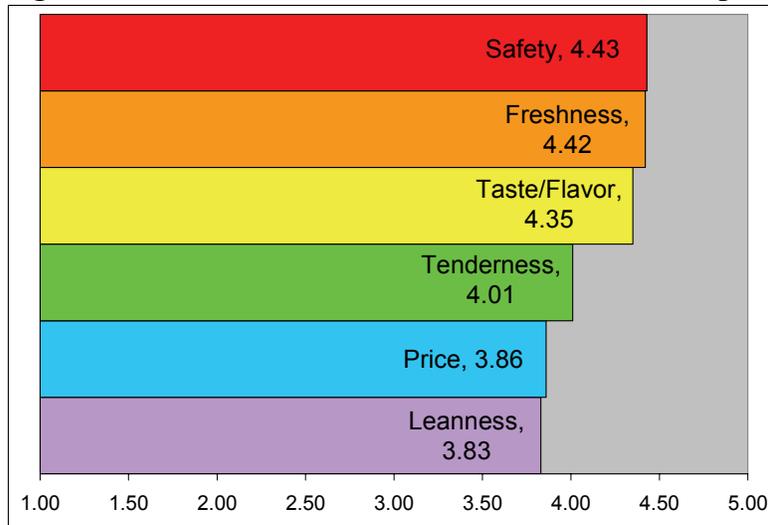
rated it as slightly important, and another 4% (33) of respondents rated meat's tenderness as not important. Overall, 93% (816) of respondents rated tenderness as a more important attribute, while 7% (66) rated it as a less important attribute. Eighty-three respondents (9% of total sample) did not answer the question. The average rating of tenderness was 4.01.

Although price may play a role in any purchasing decision, there are other factors to consider when purchasing meat. In order to better understand the effect of price on consumers' meat purchasing decisions in and around Nevada, respondents were asked to rate the importance of the price of meat when making a meat product purchase. Thirty-six percent (322 respondents) rated price as an extremely important attribute, 33% (289) rated it as very important, 18% (160) rated it as somewhat important, 7% (58) rated it as slightly important, and the remaining 6% (56) rated price as not important at all when considering a meat purchase. Overall, 87% (771) of respondents rated price as a more important attribute, while the remaining 13% (114) rated it as a less important attribute. Eighty respondents (8% of total sample) did not answer the question. Price received an average rating of 3.86.

By USDA standards, meat is considered lean if it contains no more than 2.7 grams of fat per ounce. Thirty-three percent (283 respondents) of respondents rated leanness as extremely important, 36% (312) said it is very important, 18% (154) said it is somewhat important, 6% (53) said it is slightly important, and the remaining 7% (57) of respondents said that lean meat is not important when they consider a meat purchase. Overall, 87% (749) of respondents rated leanness as a more important attribute, while 13% (110) rated

it as a less important attribute. One hundred six respondents (11% of total sample) did not answer the question. The average rating of leanness was 3.83.

Figure 3.09: Meat Product Attributes of Greatest Importance to Respondents



Seven meat product attributes were found to average ratings putting them somewhere between the most and least important attributes (Figure 3.10). These attributes included the meat product’s cut type, the product’s packaging materials and size, the humane treatment of livestock, environmentally friendly meat production, the meat product’s marbling, the meat’s muscle texture, and natural meat. These attributes received average ratings between 3.12 and 3.42, indicating that on average, these attributes were found to be “Somewhat” important.

A meat product’s cut type may affect the meat's tenderness, and will likely affect the price as well. Eighteen percent (160 respondents) of respondents rated meat’s cut type as extremely important when considering a meat purchase, 34% (293) rated it as very important, 29% (248) rated it as somewhat important, 10% (86) rated it as slightly important, and the remaining 9% (80) of respondents rated meat’s cut type as not important when considering a meat purchase. Overall, 81% (701) of respondents rated

meat's cut type as a more important attribute when considering a meat purchase, while the other 19% (161) rated it as a less important attribute. Ninety-eight respondents (10% of total sample) did not answer the question. Cut type received an average rating of 3.42.

Product packaging may have an effect on consumers' perception of the product, and may influence the amount of money consumers are willing to pay for the product. In light of this potential effect, respondents were asked to rate the importance of a meat product's packaging materials and size when considering making a meat product purchase. Twenty-two percent (189 respondents) of respondents rated packaging as a more important attribute, 28% (243) rated it as a very important attribute, 26% (225) rated it as somewhat important, 12% (102) rated it as slightly important, and the remaining 12% (199) of respondents rated meat's packaging materials and size as not important when considering a meat purchase. Overall, 76% (657) of respondents rated packaging as a more important attribute, while the other 24% (205) rated it as less important. One hundred three respondents (11% of total sample) did not answer the question. The average rating of packaging was 3.36.

In order to better understand preferences for the treatment of livestock among consumers in and around Nevada, respondents were asked to rate the importance of livestock having been humanely treated when considering a meat product purchase. Twenty-six percent (220 respondents) of respondents rated the humane treatment of livestock as an extremely important meat attribute, 24% (209) rated it as very important, 22% (185) rated it as somewhat important, 13% (115) rated it as slightly important, and the remaining 15% (126) of respondents rated the humane treatment of livestock as not important when considering a meat purchase. Overall, 72% (614) of respondents rated

humane treatment as a more important attribute, while the remaining 28% (241) rated it as a less important attribute. One hundred ten respondents (11% of total sample) did not answer the question. The humane treatment of livestock received an average rating of 3.33.

Respondents were asked to rate the importance of a meat product having been produced in an environmentally friendly manner when considering a meat product purchase. Twenty percent (174 respondents) of respondents rated environmentally friendly production as a more important attribute when considering a meat purchase, 26% (219) rated it as very important, 24% (207) rated it as somewhat important, 15% (124) rated it as slightly important, and the remaining 15% (126) of respondents rated environmentally friendly production as not important when considering a meat purchase. Overall, 70% (600) of respondents rated environmentally friendly production as a more important attribute, while the other 30% (253) rated it as a less important attribute. One hundred twelve respondents (12% of total sample) did not answer the question. The average rating of environmentally friendly production was 3.22.

Marbling is the presence of strips or flecks of fat in meat, which may enhance the meat's flavor, tenderness, and juiciness. Seventeen percent (139 respondents) of respondents rated marbling as extremely important, 27% (230) rated it as very important, 28% (232) rated it as somewhat important, 13% (112) rated it as slightly important, and 15% (128) of respondents rated marbling as not important. Overall, 71% (601) of respondents rated marbling as a more important attribute, while 29% (240) of respondents rated it as a less important attribute. One hundred twenty-four respondents

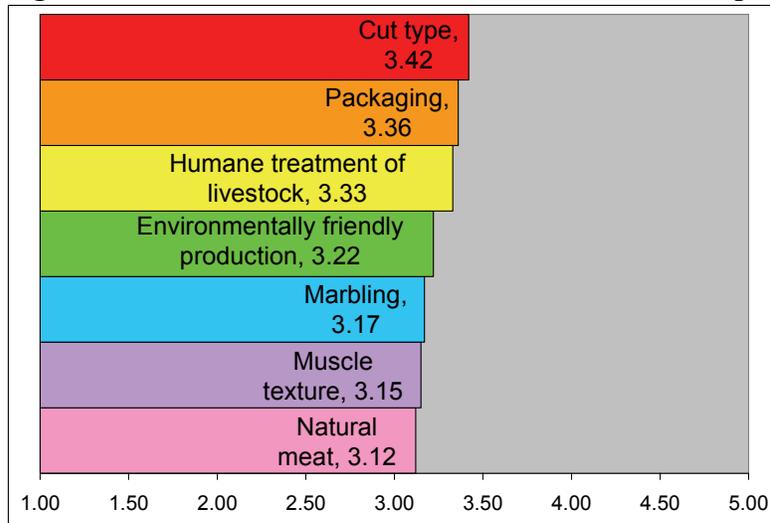
(13% of total sample) did not answer the question. Marbling received an average rating of 3.17.

Respondents were asked to rate the importance of the muscle texture of a meat product when considering making a meat purchase. This question was asked because a portion of the USDA grade assigned to meat is derived from the muscle texture of the meat, with firmer muscle texture receiving a higher (more favorable) grade. Seventeen percent (145 respondents) of respondents said muscle texture is extremely important, 26% (220) said it is very important, 28% (238) said it is somewhat important, 12% (100) said it is slightly important, and the remaining 17% (142) of respondents said that meat's muscle texture is not important when considering a meat purchase. Overall, 71% (603) of respondents rated muscle texture as a more important attribute, while 29% (242) rated it as a less important attribute. One hundred twenty (12% of total sample) respondents did not answer the question. The average rating of muscle texture was 3.15.

Natural meats come from livestock that has not been given growth hormones or routine antibiotics, and the finished meat products have been subject to minimal processing and additives. To determine the importance of natural meats to consumers in and around Nevada, respondents were asked to rate the importance of meat being natural when considering a meat purchase. Twenty percent (175 respondents) of respondents rated natural meat as an extremely important attribute when considering a meat purchase, 26% (223) rated it as very important, 21% (186) rated it as somewhat important, 14% (124) rated it as slightly important, and the remaining 19% (170) of respondents rated natural meat as not important when considering a meat purchase. Overall, 67% (584) of respondents rated natural meat as a more important meat attribute, while the other 33%

(294) rated it as a less important attribute. Eighty-seven percent of respondents (9% of total sample) did not answer the question. The average rating of natural meat was 3.12.

Figure 3.10: Meat Product Attributes of Moderate Importance to Respondents



Five attributes were found to have the least amount of importance to the entire sample of survey respondents in regards to their effect on meat product purchasing decisions (Figure 3.11). These include livestock’s feed type, sales and promotional pricing, the origin of the meat product (i.e. local production), the product’s brand name, and organic meat. These five meat product attributes received average ratings of 2.58 to 3.05, indicating that on average, respondents found them to be “Slightly” to “Somewhat” important.

The type of feed livestock consumes can affect the flavor, leanness, and texture of meat. Nineteen percent (161 respondents) of respondents rated feed type as an extremely important attribute, 21% (183) rated it as very important, 25% (220) rated it as somewhat important, 15% (126) as slightly important, and the remaining 20% (170) rated livestock’s feed type as not important when considering a meat purchase. Overall, 66% (564) of respondents rated feed type as a more important attribute, while the remaining

34% (296) rated it as less important. One hundred five respondents (11% of total sample) did not answer the question. Feed type received an average rating of 3.05.

To determine whether or not sales and promotions of meat products affect the meat purchases of consumers in and around Nevada, respondents were asked to rank the importance of a sale or special promotion when considering a meat purchasing decision. Thirteen percent (115 respondents) rated sales and promotions as extremely important, 25% (215) rated them as very important, 23% (195) rated them as somewhat important, 16% (195) rated them as slightly important, and the remaining 23% (199) of respondents rated sales and promotion as not important when considering a meat purchase. Overall, 61% (525) of respondents rated sales and promotions of meat as a more important attribute, while the other 39% (336) rated them as less important. One hundred four respondents (11% of total sample) did not answer the question. Sales and promotional pricing received an average rating of 2.90.

The market for locally produced foods has expanded in recent years. To get more insight as to the market for locally produced meats in Nevada and surrounding states, respondents were asked to rate the importance of a meat product's origin (specifically, whether or not it was raised/processed locally) when considering a meat product purchase. Fifteen percent (124 respondents) of respondents rated origin as an extremely important attribute when considering a meat purchase, 19% (164) rated it as a very important attribute, 26% (224) rated it as somewhat important, 17% (141) rated it as slightly important, and the remaining 23% (199) of respondents rated meat's origin as not important when considering a meat purchase. Overall, 60% (512) of respondents rated origin as a more important meat attribute, while 40% (340) rated it as less important.

One hundred thirteen respondents (12% of total sample) did not answer the question.

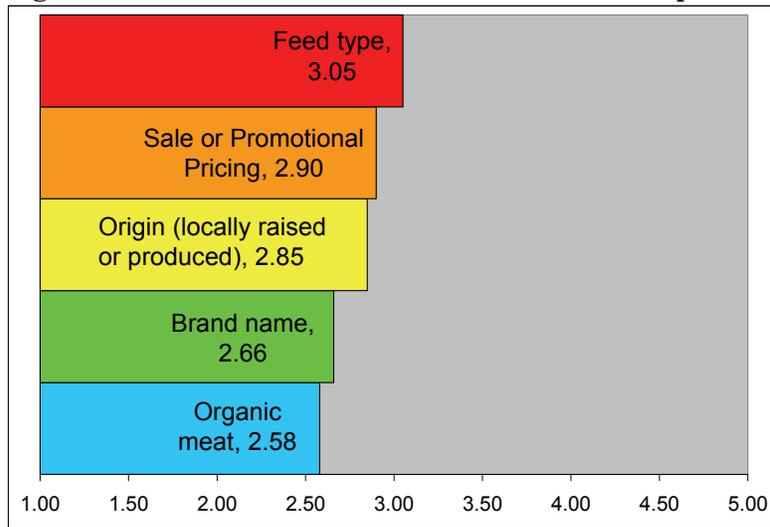
Locally raised meat received an average rating of 2.85.

Respondents were asked to rate the importance of a meat product's brand name when considering a meat purchase. Previous studies have shown that consumers are affected by name brands, and may be willing to pay more for products marketed under a recognizable brand (such as Giddens and Hoffman, 2001). Eleven percent (98 respondents) of respondents rated meat's brand name as extremely important, 16% (139) rated it as very important, 27% (232) rated it as somewhat important, 18% (153) rated it as slightly important, and the remaining 28% (239) of respondents rated meat's brand name as not important when considering a meat purchase. Overall, 54% (469) of respondents rated meat's brand name as a more important attribute when considering a meat purchase, while the other 46% (392) rated it as a less important attribute. One hundred four respondents (11% of total sample) did not answer the question. The average rating of a meat's brand name was 2.66.

Organic meats come from livestock that has been raised without growth hormones or routine antibiotics, has not been genetically modified, and has been raised on a diet of only certified organic feed. As with local products, the market for organic products has expanded in recent years, so respondents were asked to rate the importance of organic meat products when considering a purchase to shed more light on to the changing market for organic meats in the Southwest. Twelve percent (103 respondents) of respondents rated organic certification as a more important attribute when considering a meat purchase, 16% (142) rated it as a very important attribute, 22% (188) rated it as somewhat important, 19% (169) rated it as slightly important, and the remaining 31%

(272) of respondents rated organic as not important when considering a meat purchase. Overall, 50% (433) of respondents rated organic as a more important meat attribute, while the other 50% (441) rated it as a less important attribute. Ninety-one respondents (9% of total sample) did not answer the question. The average rating of organic meat was 2.58.

Figure 3.11: Meat Product Attributes of Least Importance to Respondents



To give an idea of the relative importance of meat quality attributes that were not presented in the same figure, Table 3.06 presents the average rating of each of the meat product attributes.

Table 3.06: Comparison of Average Ratings for All Attributes

Attribute	Average Rating
Safety	4.43
Freshness	4.42
Taste/Flavor	4.35
Tenderness	4.01
Price	3.86
Leanness	3.83
Cut type	3.42
Packaging materials/size	3.36
Humane treatment of livestock	3.33
Environmentally friendly production	3.22
Marbling	3.17
Muscle texture	3.15
Natural meat	3.12
Feed type	3.05
Sale/Promotional pricing	2.90
Origin (locally raised/produced)	2.85
Brand name	2.66
Organic meat	2.58

Results of Consumer Survey: Hispanic Population

Demographics: Hispanic Sub Sample

Figure 3.12 shows the household sizes of Hispanic respondents. Twenty-five percent (101 respondents) of Hispanic respondents have a household size of 1-2 members, 38% (156) have 3 to 4 members in their household, 31% (123) have 5 or 6 household members, and the remaining 6% (23) of Hispanic respondents have 7 or more people in their household. Five respondents (1% of Hispanic population) did not answer the question.

Figure 3.12: Hispanic Respondent Household Size

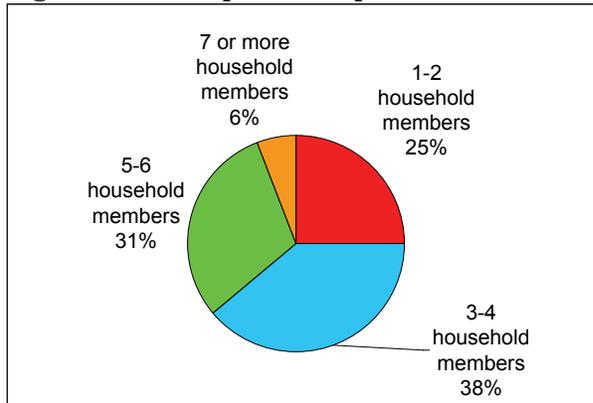
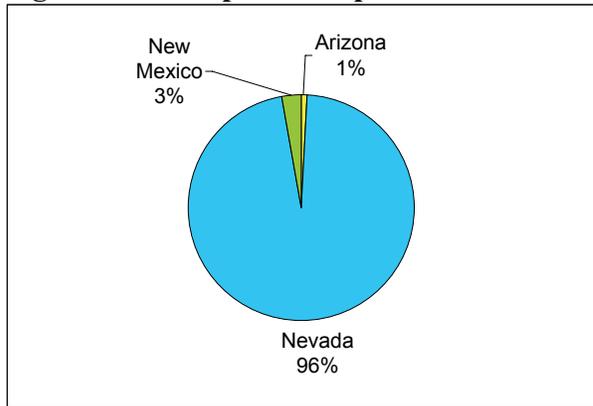


Figure 3.14 shows Hispanic respondents' distribution across the surveyed states. The vast majority of Hispanic respondents, 96% (385), were from Nevada, while 3% (11) were from New Mexico, and the remaining 1% (3) of Hispanic respondents lived in Arizona. None of the Hispanic respondents said they lived in Utah. Nine respondents (2% of Hispanic sample) did not answer the question.

Figure 3.14: Hispanic Respondents' State of Residency



As previously mentioned, gender, marital status, and the presence of children in a household can greatly affect consumer preferences; because of this, respondents were asked to provide information as to whether they were male or female, married or single, and whether or not they have children. Slightly more of the Hispanic respondents were women, with 53% (211) of Hispanic respondents describing themselves as female, while 65% (260 respondents) said they were married, and 68% (276 respondents) said they have children in their household.

Figure 3.15 shows the annual household income levels of Hispanic respondents. Twenty-four percent (94 respondents) of Hispanic respondents had an annual household income of less than \$30,000 per year, 26% (106) had an annual household income of \$30,001-\$45,000, 18% (70) had an annual household income between \$45,001 and \$60,000, 9% (35) had an annual household income between \$60,001 and \$75,000, 5% (21) had an annual household income of \$75,001-\$100,000, and 5% (20) of Hispanic respondents had an annual household income of more than \$100,000. Thirteen percent (52 respondents) of Hispanic respondents preferred not to answer the question, and 10 respondents (2% of Hispanic population) did not answer the question.

Figure 3.15: Income Level of Hispanic Respondents

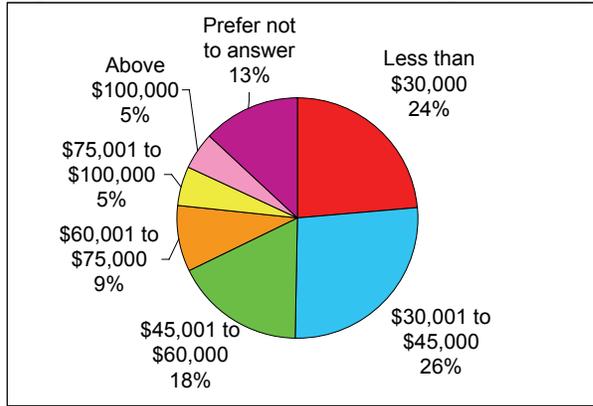


Figure 3.16 shows the highest completed education level of Hispanic respondents. Thirteen percent (52 respondents) of Hispanic respondents had completed middle school, 39% (153) had completed high school, 25% (99) had completed some college, 10% (41) had a two-year degree, 8% (30) had a four-year degree, and the remaining 5% (20) of Hispanic respondents had a graduate degree or higher level of education. Thirteen respondents (3% of Hispanic sample) did not answer the question.

Figure 3.16: Education Level of Hispanic Respondents

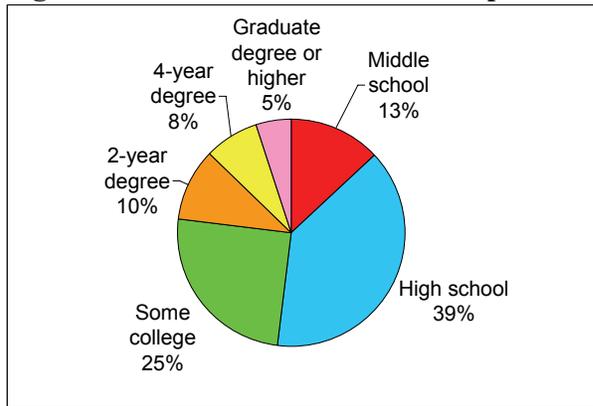


Figure 3.17 shows the employment level of Hispanic respondents. Sixty-eight percent (274) of Hispanic respondents were full-time employed, 11% (44) were part-time employed, 5% (20) were unemployed, 4% (15) were homemakers, 7% (27) were retired,

and the remaining 5% (19) of Hispanic respondents were students. Nine respondents (2% of Hispanic sample) did not answer the question.

Figure 3.17: Employment of Hispanic Respondents

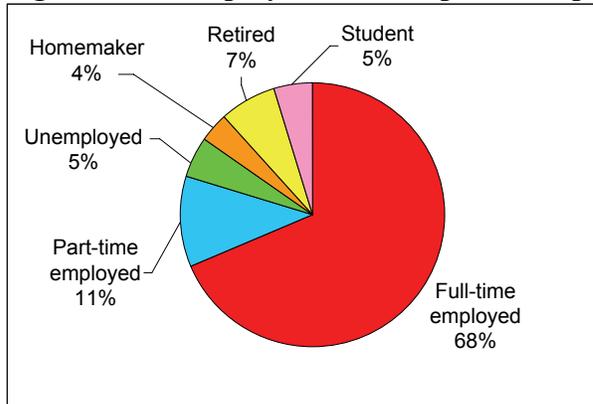
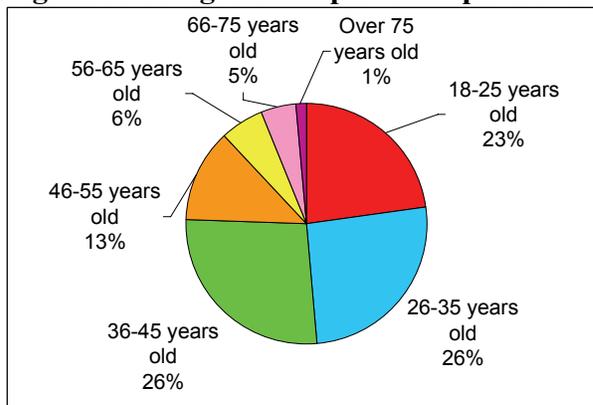


Figure 3.18 shows the age ranges of Hispanic respondents. Twenty-three percent (90) of Hispanic respondents said they were 18-25 years old, 26% (103) said they were between 26 and 35 years old, 26% (107) said they were between 36 and 45 years old, 13% (50) said they were between 46 and 55 years old, 6% (23) said they were between 56 and 65 years old, 5% (19) said they were between 66 and 75 years old, and the remaining 1% (5) of Hispanic respondents said they were more than 75 years old. Eleven respondents (3% of Hispanic population) did not answer the question.

Figure 3.18: Ages of Hispanic Respondents



Meat Consumption and Purchasing History: Hispanic Sub Sample

As mentioned, being the primary shopper in the household may have a bearing on a respondent's knowledge of his or her household's purchasing preferences. Seventy-four percent (299 respondents) of Hispanic respondents said they are their household's primary grocery shopper, while the other 26% (105) said they are not. Four respondents (1% of Hispanic sample) did not answer the question.

When comparing the weekly meat consumption figures of the Hispanic respondents to those of the entire sample, the results are somewhat similar in that more than half of the respondents said they eat meat between one and five times a week (Figure 3.19). Sixty-five percent (262 respondents) of respondents said they eat meat 1-5 times per week, 25% (102) said they eat meat 5-10 times per week, 5% (22) said they eat meat 10-15 times per week, 3% (12) said they eat meat more than 15 times per week, and the final 2% (7) said they never eat meat. A smaller percentage of Hispanic respondents said they eat meat ten or more times per week (8% for this sub sample versus 9% for the entire sample), but this difference is slight enough to be considered negligible.

Figure 3.19: Weekly Household Meat Consumption

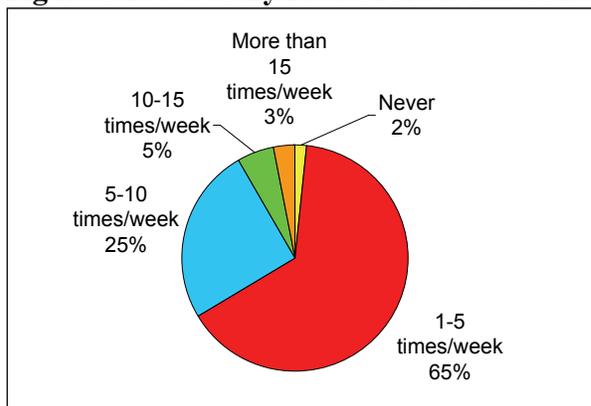


Table 3.07 shows the purchasing outlet information for Hispanic respondents, indicating what percentage of total meat purchases respondents typically make from each

of the different store types. Fifty-three percent (215 respondents) of respondents purchase 76-100% of their meat from conventional grocery stores, 13% (54) purchase 51-75% of their meat from conventional grocery store, 10% (41) purchase 26-50% of their meat from conventional grocery stores, and 13% (55) of respondents purchase 1-25% of their meat from conventional grocery stores. Eleven percent (43 respondents) of Hispanic respondents do not purchase meat from conventional grocery stores.

Three percent (11 respondents) of respondents purchase 76-100% of their meat from butchers and specialty stores, 1% (5) purchase 51-75% of their meat from butchers and specialty stores, 7% (30) purchase 26-50% of their meat from butchers and specialty stores, and 16% (66) of Hispanic respondents purchase 1-25% of their meat from butchers and specialty stores. Seventy-three percent (296 respondents) of Hispanic respondents do not purchase meat from butchers and specialty stores.

Two percent (7 respondents) of Hispanic respondents purchase 76-100% of their meat from health food stores, while 3% (13) purchase 51-75% of their meat from health food stores, 2% (10) purchase 26-50% of their meat from health food stores, and 10% (40) of Hispanic respondents purchase 1-25% of their meat from health food stores. Eighty-three percent (338 respondents) of Hispanic respondents do not purchase meat from health food stores.

Two percent (7 respondents) of Hispanic respondents said they purchase 76-100% of their meat directly from the farmer, while 2% (8) purchase 51-75% of their meat from the farmer, 1% (6) purchase 26-50% of their meat from the farmer, and 3% (14) of Hispanic respondents purchase 1-25% of their meat directly from the farmer. Ninety-one

percent (373 respondents) of Hispanic respondents do not purchase meat directly from the farmer.

One percent of Hispanic respondents (4 respondents) purchase 76-100% of their meat online, while less than 1% (2) purchase 51-75% of their meat on the Internet, 1% (4) purchase 26-50% of their meat online, and an additional 1% (6) of Hispanic respondents purchase 1-25% of their meat on the Internet. Ninety-six percent (392 respondents) of Hispanic respondents do not purchase meat online.

Table 3.07: Meat Purchasing Outlets Used by Hispanic Respondents

Purchasing Outlet	76-100% of total purchases	51-75% of total purchases	26-50% of total purchases	1-25% of total purchases	Do not purchase at this outlet
Conventional grocery store	53% (215)	13% (54)	10% (41)	13% (55)	11% (43)
Butcher/Specialty store	3% (11)	1% (5)	7% (30)	16% (66)	73% (296)
Health food store	2% (7)	3% (13)	2% (10)	10% (40)	83% (338)
Direct from farmer	2% (7)	2% (8)	1% (6)	3% (14)	91% (373)
Internet	1% (4)	<1% (2)	1% (4)	1% (6)	96% (392)

The following tables show the average monthly household meat consumption of various meat cuts by Hispanic respondents. Based on the data provided by respondents as to their household sizes, the average household size for the Hispanic sub sample of respondents was found to be 4 members. In the following paragraphs, “household” implies a unit of 4 consumers.

When asked to provide monthly consumption estimates for beef products (Table 3.08), Hispanic households said that they consumed, on average, nearly 7.5 pounds of carne asada each month. Respondents consumed between six and seven pounds of beef carnitas, ground beef, beef stew meat, sir loin steak, prime rib, and preformed meatballs and/or hamburger patties, while they consumed an average of nearly six pounds a month

of beef chuck and rib eye steak. Respondents said they consumed over five pounds each of tri-tip steak, beef roast, and beef tripe.

Table 3.08: Average Monthly Beef Consumption by Hispanic Respondents

Beef Cut Type	Average Household Consumption (lbs/month)
Carne asada	7.46 lbs/mo
Beef carnitas	6.71
Ground beef	6.60
Beef stew meat	6.39
Sir loin	6.30
Prime rib	6.29
Preformed meatballs/patties	6.18
Beef chuck	5.97
Rib eye	5.97
Tri-tip	5.75
Beef roast	5.68
Beef tripe	5.55

Table 3.09 lists the beef products consumed by the entire sample and the Hispanic respondents, listed from most to least consumed. Comparing the average consumption figures for the entire sample with those of the Hispanic respondents, both populations stated that their households consume the greatest amount of carne asada, beef carnitas, and ground beef. The fact that carne asada and beef carnitas were the most consumed product for both populations may be related to the fact that nearly half of the total respondents identified themselves as Hispanic. Hispanic respondents consumed more beef stew meat and sir loin steak than they did prime rib, preformed meatballs and hamburgers, and beef chuck, while the order of these products was slightly different for the entire sample.

Table 3.09: Comparison of Beef Consumption

Beef Consumption, All	Beef Consumption, Hispanic
Carne asada	Carne asada
Beef carnitas	Beef carnitas
Ground beef	Ground beef
Prime rib	Beef stew meat
Preformed meatballs/patties	Sir loin
Beef chuck	Prime rib
Beef stew meat	Preformed meatballs/patties
Sir loin	Beef chuck
Rib eye	Rib eye
Tri-tip	Tri-tip
Beef roast	Beef roast
Beef tripe	Beef tripe

The pork cut most consumed on an average monthly basis by Hispanic respondents was pork cutlets, at 6.84 pounds per month (Table 3.10). Hispanic respondents said they consumed between six and seven pounds per month of ground pork, pork carnitas, and pork shoulder. Respondents said they consumed between five and six pounds per month of pork ribs, pork loin, pork chops, pork leg, pork feet, and bacon.

Table 3.10: Average Monthly Pork Consumption by Hispanic Respondents

Pork Cut Type	Average Household Consumption (lbs/month)
Pork cutlets	6.84 lbs/mo
Ground pork	6.64
Pork carnitas	6.22
Pork shoulder	6.00
Pork ribs	5.92
Pork loin	5.80
Pork chops	5.49
Pork leg	5.45
Pork feet	5.28
Bacon	5.11

Comparing the consumption of pork products between the entire sample and Hispanic respondents, the same products fall into the top three most-consumed, although in a different order (Table 3.11). Hispanic consumers consumed pork cutlets, ground

pork, and pork carnitas the most, while over all respondents, pork carnitas were most popular.

Table 3.11: Comparison of Pork Consumption

Pork Consumption, All	Pork Consumption, Hispanic
Pork carnitas	Pork cutlets
Ground pork	Ground pork
Pork cutlets	Pork carnitas
Pork loin	Pork shoulder
Pork ribs	Pork ribs
Pork shoulder	Pork loin
Pork leg	Pork chops
Pork chops	Pork leg
Pork feet	Pork feet
Bacon	Bacon

The sheep/lamb cut most consumed by Hispanic households was lamb loin, at just over seven pounds per month (Table 3.12). Respondents said they consume between six and seven pounds per month of mutton, rack of lamb, lamb shank, whole lamb, and leg of lamb. Respondents consumed between five and six pounds per month of lamb breast and lamb chops, and an average of 4.72 pounds per month of lamb shoulder.

Table 3.12: Average Monthly Sheep/Lamb Purchases by Hispanic Respondents

Sheep/Lamb Cut Type	Average Household Consumption (lbs/month)
Lamb loin	7.14 lbs/mo
Mutton	6.72
Rack of lamb	6.67
Lamb shank	6.58
Whole lamb	6.20
Leg of lamb	6.05
Lamb breast	5.71
Lamb chops	5.59
Lamb shoulder	4.72

Table 3.13 compares the most consumed sheep and lamb products among all respondents and among those who identified themselves as Hispanic. While both groups identified lamb loin as one of their most consumed cuts, rack of lamb was more popular

with Hispanic respondents, while lamb breast was slightly more popular over all respondents.

Table 3.13: Comparison of Sheep/Lamb Consumption

Sheep/Lamb Consumption, All	Sheep/Lamb Consumption, Hispanic
Lamb shank	Lamb loin
Lamb loin	Mutton
Mutton	Rack of lamb
Lamb breast	Lamb shank
Rack of lamb	Whole lamb
Leg of lamb	Leg of lamb
Whole lamb	Lamb breast
Lamb chops	Lamb chops
Lamb shoulder	Lamb shoulder

The goat product most consumed by Hispanic respondents was goat loin, at 7.56 pounds per month, closely followed by goat leg, at 7.32 pounds per month (Table 3.14). Respondents said they consume an average of between six and seven pounds per month of goat stew meat, goat ribs, and whole goat, while they consume an average of 5.40 pounds per month of goat belly, and 4.72 pounds per month of goat shoulder.

Table 3.14: Average Monthly Goat Purchases by Hispanic Respondents

Goat Cut Type	Average Household Consumption (lbs/month)
Goat loin	7.56 lbs/mo
Goat leg	7.32
Goat stew meat	6.56
Goat ribs	6.43
Whole goat	6.10
Goat belly	5.40
Goat shoulder	4.72

Table 3.15 compares respondent's consumption of goat products between the entire sample and the Hispanic consumers. The order of popularity among cut types is the same, which may be a product of the fact that more Hispanic respondents said they consumed goat products than the other survey respondents.

Table 3.15: Comparison of Goat Consumption

Goat Consumption, All	Goat Consumption, Hispanic
Goat loin	Goat loin
Goat leg	Goat leg
Goat stew meat	Goat stew meat
Goat ribs	Goat ribs
Whole goat	Whole goat
Goat belly	Goat belly
Goat shoulder	Goat shoulder

Meat Attribute Preferences: Hispanic Sub Sample

As mentioned in the results for the entire sample, survey respondents were presented with a list of meat attributes and were asked to rate the importance of each attribute when they consider making a meat purchase. As with the entire sample, the results of the attribute rating from the Hispanic respondents are presented in three figures, with the attributes receiving the highest average rating presented together (Figure 3.20), then the attributes receiving the middle ratings (Figure 3.21), and finally, the attributes receiving the lowest average ratings (Figure 3.22). Table 3.16 at the end of this section compares the ranking of Hispanic respondents versus the entire sample, for comparison.

The attributes receiving the highest average ratings from Hispanic respondents were freshness, food safety concerns, taste/texture, tenderness, and price (Figure 3.20). These attributes received average ratings between 3.58 and 4.14, indicating that on average, Hispanic respondents found these attributes to be “Somewhat” to “Extremely” important.

Just over half of Hispanic respondents, 51% (200 respondents), rated freshness as extremely important, while 38% (150) rated it as very important, 5% (19) rated it as somewhat important, 3% (12) rated it as slightly important, and the remaining 3% (10)

rated meat's freshness as not important. Over all, 94% of respondents (369 respondents) rated freshness as a more important attribute, while the other 6% (22) rated it as a less important attribute. Seventeen respondents (4% of Hispanic population) did not answer the question. The average rating of freshness was 4.14.

Fifty-six percent (207 respondents) of Hispanic respondents rated meat's safety as extremely important, 28% (105) rated it as very important, 9% (34) rated it as somewhat important, 4% (15) rated it as slightly important, and the remaining 3% (10) of respondents rated meat's safety assurances as not important when considering a meat purchase. Overall, 93% (346 respondents) of respondents rated meat's safety assurances as a more important attribute, while the remaining 7% (25) rated it as a less important attribute. Thirty-seven respondents (9% of total Hispanic respondents) did not answer the question. The average rating of food safety was 3.91.

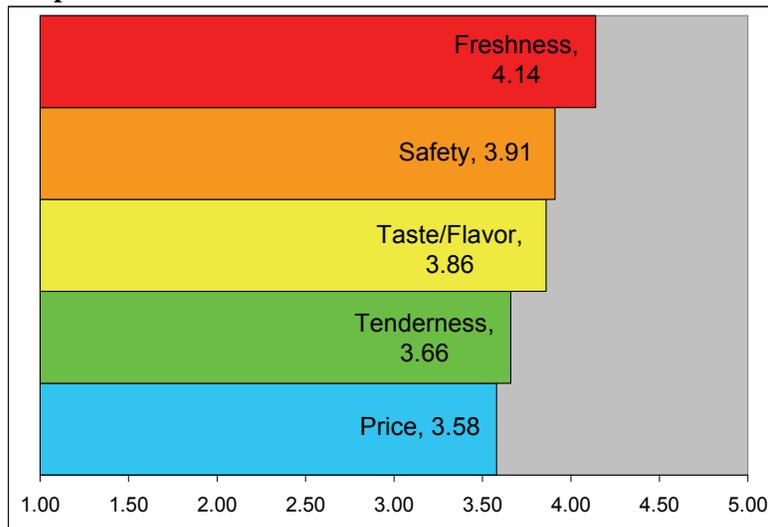
Fifty-four percent (196 respondents) of Hispanic respondents rated taste/flavor as extremely important, 34% (123) rated it as very important, 6% (23) rated it as somewhat important, 3% (10) rated it as slightly important, and the remaining 3% (12) of respondents rated taste and flavor as not important when considering a meat purchase. Overall, 94% (342 respondents) of respondents rated taste and flavor as more important when considering a meat purchase, while the other 6% (22) rated them as less important. Forty-four respondents (11% of Hispanic respondents) did not answer the question. Taste and flavor received an average rating of 3.86.

Thirty-seven percent (137 respondents) of Hispanic respondents rated tenderness as an extremely important attribute, 41% (154) said it is very important, 12% (46) said it is somewhat important, 6% (21) said it is slightly important, and the remaining 4% (14)

of respondents rated meat's tenderness as not important. Overall, 91% (337) of respondents rated meat's tenderness as a more important attribute, while the other 9% (35) rated it as a less important attribute. Thirty-six respondents (9% of Hispanic population) did not answer the question. Tenderness received an average rating of 3.66.

Forty-one percent (154 respondents) of Hispanic respondents rated the price of meat as extremely important, 30% (112) rated it as very important, 15% (55) rated it as somewhat important, 7% (25) rated it as slightly important, and the final 7% (28) of respondents rated the price of meat as not important when considering a meat purchase. Overall, 86% (321 respondents) of respondents rated the price of meat as a more important attribute, while the other 14% (53) rated it as less important. Thirty-four respondents (8% of Hispanic respondents) did not answer the question. The average rating of price was 3.58.

Figure 3.20: Meat Product Attributes of Greatest Importance to Hispanic Respondents



Seven meat attributes had average ratings putting them in the category between greatest and least importance, including leanness of meat, natural meat, meat product's packaging materials and size, cut type, meat's muscle texture, the humane treatment of

livestock, and environmentally friendly production (Figure 3.21). These attributes had average ratings between 2.88 and 3.24, indicating that on average, these attributes were found to be “Slightly” to “Somewhat” important.

Thirty percent (108 respondents) of Hispanic respondents rated lean meat as extremely important, 37% (131) rated it as very important, 16% (57) rated it as somewhat important, 8% (28) rated it as slightly important, and the remaining 9% (32) of respondents rated lean meat as not important when considering a meat purchase. Overall, 83% (296 respondents) of respondents rated lean meat as more important, while the other 17% (60) rated it as less important. Fifty-two respondents (13% of Hispanic respondents) did not answer the question. Leanness received an average rating of 3.24.

Twenty-five percent (92 respondents) of Hispanic respondents rated natural meat as extremely important, 31% (117) rated it as very important, 18% (68) rated it as somewhat important, 13% (49) rated it as slightly important, and the remaining 13% (49) of respondents rated natural meat as not important. Overall, 74% (277 respondents) of respondents rated natural meat as more important, while the other 26% (98) rated it as less important. Thirty-three respondents (8% of Hispanic respondents) did not answer the question. The average rating of natural meat was 3.13.

Twenty-seven percent (95 respondents) of Hispanic respondents rated packaging as an extremely important attribute, 30% (109) rated it as very important, 23% (82) rated it as somewhat important, 12% (42) rated it as slightly important, and the remaining 8% (29) of respondents rated a meat product’s packaging materials and size as not important when considering a meat purchase. Overall, 80% (286 respondents) of respondents rated meat’s packaging as a more important attribute, while the other 20% (71) rated it as less

important. Fifty-one respondents (13% of Hispanic respondents) did not answer the question. Packaging received an average rating of 3.11.

Twenty-one percent (75 respondents) of Hispanic respondents rated meat's cut type as extremely important, 32% (119) rated it as very important, 25% (91) rated it as somewhat important, 11% (39) rated it as slightly important, and another 11% (39) of respondents rated meat's cut type as not important when considering a meat purchase. Overall, 79% (285 respondents) of respondents rated cut type as a more important attribute, while 21% (78) rated it as a less important attribute. Forty-five respondents (11% of Hispanic respondents) did not answer the question. Cut type received an average rating of 3.04.

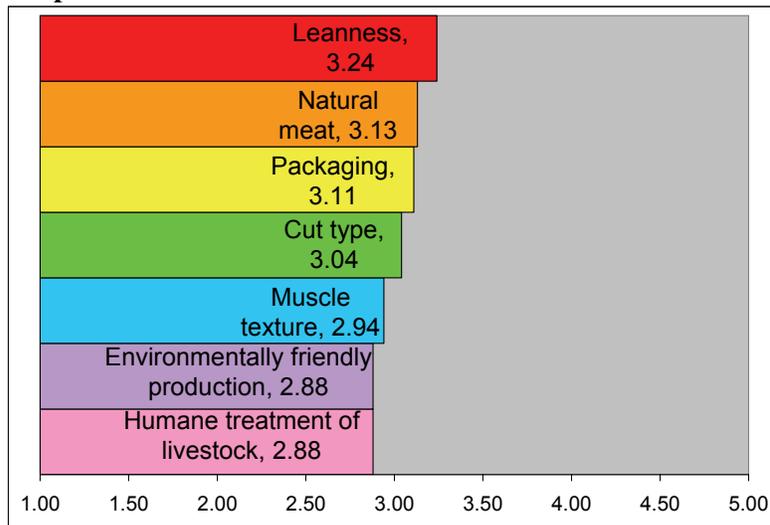
Twenty-one percent (75 respondents) of Hispanic respondents rated muscle texture as extremely important, 29% (105) rated it as very important, 27% (96) rated it as somewhat important, 10% (34) rated it as slightly important, and the remaining 13% (47) of respondents rated meat's muscle texture as not important when considering a meat purchase. Overall, 77% (276 respondents) of respondents rated muscle texture as a more important attribute, while the other 23% (81) rated it as a less important attribute. Fifty-one respondents (13% of Hispanic subsample) did not answer the question. The average rating of muscle texture was 2.94.

Twenty-two percent (77 respondents) of respondents rated environmentally friendly production as an extremely important meat attribute, 27% (97) rated it as very important, 26% (90) rated it as somewhat important, 13% (46) rated it as slightly important, and the remaining 12% (42) of respondents rated environmentally friendly production as not important. Overall, 75% (264 respondents) of Hispanic respondents

rated environmentally friendly production as a more important meat product attribute, while the other 25% (88) rated it as less important. Fifty-six respondents (14% of Hispanic respondents) did not answer the question. The average rating of environmentally friendly production was 2.88.

Twenty-six percent (91 respondents) of respondents rated the humane treatment of livestock as extremely important, 25% (86) rated it as very important, 22% (77) rated it as somewhat important, 13% (47) rated it as slightly important, and the remaining 14% (50) of respondents rated the humane treatment of livestock as not important. Overall, 72% (254 respondents) of respondents rated the humane treatment of livestock as a more important meat attribute, while the other 28% (97) rated it as less important. Fifty-seven respondents (14% of Hispanic respondents) did not answer the question. The average rating of the humane treatment of livestock was 2.88.

Figure 3.21: Meat Product Attributes of Moderate Importance to Hispanic Respondents



Six meat product attributes were found to have average ratings placing them in the category of least important (Figure 3.22). The attributes found to be the least important, on average, were livestock’s feed type, a meat product’s marbling, sale pricing

and promotions, a meat product's brand name, a meat product's region of production (origin), and organic meat. These attributes received average ratings between 2.40 and 2.74, indicating that on average, these attributes were found to be "Slightly" important.

Twenty-one percent (77 respondents) of Hispanic respondents rated livestock's feed type as extremely important, 21% (74) rated it as very important, 24% (87) rated it as somewhat important, 15% (54) rated it as slightly important, and the remaining 19% (68) of respondents rated livestock's feed type as not important when considering a meat purchase. Overall, 66% (238 respondents) of Hispanic respondents rated livestock's feed type as a more important attribute, while the other 34% (122) rated it as less important. Forty-eight respondents (12% of Hispanic respondents) did not answer the question. Feed type received an average rating of 2.74.

Eighteen percent (63 respondents) of Hispanic respondents rated marbling as an extremely important meat attribute, 27% (93) rated it as very important, 26% (89) rated it as somewhat important, 12% (43) rated it as slightly important, and the remaining 17% (60) of respondents rated meat's marbling as not important when considering a meat purchase. Overall, 70% (245 respondents) of Hispanic respondents rated marbling as a more important attribute, while the other 30% (103) rated it as a less important attribute. Sixty respondents (15% of Hispanic sub sample) did not answer the question. The average rating of marbling was 2.70.

Sixteen percent (58 respondents) of Hispanic respondents rated promotional pricing as extremely important, 28% (100) rated it as very important, 22% (78) rated it as somewhat important, 14% (51) rated it as slightly important, and the remaining 20% (71) of respondents rated sales and/or promotional pricing as not important when considering

a meat purchase. Overall, 66% (236 respondents) of Hispanic respondents rated sales and promotional pricing as a more important attribute, while the other 34% (122) rated them as less important. Fifty respondents (12% of Hispanic respondents) did not answer the question. Sales and promotional pricing received an average rating of 2.69.

Sixteen percent (57 respondents) of Hispanic respondents rated meat's brand name as extremely important, 20% (74) rated it as very important, 28% (101) rated it as somewhat important, 13% (47) rated it as slightly important, and the remaining 23% (82) of respondents rated meat's brand name as not important when considering a meat purchase. Overall, 64% (232 respondents) of Hispanic respondents rated meat's brand name as a more important attribute, while the other 36% (129) rated it as a less important attribute. Forty-seven respondents (12% of Hispanic respondents) did not answer the question. The average rating of meat's brand name was 2.60.

Fifteen percent (53 respondents) of Hispanic respondents rated meat's origin as extremely important, 21% (75) rated it as very important, 26% (88) rated it as somewhat important, 14% (50) rated it as slightly important, and the remaining 24% (86) of respondents rated meat's origin as not important. Overall, 61% (216 respondents) of Hispanic respondents rated meat's origin as a more important attribute, while the other 39% (136) rated it as less important. Fifty-six respondents (14% of Hispanic respondents) did not answer the question. The average rating of meat's origin was 2.49.

Fifteen percent (53 respondents) of Hispanic respondents rated organic certification as an extremely important attribute when considering a meat purchase, while 18% (65) rated it as very important, 19% (69) rated it as somewhat important, 19% (69) rated it as slightly important, and the remaining 29% (109) rated organic meat as not at

all important. Overall, 51% (187 respondents) of Hispanic respondents rated organic certification as a more important attribute, while the other 49% (178) rated it as less important. Forty-three respondents (11% of Hispanic population) did not answer the question. Organic meat received an average rating of 2.40.

Figure 3.22: Meat Product Attributes of Least Importance to Hispanic Respondents

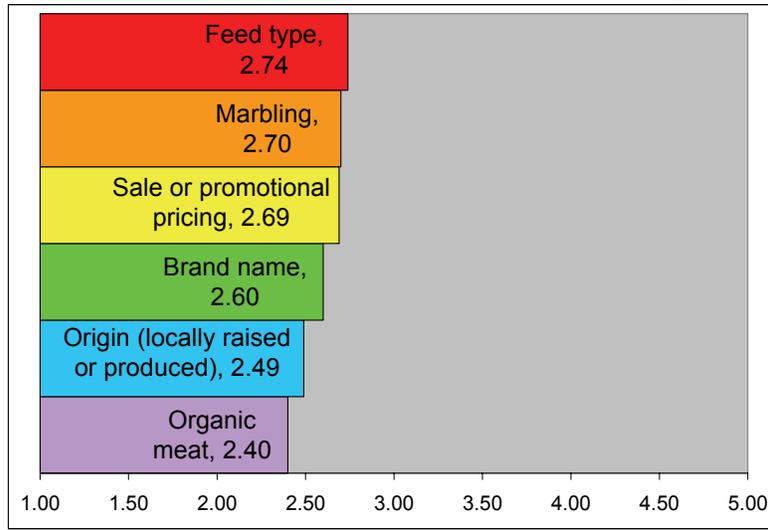


Table 3.16 compares the average ratings by Hispanic respondents of all the meat product attributes.

Table 3.16: Comparison of Average Attribute Ratings by Hispanic Respondents

Attribute	Average Rating
Freshness	4.14
Safety	3.91
Taste/Flavor	3.86
Tenderness	3.66
Price	3.58
Leanness	3.24
Natural meat	3.13
Packaging materials/size	3.11
Cut type	3.04
Muscle texture	2.94
Environmentally friendly production	2.88
Humane treatment of livestock	2.88
Feed type	2.74
Marbling	2.70
Sale/Promotional Pricing	2.69
Brand name	2.60
Origin (locally produced/raised)	2.49
Organic meat	2.40

Table 3.17 compares the average attribute ratings between the Hispanic respondents and the full sample. The same six attributes were found to be most important by both groups, although in different orders: safety, freshness, taste and flavor, tenderness, price, and leanness; while the lower-rated attributes were also the same, although in different orders: sales and promotional pricing, meat’s origin, meat’s brand name, and organic meat. However, the attributes relating to the humane treatment of livestock and environmentally friendly production were found to be slightly less important to the Hispanic sub sample than to the full sample. The Hispanic respondents placed more emphasis on physical qualities of meat, such as muscle texture and cut type, then on the attributes relating to the meat’s production processes.

Table 3.17: Comparison of Attribute Ratings: Hispanic Respondents vs. Full Sample

Rank	All Respondents	Hispanic Respondents
1	Safety	Freshness
2	Freshness	Safety
3	Taste/Flavor	Taste/Flavor
4	Tenderness	Tenderness
5	Price	Price
6	Leanness	Leanness
7	Cut type	Natural meat
8	Packaging materials/size	Packaging materials/size
9	Humane treatment of livestock	Cut type
10	Environmentally friendly production	Muscle texture
11	Marbling	Environmentally friendly production
12	Muscle texture	Humane treatment of livestock
13	Natural meat	Feed type
14	Feed type	Marbling
15	Sale/Promotional pricing	Sale/Promotional Pricing
16	Origin (locally raised/produced)	Brand name
17	Brand name	Origin (locally produced/raised)
18	Organic meat	Organic meat

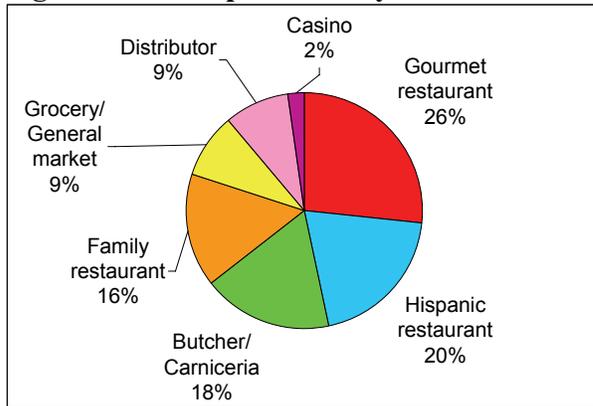
Store/Restaurant Survey

In the early winter months of 2007, a telephone survey was administered to butchers, specialty meat stores, food stores, restaurants, and foodservice distributors throughout Nevada in an effort to determine the sorts of meat products these establishments offer, as well as the characteristics of meat products they find most appealing. An emphasis was placed on establishments serving Hispanic foods and the Hispanic population, such as *carnicerías*, the Spanish word for butcher or meat store, as well as Basque restaurants, which generally serve traditional meat dishes that are not widely available in other restaurants. The database for restaurants was compiled from the Nevada Restaurant Association. A copy of one version of the store and restaurant survey can be found in Appendix C.

Demographics

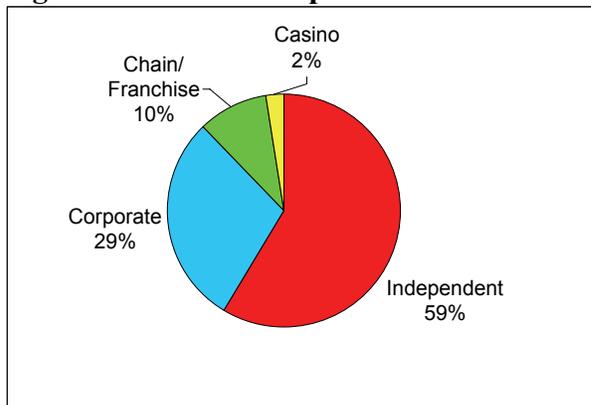
Respondents were asked to describe the type of establishment they work for (Figure 3.23). Twenty-six percent (12 respondents) of respondents said they work for a gourmet or high-end restaurant, 20% (9) said they work for an Hispanic restaurant, 18% (8) said they work for a butcher or *carnicería*, 16% (7) said they work for a family-style restaurant, 9% (4) of respondents said they work for a standard grocery store or food market, 9% (4) said they work for a wholesale or other food distributor, and the remaining 2% (1) of respondents said they work for a casino restaurant.

Figure 3.23: Respondents by Establishment Type



Respondents were asked to provide information as to the ownership of their establishment (Figure 3.24). Fifty-nine percent (24 respondents) of respondents said their establishment is independently owned, 29% (12) said they are corporately owned, 10% (4) said they are part of a chain or franchise system, and the remaining 2% (1) said their establishment is owned by a casino.

Figure 3.24: Ownership of Establishment

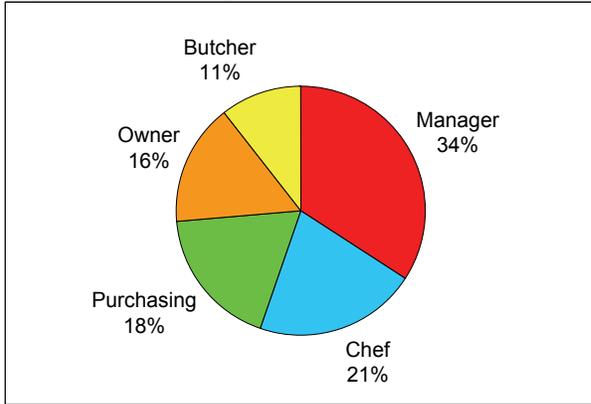


Respondents were asked to describe their position with the company (Figure 3.25). Thirty-four percent (34%, 13 respondents) said they are a manager at their establishment, 21% (8) said they work as chefs, 18% (7) said they work in purchasing for their establishment, 16% (6) described themselves as the owner of the establishment, and

the remaining 11% (4) of respondents said they are butchers for their establishment.

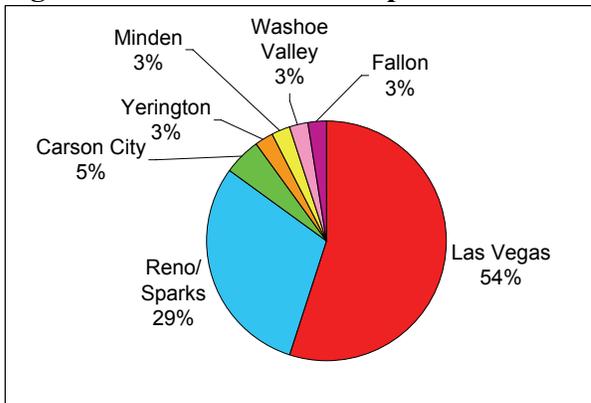
Three respondents (7% of the total sample) did not answer the question.

Figure 3.25: Respondent’s Title or Position



Respondents were asked where in Nevada their establishment is located (Figure 3.26). Fifty-four percent (22 respondents) of respondents were located in the greater Las Vegas area, 29% (12) were in the Reno/Sparks area, 5% (2) were in Carson City, and 3% each (1 respondent each) were located in Yerington, Minden, Washoe Valley, and Fallon. Location information for one respondent (2% of total sample) was unavailable.

Figure 3.26: Location of Respondent’s Establishment



Respondents were asked to describe their level of autonomy within the establishment in regards to the freedom they have in deciding from whom to make purchases. This was done on a scale of 1 to 10, where 1 indicated “no autonomy” and 10

indicated “full autonomy.” The average autonomy rating over all respondents was 8.49, indicating that on average, respondents had nearly full autonomy.

Purchasing History

In order to better understand the types of meat products that stores and restaurants purchase for use in their establishments, respondents were asked to estimate their meat purchases over the past thirty days. This figure can be used as an example of the quantity of various meat products that stores and restaurants in Nevada purchase each month. The results of this section of the survey will be presented by showing the total amount (in pounds) of each meat cut type that the respondents purchase each month.

Table 3.18 shows the total amount of beef purchases by store and restaurant respondents. Over all, sirloin steak was purchased in a much greater quantity than other beef cuts, although it is worth noting that the next two most-purchased beef cuts were also higher quality cuts: rib eye steak and prime rib. This may indicate a potential for local producers to supply local meat purchasing outlets and restaurants with the high cuts, which are generally the more expensive cuts of meat.

The next most popular meat cuts among store and restaurant respondents were cuts that are typically lower-cost meats. This includes preformed hamburger patties and/or meatballs, ground beef, beef chuck, beef roast, tri-tip, carne asada, beef stew meat, and skirt steak. The remaining beef cuts were purchased to a lesser degree over all respondents, which may be a product of the fact that these products appeal to smaller segments of the population, rather than having the mass appeal of products such as

ground beef and prime rib. These products include short ribs, carnitas, brisket, New York steak, veal, tripe, fajita meat, and whole fillet.

Table 3.18: Beef Total Purchases

Cut type	Total purchases (pounds/month)
Sirloin steak	23,315 lbs/mo
Ribeye steak	18,565
Prime rib	13,960
Preformed meatballs/patties	11,245
Ground beef	6,035
Chuck steak	5,670
Beef roast	4,345
Tri-tip	3,895
Carne asada	3,745
Beef stew meat	3,140
Skirt steak	2,400
Beef short ribs	2,000
Beef carnitas	1,770
Brisket	1,500
New York steak	1,350
Beef veal	900
Beef tripe	776
Beef fajita meat	300
Beef fillet/whole fillet	200

Table 3.19 shows the total amount of various pork cuts purchased by store and restaurant respondents in a typical month. By far, respondents purchased pork shoulder and bacon the most, with respondents purchasing nearly 30,000 pounds of pork shoulder and over 25,000 pounds of bacon. Pork loin and pork ribs were also very popular among respondents, with monthly purchases of nearly 18,000 pounds for pork loin, and just under 11,000 pounds for pork ribs. Also popular, but to a lesser extent were pork chops (2,135 pounds) and pork carnitas (1,366). Respondents also purchased pork cutlets, pork leg, ground pork, pork feet, ham steak, pork skin, and sausage.

Table 3.19: Total Pork Purchases

Cut type	Total purchases (pounds/month)
Pork shoulder	29,440 lbs/mo
Bacon	26,175
Pork loin	17,995
Pork ribs	10,965
Pork chops	2,135
Pork carnitas	1,366
Pork cutlets	925
Pork leg	826
Ground pork	805
Pork feet	541
Ham steak	400
Pork skin	400
Sausage	325

Table 3.20 lists the store and restaurant respondents' average monthly purchases for sheep and lamb products. The product most purchased was whole lamb, at a total of 671 pounds per month, while lamb shoulder (551 pounds) and rack of lamb (451 pounds) were also quite popular. Respondents also purchased 301 pounds of leg of lamb, 300 pounds of lamb chops, 285 pounds of lamb loin, 246 pounds of lamb shank, 231 pounds of lamb breast, and 111 pounds of mutton.

Table 3.20: Total Sheep/Lamb Purchases

Cut type	Total purchases (pounds/month)
Whole lamb	671 lbs/mo
Lamb shoulder	551
Rack of lamb	451
Lamb leg	301
Lamb chops	300
Lamb loin	285
Lamb shank	246
Lamb breast	231
Mutton	111

Table 3.21 shows the total purchases of goat cuts made by respondents in a typical month. Goat loin was the most popular cut, with respondents purchasing 170 pounds per month, while respondents purchased 165 pounds per month of goat shoulder, goat ribs, and goat leg. Respondents purchased just over 150 pounds per month of goat

stew meat and whole goat. Goat belly was the least-purchased cut, at 86 pounds per month.

Table 3.21: Total Goat Purchases

Cut type	Total purchases (pounds/month)
Goat loin	170 lbs/mo
Goat shoulder	165
Goat ribs	165
Goat leg	165
Goat stew meat	155
Whole goat	151
Goat belly	86

Local Purchase Preferences

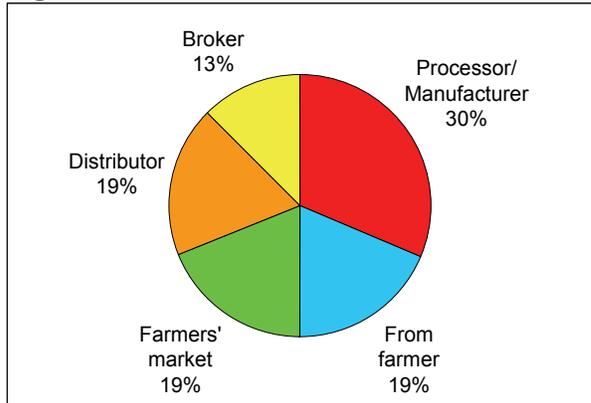
To obtain a better idea of whether or not respondents currently make local purchases and from whom they make these purchases, respondents were asked to answer a variety of questions pertaining to their current and/or past purchases from local suppliers.

First, respondents were asked whether or not they currently make purchases from local suppliers. Seventeen percent (7 respondents) said they do currently make purchases from local producers and suppliers, while the other 83% (34) said they do not make local purchases. Of the respondents who do make local purchases, the average length of time for doing so was 13.7 years, and the average percent of total purchases that are made locally was 27.5% (meaning that of their total purchases, just over a quarter of them are made locally).

The respondents who said they make local purchases were asked to list the outlets from which they make local purchases (Figure 3.27). Thirty percent (5 respondents) of local purchases were made from a local processor and/or manufacturer, 19% (3) were

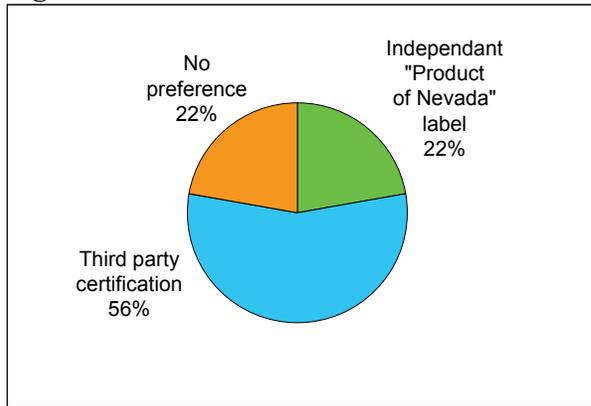
made directly from the farmer/rancher, 19% (3) were made at farmers' markets, 19% (3) came from a local distributor, and the remaining 13% (2) of local purchases were made from a local food broker.

Figure 3.27: How Local Purchases Are Made



Respondents who make local purchases were asked to describe the sort of labeling and/or certification they like to see on products as assurance that they are indeed local (Figure 3.28). Over half of the respondents who make local purchases, 56% (5 respondents), said they prefer their local products to be certified through a third party program, such as “NevadaGrown” or “Made in Nevada.” Another 22% (2) of respondents said they prefer local products to simply have a self-certified “Product of Nevada” label, while the remaining 22% (2) said they have no preference as to the type of labeling or certification their local suppliers use. Respondents were allowed to give more than one response for this question, so these results indicate that two respondents would prefer either third party or self-certification.

Figure 3.28: Preferred Local Label



Meat Attribute Preferences

As with the consumer survey, the food-supplying respondents were asked to rate the importance of various attributes on their meat purchasing decisions. These attributes were slightly different from those presented to the consumers, but still provide valuable information as to the preferences of respondents working in the foodservice, grocery, and butcher industries. The average ratings for the meat product attributes are presented in groups based on which received the most and least favorable ratings.

Seven attributes were found to have average ratings placing them in the category of more important meat product attributes (Figure 3.29). These attributes include taste, quality, price, a meat product’s healthfulness or nutritional aspect, whether the product has a variety of applications, the marketability of the product, and whether or not the product can serve as a signature product for the establishment. These attributes received average ratings between 4.17 and 4.88, indicating that on average, they were found to be “Very” to “Extremely” important.

Respondents were asked to rate the importance of a meat product’s perceived taste when considering a purchase. Nearly all of the respondents considered taste to be an extremely important attribute, with 96% (39 respondents) rating it as such, while 2%

(1) rated it as very important, and 2% (1) rated taste as not important when considering a meat purchase. Overall, 98% (40 respondents) of respondents rated taste as a more important meat product attribute, while 2% (1) rated it as less important. The average rating of taste was 4.88.

Respondents were asked to rate the importance of a meat product's quality when considering a meat purchase. As with taste, nearly all of the respondents rated this as an extremely important attribute, with 96% (39 respondents) of respondents rating it as such, while 2% (1) rated it as a very important attribute, and the remaining 2% (1) rated quality as not important when considering a meat product purchase. Overall, 98% (40) of respondents rated quality as a more important attribute, while 2% (1) rated it as a less important attribute. The average rating of quality was 4.88, meaning it tied with taste for the meat product attribute of most importance to food-supplying respondents.

Respondents were asked to rate the importance of a meat product's price when considering purchasing it for use in their establishment. Just over two-thirds of respondents, 67% (27 respondents), rated price as an extremely important attribute, while 22% (9) rated it as very important, 7% (3) rated it as somewhat important, 2% (1) rated it as slightly important, and the remaining 2% (1) of respondents rated price as not important when considering a purchase. Overall, 95% (39 respondents) of respondents rated price as a more important attribute, while the other 5% (2) rated it as a less important attribute. Price received an average rating of 4.46.

Store and restaurant respondents were asked to rate the importance of a meat product being healthy and nutritious when considering purchasing it for use in their establishment. Just over half of the respondents, 56% (23 respondents), rated a meat

product's healthfulness as extremely important, 22% (9) rated it as very important, 17% (7) rated it as somewhat important, and the remaining 5% (2) rated a meat product's healthfulness as slightly important. It is worth noting that none of the respondents found health and nutrition to be unimportant. Overall, 95% (39 respondents) of respondents rated healthfulness to be a more important attribute, while the remaining 5% (2) rated it as a less important attribute. The average rating of healthful and nutritious meat products was 4.29.

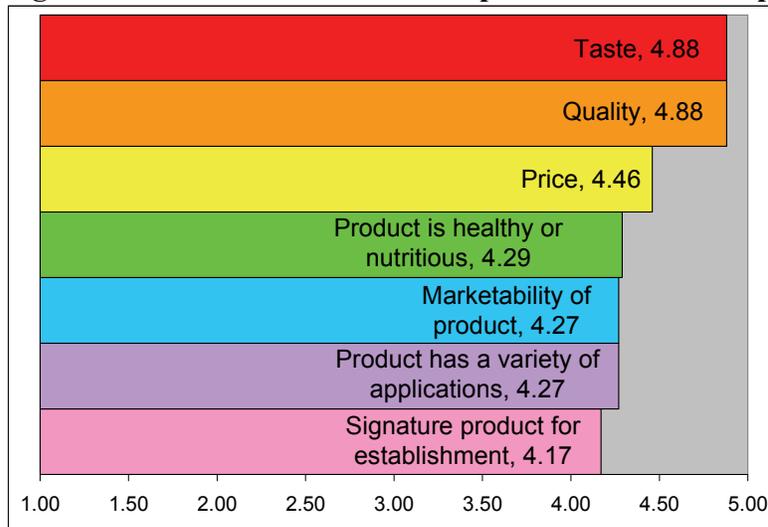
A meat product's marketability refers to the ease with which the product can be marketed and sold (a product that appeals to only a small percentage of an establishment's clientele would have low marketability). More than half of respondents, 62% (25 respondents), said that marketability is an extremely important attribute, 12% (5) said it is very important, 22% (9) said marketability is somewhat important, 2% (1) said it is slightly important, and the remaining 2% (1) of respondents said that marketability is not at all important when considering a meat purchase for their establishment. Overall, 95% (39 respondents) of respondents rated marketability as a more important attribute, while the other 5% (2) rated it as a less important attribute. Marketability was given an average rating of 4.27.

Respondents were asked to rate the importance of a meat product having a variety of applications when considering purchasing the product for use in their establishment. For restaurants, this may mean that the product can be used in more than one menu item; for butchers and stores, it may mean that the product can be marketed and sold more than one way. Fifty-one percent (21 respondents) of respondents rated a product having a variety of applications as an extremely important attribute, 37% (15) rated it as a very

important attribute, 5% (2) rated it as a somewhat important attribute, 2% (1) rated it as slightly important, and the remaining 5% (2) of respondents rated a meat product's ability to serve a variety of applications as not important at all when considering a meat purchase for their establishment. Overall, 93% (38 respondents) of respondents rated a meat products' ability to serve a variety of applications as a more important attribute, while the remaining 7% (3) rated it as less important. The average rating of a variety of applications was tied with marketability at 4.27.

Respondents were asked to rate the importance of a meat product serving as a signature dish or product in their establishment. Just over half of respondents, 58% (24 respondents), rated meat's ability to serve as a signature product as an extremely important attribute, while 15% (6) rated it as a very important attribute, 17% (7) rated it as a somewhat important attribute, 5% (2) rated it as slightly important, and the remaining 5% (2) rated a meat product serving as a signature dish or product as not important. Overall, 90% (37 respondents) of respondents rated meat's signature appeal as a more important attribute, while the remaining 10% (4) rated it as a less important attribute. The average rating of a product's signature appeal had an average rating of 4.17.

Figure 3.29: Attributes of More Importance to Food-Supplying Respondents



Eight attributes were found to be of lesser importance to the food-supplying respondents (Figure 3.30). These attributes include a meat product being a special type or cut of meat, the product’s ease of preparation, the meat product’s brand name, assurances that the meat product was produced following environmentally sound practices and/or that the livestock was raised in a humane manner, the respondent being personally aware of the production process behind the meat product, organic and/or natural production, the respondent personally knowing the producer, and Nevada grown meat. These attributes received average ratings between 3.15 and 3.98, indicating that on average, they were found to be “Somewhat” to “Very” important.

Respondents were asked to rate the importance of a meat product being either a special type of meat or a special cut of meat when considering making a meat purchase for their establishment. Thirty-nine percent (16 respondents) of respondents rated a meat product being a special meat or cut as extremely important, 32% (13) rated it as very important, 22% (9) rated it as somewhat important, 2% (1) rated it as slightly important, and the remaining 5% (2) of respondents rated a meat product being a special cut or type

as not important when considering a meat purchase. Overall, 93% (38 respondents) of respondents rated a meat being a special cut or type as a more important attribute, while the other 7% (3) rated it as less important. The average rating of a special meat or cut was 3.98.

The ease with which a meat product can be prepared may be more applicable to restaurant respondents, but butchers and markets may also wish to provide their customers with products that can be easily prepared, as there are now many options for pre-made meals available to consumers. Thirty-six percent (15 respondents) of respondents rated ease of preparation as an extremely important attribute, 20% (8) rated it as very important, 34% (14) rated it as somewhat important, and the remaining 10% (4) of respondents rated a meat product's ease of preparation as a slightly important attribute. The fact that none of the respondents rated ease of preparation as "not important" indicates that this is something stores and restaurants consider when making meat purchases. Overall, 90% (37 respondents) of respondents rated ease of preparation as a more important attribute, while the other 10% (4) rated it as a less important attribute. Ease of preparation had an average rating of 3.83.

Respondents were asked to rate the importance of a meat product's brand name when considering making a meat purchase. Thirty-three percent (14 respondents) of respondents rated a meat product's brand name as extremely important, 20% (8) rated it as very important, 32% (13) said it is somewhat important, 10% (4) rated it as slightly important, and the remaining 5% (2) of respondents rated a meat product's brand name as not important when considering a meat purchase. Overall, 85% (35 respondents) rated a

meat product's brand name as a more important attribute, while the other 15% (6) rated it as less important. The average rating of a meat product's brand name was 3.68.

Respondents were asked to rate the importance of knowing that livestock was raised in a humane manner or that a meat product was produced following environmentally friendly processes. Forty-one percent (17 respondents) of respondents considered the humane treatment of livestock and/or environmentally friendly production to be extremely important attributes, while 17% (7) rated them as very important, 17% (7) rated them as somewhat important, 15% (6) rated them as slightly important, and the remaining 10% (4) of respondents rated them as not important attributes. Overall, 76% (31 respondents) of respondents rated these as more important attributes, while the other 24% (10) rated them as less important. The humane treatment of livestock and environmentally friendly production had an average rating of 3.66.

Respondents were asked to rate the importance of being personally aware of the livestock production process. Forty-four percent (17 respondents) of respondents rated knowing about the livestock production process as an extremely important attribute, 5% (2) rated this as a very important attribute, 18% (7) rated it as somewhat important, 23% (9) rated it as slightly important, and the remaining 10% (4) of respondents rated it as not important. Two respondents (5% of total sample) did not answer the question. Overall, 67% (26 respondents) of respondents rated it as a more important attribute, while the other 33% (13) rated it as less important. Being personally aware of the production process had an average rating of 3.49.

Respondents were asked to rate the importance of a meat product being certified organic or natural when considering a meat purchase. Thirty-six percent (15

respondents) of respondents rated organic/natural certification as an extremely important attribute, while 15% (6) rated it as very important, 27% (11) rated it as somewhat important, 2% (1) rated it as slightly important, and the remaining 20% (8) of respondents rated organic/natural meat as not important when considering a meat purchase. Overall, 78% (32 respondents) of respondents rated natural/organic meat as a more important attribute, while the remaining 22% (9) rated it as a less important attribute. Organic and natural production received an average rating of 3.46.

Respondents were asked to rate the importance of personally knowing the producer of a meat product when considering a purchase. Forty-one percent (15 respondents) of respondents rated knowing the producer as an extremely important attribute, 5% (2) rated it as very important, 22% (8) rated it as somewhat important, 16% (6) rated it as slightly important, and the remaining 16% (6) of respondents rated it as not important. Four respondents (11% of the total sample) did not answer the question. Overall, 68% (25 respondents) of respondents rated personally knowing the producer of a meat product as a more important attribute, while the other 32% (12) rated it as less important. Personally knowing the meat's producer had an average rating of 3.38.

Respondents were asked to rate the importance of meat being locally (i.e. Nevada) raised/produced. Just over a third of respondents, 34% (14 respondents), rated locally grown meat as extremely important, 27% (11) rated it as somewhat important, 24% (10) rated it as slightly important, and the remaining 15% (6) of respondents rated Nevada grown meat as not important. Overall, 61% (25 respondents) of respondents rated local production as a more important attribute while the other 39% (16) rated it as a less important attribute. It is worth noting that no respondents gave the local aspect a “very

important” rating. This may be an indication that respondents who believe locally grown meat to be valuable feel very strongly about this aspect, while the respondents whose feelings are less strong are more divided. The average rating of Nevada grown meat was 3.15.

Figure 3.30: Attributes of Lesser Importance to Food-Supplying Respondents

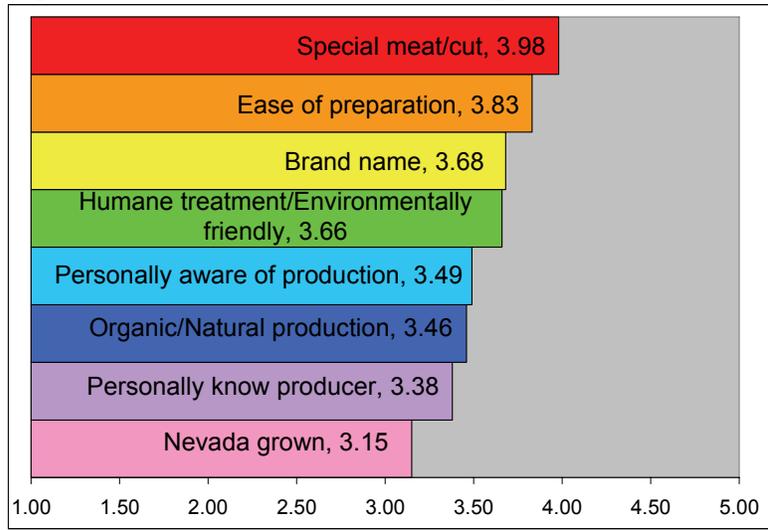


Table 3.22 presents the average rating of all of the meat attributes as given by the foodservice respondents.

Table 3.22: Average Attribute Ratings

Attribute	Average Rating
Quality	4.88
Taste	4.88
Price	4.46
Healthy/Nutritious	4.29
Marketability of product	4.27
Product has a variety of applications	4.27
Signature product for establishment	4.17
Special meat/cut	3.98
Ease of preparation	3.83
Brand name	3.68
Humane treatment of animals/ Environmentally friendly production process	3.66
Aware of growing/production process	3.49
Organic/Natural production	3.46
Personally know producer	3.38
Nevada grown	3.15

IV. ECONOMIC FEASIBILITY

Organizational Possibilities

The following paragraphs describe various business structures that the members of the proposed slaughter/processing facility may want to consider.

Traditional Cooperative

All business organizations have three distinguishing features: ownership, control, and benefits (Torgerson 2001). With a cooperative, the producer-members retain all three. A cooperative is owned by its members, who not only maintain control of the business; they are also the sole recipients of the business entity's benefits. In the case of an agricultural cooperative, the members/owners of the cooperative are growers and producers. Producers may decide to form a cooperative in order to meet a specific economic need, such as providing marketing, processing, bargaining, manufacturing, and purchasing services that are either unavailable to or too costly for individual producers (Rapp 1995). Other reasons to form a cooperative include a desire to improve bargaining power, reduce costs, obtain products or services, create new or expand existing market opportunities, improve the qualities of the products and services, and increase income (Rapp 1995).

The member-owned feature refers to the fact that the growers and producers who utilize the services of the cooperative are also the owners of the business. The owners of the cooperative finance and operate the business, striving for a mutual benefit by working together. By combining resources, the overall production costs are decreased, and the production capabilities and marketing successes are increased. Cooperatives are run

similarly to other business entities and usually incorporate under state laws. They require bylaws and a board of directors, who set policy and hire managers to run the day-to-day operations. In addition to the user-owned aspect, two other characteristics make a cooperative different from other business organizations: they are user-controlled, and user-benefited (Rapp and Ely, 1996).

The user-controlled characteristic refers to the election of a board of directors and the ability of common stock holders and/or cooperative members to vote on major organizational issues.

User-benefited characteristics include the distribution of resources based on the member's use of the organization. Cooperatives provide a direct cost savings through the purchase of bulk supplies, increases in market access, a distribution of overhead and fixed costs as well as the allocation of profits based on usage to the members.

Cooperative members may finance the start-up and operation costs of the organization through a variety of methods. One option is for members to make a direct financial contribution through a membership fee, or through the sale of common or preferred stock. Another finance method is for the cooperative to withhold a portion of the net earnings from cooperative members for reinvestment back into the organization. Finally, assessment fees can be charged based on the number of units procured from each member, or based on the number of units sold after processing. The advantage of soliciting a direct contribution or utilizing the sale of stock is the upfront cash requirements to purchase capital equipment and building services. Assessment fees and/or net earning withholdings are more beneficial once the cooperative has begun operations and require working capital or future replacement cash.

It is vital to the success of a cooperative that owners stay informed of the business practices. A cooperative is a democratically controlled organization that operates through a majority vote. Members have a monetary interest in the financial well-being of the organization and rely heavily on the education and success of the other member producers. While the pooling of resources helps reduce risk in the market place, judgments and decisions made on one farm can affect the profitability of other cooperative members.

New Generation Cooperative

The “New Generation Cooperative” (NGC) is similar in structure to traditional cooperatives, but the NGC focuses on marketing niche strategies rather than the traditional cooperative roles, such as production and storage. One of the main focuses of the NGC is delivery rights, which are tied directly to the initial investment required from each member. The NGC establishes a production volume, and then sells shares based on a delivery commitment from farmers, which stipulates that enough of the NGC's product is produced to fulfill the NGC's capacity requirement. One disadvantage of this system is the inability of the cooperative to encompass new producers, as the production capacity is already maximized at inception. However, delivery rights may be sold or traded to other members of the cooperative and future expansion can allow for the sale of additional delivery rights.

NGCs normally maintain a marketing agreement with the member producers, whereas traditional cooperatives do not. Because NGCs are limited to purchasing products from their members only, they require a much narrower level of quality

standards than traditional cooperatives. The process of identity preserved is used to ensure that an acceptable quality product is grown by members, or it can trade lower quality member grain for the higher quality grain needed for processing.

The key advantage to NCGs is the fact that the organization can supply a large amount of its own start-up capital. NCGs can typically generate 30%-50% of their start-up capital, lowering long-term private debt commitments and freeing up future profits for larger dividend payments to farmers (Harris, Stefanson, and Fulton, 1996). Additionally, delivery rights ensure a reliable volume of product for the cooperative, while guaranteeing a home for the producer's product. It also allows the cooperative to better react to market conditions.

New generation cooperatives may choose a combination of options, but usually organizations stay within a stock or non-stock form of capital acquisition. Potential members may feel more comfortable with stock options, as it is a more commonly understood system of capitalization.

Capitalizing refers to the amount of money needed to begin operations and the mechanism for acquiring the cash. Important decisions include whether the cooperative will issue stock or non-stock options (i.e. membership dues), borrow from traditional financial institutions, and determine minimal rates of return for its members. The goal is to provide enough working capital to begin and maintain operations while sustaining manageable debt levels for the organization and making the investment affordable to prospective members.

Ownership certificates come in a variety of forms, including common stock, preferred stock, membership certificates, and capital certificates. In terms of

cooperatives, common stocks are shares of the cooperative representing membership/ownership in the cooperative and are accompanied by voting rights. Common stock can be divided into classes, each carrying different voting privileges and assessed different values. Those with more privileges are more expensive to purchase. Cooperatives usually do not pay interest on common stock issued. Preferred stock is nonvoting stock that can be issued to both members and nonmembers of the cooperative. The proceeds from the purchase of preferred stocks are usually used for capital investment and. As with common stock, preferred stock can be divided into classes, each with a different value receiving different scales of interest payments. Preferred stock owners receive interest for their investment, and are usually given their interest dividends before the distribution of profits to common stock holders. If the organization ceased to exist, preferred stock holders are compensated first.

If the members of a cooperative decide that they do not want to offer stock, membership is derived through membership certificates. Voting rights accompany membership certificates, which are issued once membership dues are paid. Usually memberships and capital certificates are insured, but are non-interest bearing. Capital certificates are similar to preferred stock, but are not issued as stock. They are sold in a variety of denominations and do not have accompanying voting rights. Interest may or may not be paid to capital certificate holders, but nonmembers may purchase the certificates.

NGCs require a marketing contract, making all members producers. In an NGC, preferred stock and/or capital certificates are generally not offered. After the cooperative has begun operation, members continue their investment by providing additional risk

capital. This can be accomplished in a variety of ways. The cooperative may retain a portion of earnings as an additional investment into the organization. This can be done in two ways: through the payment or retention of a per-unit fee for each member, or through the retention on the overall cooperatives net earnings. Either way, the equity investment is credited to the members' equity accounts and held as a liability on the cooperatives balance sheet.

Cooperative Legal Considerations

The legal considerations cooperatives must consider include the drafting of articles of incorporation, creating bylaws, membership applications, creating and maintaining marketing and purchase agreements, and revolving fund certificates. While the Capper-Volstead Act of 1922 and the Farm Credit Act of 1971 have aided cooperatives in their ability to work together in the handling, processing and marketing of their goods, and allows them to borrow jointly, cooperatives are still subject to numerous antitrust laws and are responsible for all tax codes relating to their enterprise.

Articles of incorporation give the cooperative a distinct legal standing. It limits personal liability for debt incurred by the cooperative, excluding the amount of their initial investment. The articles of incorporation also describe the nature of the business entity, its location, the proposed duration of the association, and the names of the principle parties involved. Once drafted, the articles are filed with the Secretary of State, activating the cooperative.

Bylaws define how the cooperative will conduct business. The bylaws describe membership requirements and list the rights and responsibilities of the cooperative's

members. They also discuss voting procedures and the board structure that will govern the cooperative.

Membership applications are composed of five main parts: the applicant's statement addressing membership; the signature of the applicant; a statement of cooperative acceptance; signatures of the board president and secretary; and a statement of the duties and intent of the prospective member. A membership certificate may be issued to each member as evidence of entitlements to the organization.

Marketing and purchasing agreements set the standard of quality acceptable to the cooperative. They also state how the proceeds of the cooperative will be distributed, once deductions for operating and capital expenditures have been taken. Often marketing and purchasing agreements are required when seeking outside financial backing.

The revolving funds certificate is a written receipt for capital investments and retained earnings that will eventually be revolved or redeemed. These investments may be deductions based on a per-unit of production, reinvested earnings, or original capital subscription, if not issued in stock form. All legal documents should be written with the help of a lawyer to ensure state provisions are addressed.

Investing risk capital is the responsibility of all members. The amount of risk capital invested is an important decision for the cooperative's members to consider. It must cover a large portion of the start-up and operational costs, so that outside investors feel comfortable that the membership will work to make the operation successful. Members must also invest enough capital to give them a financial stake in the success of the enterprise.

Most private loan institutions will require the cooperative members to assume at least 50% of the capital risk, but it may take many years for the members to acquire this percentage. Long-term credit is available through federal and state sponsored credit programs. Sources of facility loans include: USDA Rural Development; Cobank; St. Paul Bank for Cooperatives; and National Cooperative Bank. Many commercial banks and credit unions have local programs for small business start-up, such as Bank of the West. Cooperatives can apply for short-term loans to cover operating costs during the first year of operation. These are acquired through the Farm Credit System and the National Cooperative Bank (Rapp and Ely, 1996).

C Corporation

The C corporation is the traditional form of corporation, which is a business entity that provides limited liability to its owners and shareholders, meaning the personal assets of the owners and shareholders are protected from the financial issues of the corporation (Legalzoom.com, 2006). Unlike a sole proprietorship or partnership, a corporation exists as a separate legal entity, and therefore is taxed separately from its directors and shareholders. When a C corporation goes public, it may have an unlimited number of shareholders (who are the legal owners of the corporation), who do not have to be residents or citizens of the United States.

The C corporation is managed by a board of directors elected by the corporation's shareholders and makes policy decisions on the corporation's behalf, while the officers and employees of the corporation conduct the business dealings of the entity. As mentioned, the directors, employees, and shareholders of the corporation are not

personally liable for the corporation's debts. However, it is the responsibility of the directors and officers to ensure that certain formalities are observed on the corporation's behalf. This includes formalities such as annual meetings, appointment of officers and election of directors, and issuance of stock. Perhaps the largest responsibility of the corporation is to maintain enough capital to protect the corporation from any business debts. In the event that these formalities are not observed, shareholders may be held personally liable for corporate debts.

S Corporation

S corporations are C corporations that have elected to file for S corporation tax status. Filing as an S corporation combines the limited liability of the C corporation with the tax status of the sole proprietorship or partnership. The main difference between C corporations and S corporations (and also the major advantage to S corporations) is the tax treatment. While C corporations are subject to double taxation, S corporations are granted "pass through" taxation because all of the corporation's profits are passed on to the shareholders in the form of dividends, so there is no taxation at the corporate level. Another advantage to the S corporation is that the corporation's directors may pass business losses through to their personal income tax return. The biggest disadvantage of the S corporation is the restrictions that are placed on shareholders: an S corporation may not have more than 100 shareholders, who must be citizens or residents of the United States.

Limited Liability Company

As the name implies, a limited liability company (LLC) is a business ownership structure that provides limited liability to its owners, called members. The main differences between the LLC and the corporate structure are that the LLC is more flexible and less formal than the corporation, and the two entities are subject to different tax laws. An LLC can also serve as the general partner in a limited partnership, giving the individual owners protection from liability, financial or otherwise.

Some of the advantages of the LLC are the operating flexibility they provide, including the fact that a board of directors is not required as with corporations, and there is currently no requirement in Nevada for an annual meeting of the shareholders. As with S corporations, LLCs are also free from double taxation because the LLC members report their share of profits or losses on their personal income taxes. The LLC is not taxed at the business entity level. The final advantage to the LLC is the limited liability the entity provides to its members. Disadvantages of the LLC are that they do not require an operating agreement, the lack of which may lead to management issues, and the fact that while the LLC isn't subject to double taxation, it may be taxed at a higher rate than a corporation.

Owner Investment

Ownership options that can be exchanged between members within the cooperative are referred to as exchangeability. Redemption refers to the expectation that member ownership will be redeemed under specific conditions, such as retirement or death. Investment amounts should be determined by comparative usage requirements.

Producers interested in owning more than their usage percentage can purchase additional preferred stock or capital certificates.

Cooperatives must maintain financial reserves to tie them over during periods of reduced production or environmental recession. These reserves can be earmarked for specific spending, such as debt reduction, facility improvements, or operational growth. Reserves also provide peace of mind for members, allowing the cooperative to weather hard times without the need for additional investment by members.

After reserves have been established, the cooperative needs to develop a system to repay investors their initial cash outlays. Usually a percentage of operating revenues are dedicated for the repayment of owner equity and the purchase of stock or certificates of outgoing members. This can be done in two ways: either a payment amount is determined based on the input of each member; or the resources are pooled and distributed based on the percentage share owned in the cooperative. Both systems require a delayed payment for initial livestock inputs, so that the cooperative pays for the initial livestock and repays profits after the meat has been successfully sold.

With traditional cooperatives, the initial investments are very low, often less than \$100. Ownership is offered through the issuance of capital certificates and not stock options. Traditional cooperatives are generally more restrictive than other ownership types in allowing exchanges. This is usually done through the sale of certificates between members at the board of director's discretion. Traditional cooperatives usually have an established par value for certificates that is determined at the time of buy-in. Traditional cooperatives allow new members to join at any time, so a par value must be established.

Traditional cooperatives use a set price system for profit distribution. Based on the number of certificates owned or the amount of meat produced, the cooperative will disperse profits as flat fees at the close of the business cycle.

Members in new generation cooperatives typically invest \$10,000 - \$12,000 to purchase marketing rights (Coltrain, Barton, and Boland, 2001). NGCs do not normally establish a par value, so ownership stocks are valued at market price. It is highly correlated to the expected profitability of the organization; so certificate sales are usually done through a flat fee. Since NGCs are exchangeable, redemption obligations are not required.

NGCs commonly use the pooling system. In the pooling system, a pool is opened at the start of the production period, with payments made as meat is sold. An initial payment can be arranged at delivery time, with additional progress payments made until the pool is closed and the final margins are determined. The amount of profit distribution is directly tied to the amount of meat generated by each member and is tied to the producer's contract.

For investor-owned firms, stock certificates are purchased, with the stock value based directly on the profitability of the organization, and profits are distributed through dividends. The value of a stock certificate is based on the future anticipated profitability of the enterprise. Stock sales and exchanges can occur through an open market, and non-producers can buy-in to the cooperative.

Loans

There are a variety of credit and loan options for start-up businesses. Short-term loans known as development loans are used for start-up and input costs for new businesses. Typically development loans are interest payment only loans for the first three years, and then the cooperative has seven years to repay the principle. The life of the loan is 10 years, and regular inspections occur to insure that the loan is used for input purchases only. Other short-term loans run for three to five years and can be used for the purchase of capital equipment, start-up costs and operational costs. Equipment loans, or lease lines, can be issued for capital equipment under \$1 million. These are five-year lines of credit, where loan funds are accessed only when equipment is purchased.

American AgCredit provides intermediate-loans for land purchase, building improvements, and for the purchase of processing equipment. They provide long-term loans for packing and storage facilities, and real estate purchase and improvement.

Bank of the West requires cooperative members/stockholders to hold 51% of the investment risk; however, there are exceptions for start-up organizations. A new business may be able to hold 30% of the investment risk, meaning 70% of the start-up capital is borrowed, if the cooperative agrees to distribute no more than 20% of the gross profits. All remaining profit must be reinvested into the business in order for the owner investment to increase to 51%. Copies of the bylaws and marketing and purchase agreements must accompany the credit application.

Facility Capacity

Respondents to the producer survey were asked to consider whether they would be interested in sending livestock to the proposed facility for slaughter and processing/packing on an annual basis. Producers who felt they would be interested in using the facility were asked to provide information as to the type of livestock they would send to the facility, the volume of each type of livestock, the average weight of each type, and the age of each (i.e. adult, cull, etc.). Although respondents were allowed to list any type of livestock, only enough viable information was collected for cattle and sheep/lamb.

Producers expressed interest in sending nearly 10,000 steer and nearly 4,000 cull cows to the potential facility (Table 4.01), with average weights of 1,290 pounds and 1,097 pounds, respectively. On an annual basis, this would come to 13,736 cattle, or 16,964,424 pounds of live cattle.

Table 4.01: Producer Interest in Cattle Sent to Facility Annually

Livestock type	Number (head)	Average weight (lbs)
Steer	9,824	1,290
Cull cattle	3,912	1,097

Producers expressed interest in sending over 16,000 head of lamb to the proposed facility, 10,000 head of sheep, and 1,200 mutton (Table 4.02), with an average weight of 143 pounds for each type. On an annual basis, this would come to 27,629 head of sheep/lamb, or 3,950,947 pounds of live sheep and lamb.

Table 4.02: Producer Interest in Sheep/Lamb Sent to Facility Annually

Livestock type	Number (head)	Average weight (lbs)
Lamb	16,429	143
Sheep	10,000	143
Mutton	1,200	143

As presented in the analysis of the producer survey, respondents were also asked whether or not they would be interested in making a financial investment in the proposed facility (Figure 2.05). Taking all respondents into consideration, it was found that 44% of the entire sample was willing to make a financial investment in the facility (44 of 101 respondents). For the financial analysis, it was assumed that only 44% of the volume of livestock producers said they would send to the facility would actually be sent to the facility. Taking this into account, Table 4.03 shows that the viable estimate of cattle sent to the facility on an annual basis would be more than 4,000 steers and just under 2,000 cull cows, for a total of 6,044 head of cattle per year, or 7,769,760 pounds of live cattle per year. Table 4.04 shows that the viable estimate of sheep and lamb sent to the facility on an annual basis would be over 7,000 lamb, over 4,000 sheep, and just over 500 mutton, for a total of 12,157 head of sheep and lamb per year, or 1,738,451 pounds of live sheep and lamb per year.

Table 4.03: Estimate of Cattle Sent to Facility Annually

Livestock type	Number (head)	Average weight (lbs)
Steer	4,323	1,290
Cull cattle	1,721	1,097

Table 4.04: Estimate of Sheep/Lamb Sent to Facility Annually

Livestock type	Number (head)	Average weight (lbs)
Lamb	7,229	143
Sheep	4,400	143
Mutton	528	143

Facility Start-up Costs

It is recommended, based on survey results, that the processing facility be located in an area of Nevada that is central to potential member ranches. Taking this into consideration, Elko, NV was chosen as a potential location. In addition to its central location, Elko also has access to major transportation, including an interstate freeway and a major railway line.

Land

As of February 2008, land in the Elko area ranged from \$900.00/acre for ranch land to \$30,000.00/acre for commercial property bordering I-80 (A Ranch Broker, 2008). As the facility would likely use land that is commercial in nature, but is not prime commercial property, a land estimate of \$10,000.00/acre was used for this study. As the facility requires 10 acres, total land acquisition fees would equal \$100,000.00.

Land improvements necessary for the facility would include road access, water access, sewer lines, phone service, electricity, and natural gas. A rough estimate of \$20,000 in land improvements was used for estimation, which would be conditional on the location of the land purchased and its proximity to existing services.

Building

A steel construction prefabricated building can be purchased for \$20 to \$30 per square foot, excluding delivery, concrete work, site prep, wiring, plumbing and interior design (Sacco, 2007). Steel beams, sheeting, and fasteners would be delivered to the site, where the building would be pieced together, with any interior work to be done after

construction is complete. Snow load requirements must also be considered when figuring roofing requirements. This study is estimating the need for a 10,000 square foot building, costing approximately \$300,000.00.

The general contractor is responsible for all permitting, architectural review, concrete foundation and the construction of the building. Utilizing a 10,000 square foot building, contractor fees are estimated at \$65.00 per square foot or \$600,000 (Nevada Commission on Economic Development, 2000 , adjusted for inflation and facility size).

Refrigeration Units

The refrigerated units are prefabricated units delivered to the site directly from the manufacturer. For optimal storage, six 10 foot by 30 foot (10'x30') refrigeration (cooler) units and three freezer units would be required, with an approximate total cost of \$180,000 (Bush Refrigeration, 2007). After the meat has been cut, a freezer unit is needed for storage before the meat goes to the buyer. This approximate price includes delivery and installation.

Equipment Costs

Estimates for slaughter and processing equipment were taken from similar studies and then adjusted for facility size. Total costs are estimated to be approx \$1,052,970. A complete listing of equipment can be found in the source studies. See Nudell and Petry (1997) and Curtis et al. (2007) for more information.

Offal Disposal Facilities

Offal disposal facilities on-site are estimated at \$15,000.00. This estimate was taken from Nudell and Petry (1997) and adjusted for inflation.

Office Equipment

Table 4.05 lists an estimate of office furniture and other equipment (Dell Online Store, 2007; Office Depot, 2007; Telephone Systems, 2007; CSN Office Furniture, 2007). Total office equipment costs are estimated at \$36,360.

Table 4.05: Office Equipment

Communications System	\$ 2,000.00
Computer Network	\$ 3,745.00
Computer Stations (5)	\$ 16,075.00
Printers, Copiers, Fax	\$ 5,000.00
Office Furniture	\$ 9,540.00
Total Equipment Costs	\$ 36,360.00

Fencing and Corrals

Offal disposal facilities on-site are estimated at \$8,000.00. This estimate was taken from Nudell and Petry (1997) and adjusted for inflation, facility size, and livestock type.

Livestock Movement Machinery

A minimum of one flatbed trailer, front-end loader, 130 horsepower tractor, and one-ton pickup are needed for live livestock movement at the facility. Purchase price, salvage value, and useful life estimates are provided by Smathers (2001) and adjusted for inflation.

Total Facility Start-up Costs

Total facility start-up costs come to approximately \$2,417,330.00. When amortized over 15 years at an interest rate of 7%, total annual principle and interest (P&I) payments equal \$265,409.84. Taxes, insurance, and annual depreciation for the facility are calculated for all facility investments and are noted in the Investment Summary (Table 4.06) on the next page. These annual expenses are also noted in the “ownership costs” section of the Profit and Loss Statement in Table 4.08. Property taxes in Nevada differ across counties. For the purposes of this study, investment property taxes are calculated at 1% of the average asset value of the property. Property insurance provides coverage for property loss at .666% of the average asset value. Liability insurance covers accidents at the facility at an annual cost of \$5,000.00. Capital recovery costs are the annual depreciation (opportunity cost) of all facility investments. Capital recovery costs are calculated using straight line depreciation. Salvage value is 10% of the new purchase price, which is an estimate of the remaining value of an investment at the end of its useful life. The salvage value for land is the purchase price, as land does not normally depreciate.

Table 4.06: Investment Summary

Description	Purchase Price	Salvage Value	Useful Life (yrs)	Annual Taxes	Annual Insurance	Annual Capital Recovery	Annual Repairs	Annual Fuel & Lube
Building 10,000 Sq Ft	\$ 900,000.00	\$ 90,000.00	25.00	\$ 4,950.00	\$ 3,296.70	\$ 32,400.00	\$ 18,000.00	\$ -
Land 10 Acres	\$ 100,000.00	\$ 60,000.00	NA	\$ 800.00	\$ -	\$ -	\$ -	\$ -
Land Improvements	\$ 20,000.00	\$ 2,000.00	25.00	\$ 110.00	\$ 73.26	\$ 720.00	\$ 400.00	\$ -
Refrigeration & Freezers	\$ 180,000.00	\$ 18,000.00	10.00	\$ 990.00	\$ 659.34	\$ 16,200.00	\$ 3,600.00	\$ -
Processing Equipment	\$ 152,000.00	\$ 15,200.00	10.00	\$ 836.00	\$ 556.78	\$ 13,680.00	\$ 3,040.00	\$ -
Slaughter Equipment	\$ 900,970.00	\$ 90,097.00	10.00	\$ 4,955.34	\$ 3,300.25	\$ 81,087.30	\$ 18,019.40	\$ -
Offal Disposal Facilities	\$ 15,000.00	\$ 1,500.00	10.00	\$ 82.50	\$ 54.95	\$ 1,350.00	\$ 300.00	\$ -
Office Equipment	\$ 36,360.00	\$ 3,636.00	5.00	\$ 199.98	\$ 133.19	\$ 6,544.80	\$ 727.20	\$ -
Fencing	\$ 6,000.00	\$ 600.00	10.00	\$ 33.00	\$ 21.98	\$ 540.00	\$ 120.00	\$ -
Portable Corrals	\$ 2,000.00	\$ 200.00	10.00	\$ 11.00	\$ 7.33	\$ 180.00	\$ 40.00	\$ -
Flatbed Trailer	\$ 10,000.00	\$ 1,000.00	10.00	\$ 55.00	\$ 36.63	\$ 900.00	\$ 200.00	\$ -
Front-end Loader	\$ 30,000.00	\$ 3,000.00	5.00	\$ 165.00	\$ 109.89	\$ 5,400.00	\$ 600.00	\$ 2,400.00
130 HP Tractor	\$ 35,000.00	\$ 3,500.00	10.00	\$ 192.50	\$ 128.21	\$ 3,150.00	\$ 700.00	\$ 2,800.00
1 Ton Pickup	\$ 30,000.00	\$ 3,000.00	5.00	\$ 165.00	\$ 109.89	\$ 5,400.00	\$ 600.00	\$ 2,400.00
Total	\$ 2,417,330.00			\$ 13,545.32	\$ 8,488.38	\$ 167,552.10	\$ 46,346.60	\$ 7,600.00

Average Asset Value Computation

$$\left(\frac{\text{Purchase Price} + \text{Salvage Value}}{2} \right)$$

Straight Line Depreciation Computation

$$\left(\frac{\text{Purchase Price} - \text{Salvage Value}}{\text{Useful Life}} \right)$$

Facility Annual Operating Costs

Cost of Goods

The cost of goods represents the prices paid to member ranches for their livestock. Live fed steers at a weight of 1,290 pounds are priced at \$91.00/ctw, or \$0.91 per pound (Livestock Marketing Information Center, 2008). As the facility would purchase 7,769,760 pounds per year from member ranches, the total annual cost of beef purchases equals \$7,070,481.60. Pricing for sheep/lamb at a weight of 143 pounds is \$1.19 per pound (Livestock Marketing Information Center, 2008). As the facility would purchase 1,738,451 pounds per year from member ranches, the total annual cost of sheep/lamb purchases equals \$2,068,756.69.

Salaries

Salary expenses include a full-time plant manager, a brand/marketing product manager, three full-time butchers, three assistants, two full-time inspectors, and one full-time office employee (Table 4.07). Additional butchers and seasonal help would be hired as needed based on processing demand determined by the plant manager.

A plant manager usually receives a salary and full benefit package. Plant managers usually earn approximately \$72,100 a year depending on size and location of the facility (Career Journal, 2006). The plant managers would be responsible for overall operations, marketing, and member services. This position requires formal training in the agribusiness field, meat production experience, and a USDA slaughter certification.

The brand/marketing product manager's job would be to develop and implement product marketing activities to promote brand awareness and maximize sales. This

individual should have experience marketing a product in a niche market and would report to the plant manager. The median annual salary for brand/marketing managers is \$86,400 (Salary.com, 2007).

Butchers earn an annual salary between \$17,000 and \$42,000, depending on duration and type of experience (Career Prospects, 2007). For the purposes of this study, one lead butcher at an annual salary of \$42,000, and two secondary butchers at an annual salary of \$32,000 (Business Seminole, 2006) were assumed.

Three assistants would be required at approximately \$24,064 annually (College Grad, 2007). Assistants require some past experience, but no formal education. Typical part-time assistant rates vary depending on location, but in Northern Nevada, labor rates are approximately \$15 per hour, working an estimated 24 weeks per year.

The USDA Hazard Analysis and Critical Control Point (HACCP) regulation requires all slaughter and packaging facilities to develop a plan to identify critical control points for meat safety and to develop specific action plans to ensure food safety. The HACCP Inspector position is responsible for all meat inspection and supervisory capabilities within the plant. A second inspector is required for USDA inspection for retail sales. Annual salaries are in the range of \$39,940 to \$56,849; a salary of \$46,000 was used for this study (Career Journal, 2006).

Office staff is usually paid \$12 per hour with or without benefits, which equates to a yearly salary of \$24,788. The office employee should have secretarial and bookkeeping skills, although a certified public accountant (CPA) should be kept on retainer for profit distribution and tax filing. A 15% tax and benefits percentage was calculated annually, at \$68,022.00.

Table 4.07: Overview of Employees/Salaries

Plant Manager	\$ 72,100.00
Marketing Manager	\$ 86,400.00
Butchers (3)	\$ 106,000.00
Assistants (3)	\$ 72,192.00
Inspectors (2)	\$ 92,000.00
Office Staff (1)	\$ 24,788.00
Total Salaries	\$ 453,480.00
Benefits	\$ 68,022.00
Total Salaries	\$ 521,502.00

Other Operating Costs

Operating costs listed on the Profit and Loss Statement (Table 4.08) are estimated based on various sources. The fuel & lube and repairs estimates are based off of the Investment Summary (Table 4.06), where fuel and lube for all machinery and vehicles is calculated at 8% of the purchase price. Annual repairs are provided for all investments that require maintenance and are calculated at 2% of the purchase price.

The insurance estimates do not represent firm quotes. They are estimates based on the preliminary information provided for worker's compensation and general liability for a total of \$35,000 a year (ISU Stetson-Beemer Insurance, 2007).

All other operating costs are estimated based on two similar studies and adjusted for facility size. See Nudell and Petry (1997) and Curtis et al. (2007) for more information.

Table 4.08: Annual Profit and Loss Statement

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value
GROSS INCOME				
Lamb Sales	863,147	Lbs	\$ 2.49	\$ 2,149,236.03
Beef Sales	4,696,188	Lbs	\$ 2.09	\$ 9,815,032.92
By Product Sales	18,201	Animal	\$ 10.00	\$ 182,010.00
TOTAL GROSS INCOME				\$ 11,964,268.95
OPERATING COSTS				
Lamb Purchases	1,738,451	Lbs	\$ 1.19	\$ 2,068,756.69
Beef Purchases	7,769,760	Lbs	\$ 0.91	\$ 7,070,481.60
Salaries	1.00	Annual	\$ 521,502.00	\$ 521,502.00
Travel/Dues	1.00	Annual	\$ 3,500.00	\$ 3,500.00
Advertising	1.00	Annual	\$ 6,000.00	\$ 6,000.00
Water	1.00	Annual	\$ 12,000.00	\$ 12,000.00
Utilities	1.00	Annual	\$ 20,000.00	\$ 20,000.00
Laundry	1.00	Annual	\$ 2,000.00	\$ 2,000.00
Accounting/Legal	1.00	Annual	\$ 3,600.00	\$ 3,600.00
Janitorial	1.00	Annual	\$ 4,800.00	\$ 4,800.00
Slaughter Supplies	1.00	Annual	\$ 26,000.00	\$ 26,000.00
Packaging Supplies	1.00	Annual	\$ 18,000.00	\$ 18,000.00
Postage	1.00	Annual	\$ 2,000.00	\$ 2,000.00
Office Supplies	1.00	Annual	\$ 2,200.00	\$ 2,200.00
Insurance: General Liability	1.00	Annual	\$ 5,000.00	\$ 5,000.00
Insurance: Workers Compensation	1.00	Annual	\$ 30,000.00	\$ 30,000.00
Fuel & Lube	1.00	Annual	\$ 7,600.00	\$ 7,600.00
Repairs	1.00	Annual	\$ 46,346.60	\$ 46,346.60
Miscellaneous	1.00	Annual	\$ 2,000.00	\$ 2,000.00
TOTAL OPERATING COSTS				\$ 9,851,786.89
INCOME ABOVE OPERATING COSTS				\$ 2,112,482.06
OWNERSHIP COSTS				
Annual P&I Payment				\$ 265,409.84
Annual Investment Insurance				\$ 8,488.38
Annual Investment Taxes				\$ 13,545.32
Annual Depreciation				\$ 167,552.10
TOTAL OWNERSHIP COSTS				\$ 454,995.63
TOTAL COSTS				\$ 10,306,782.52
NET PROJECTED RETURNS				\$ 1,657,486.43

Gross Income Projections

Income projections are estimated using wholesale pricing for the dressed weight of the animal. As the facility will be processing all carcasses into small packaged cuts, the income projections are lower than actual wholesale packaged pricing. Dressed steers

have an average weight of 777 pounds (LMIC, 2008), which leads to facility beef production of 4,696,188 pounds per year. When sold at \$2.09 per pound (USDA Agricultural Marketing Service, 2007), total income from beef sales equal \$9,8158,032.92. Dressed sheep/lamb have an average weight of 71 pounds (LMIC, 2008), which leads to facility lamb production of 863,147 pounds per year. When sold at \$2.49 per pound (USDA Agricultural Marketing Service, 2007), total income from lamb sales equal \$2,149,236.03. By-product sales are estimated at \$10.00 per animal (Nudell and Petry, 1997), or \$182,010.00 annually. By-products include pelts and saleable offal.

Annual Profitability Estimate

Table 4.08 provides an overview of the projected annual net returns from the facility along with a sensitivity analysis. Estimates show a potential positive return of \$1,649,293,21. However, when sensitivity analysis is performed (the four columns on the right hand side of Table 4.09) profitability is highly variable. Sensitivity analysis is performed by changing one factor of production or sales while holding the others constant, in order to see how that one factor can change overall returns (profit). When potential sales prices are decreased by 10% (i.e., if the price of lamb and beef products were to fall by 10%, all other figures held constant), total gross income decreases from \$11,964,268.95 to \$10,931,651.06, a difference of \$1,032,617.89. Operating costs and ownership costs are not affected by changing the sales price; however, the change in gross income decreases projected net returns by the same amount, just over one million dollars. If the sales price were to fall by 20% (lower half of the second column of Table 4.09), gross income would fall from just under twelve million dollars to \$9,717,023.16, a

difference of \$2,247,245.79. This would cause net returns to be negative, in the amount of \$589,759.36.

If sales prices were to increase by 10% (third column on the right of Table 4.09), total gross income would increase from \$11,964,268.95 to \$13,360,906.85, increasing projected net returns from \$1,657,486.43 to \$3,054,124.32, an increase of \$1,396,637.89. If sales prices were to increase by 20% (lower half of third column of Table 4.09), all other factors held constant, total gross income would increase from \$11,964,268.95 to \$14,575,534.74, increasing net returns by \$4,268,752.22.

If costs were to decrease by 10% (fourth column of Table 4.09), gross income would remain the same (\$11,964,268.95), but operating costs would decrease from \$9,851,786.89 to \$8,866,608.20, a difference of \$985,178.69, and ownership costs would decrease from \$454,995.63 to \$409,496.07, a difference of \$45,499.56. These lowered costs would increase projected net returns from \$1,657,486.43 to \$2,688,164.68, an increase of \$1,030,678.25. If costs were to decrease by 20% (lower half of fourth column of Table 4.09), operating costs would decrease from \$9,851,786.89 to \$7,881,429.51, a difference of \$1,970,357.38, and ownership costs would decrease from \$454,995.63 to \$363,996.51, a difference of \$90,999.12. The total decrease in costs would increase net returns from \$1,657,486.43 to \$3,718,842.93, an increase of \$2,061,356.50.

If costs were to increase by 10% (fifth column of Table 4.09), operating costs would increase from \$9,851,786.89 to \$10,836,965.58, a difference of \$985,178.69, and ownership costs would increase from \$454,995.63 to \$500,495.20, a difference of \$45,499.57. Net returns would decrease from \$1,657,486.43 to \$626,808.17, a decrease of \$1,030,678.26. If costs were to increase 20% (lower half of fifth column of Table

4.09), operating costs would increase from \$9,851,786.89 to \$11,822,144.27, a difference of \$1,970,357.38, while ownership costs would increase from \$454,995.63 to \$545,994.76, a difference of \$90,999.13. The increases in costs would decrease net returns to a negative value, negative \$403,870.08.

Table 4.09: Sensitivity Analysis

	Total Units	Unit	Price Per Unit	Total Value	Decrease Sales Price by 10%	Increase Sales Price by 10%	Decrease Costs by 10%	Increase Costs by 10%
Lamb Sales	863,147	Lbs	\$ 2.49	\$ 2,149,236.03	\$ 1,934,312.43	\$ 2,364,159.63	\$ 2,149,236.03	\$ 2,149,236.03
Beef Sales	4,696,188	Lbs	\$ 2.09	\$ 9,815,032.92	\$ 8,833,529.63	\$ 10,796,536.21	\$ 9,815,032.92	\$ 9,815,032.92
By Product Sales	18,201	Animal	\$ 10.00	\$ 182,010.00	\$ 163,809.00	\$ 200,211.00	\$ 182,010.00	\$ 182,010.00
TOTAL GROSS INCOME				\$ 11,964,268.95	\$ 10,931,651.06	\$ 13,360,906.85	\$ 11,964,268.95	\$ 11,964,268.95
TOTAL OPERATING COSTS				\$ 9,851,786.89	\$ 9,851,786.89	\$ 9,851,786.89	\$ 8,866,608.20	\$ 10,836,965.58
TOTAL OWNERSHIP COSTS				\$ 454,995.63	\$ 454,995.63	\$ 454,995.63	\$ 409,496.07	\$ 500,495.20
TOTAL COSTS				\$ 10,306,782.52	\$ 10,306,782.52	\$ 10,306,782.52	\$ 9,276,104.27	\$ 11,337,460.78
NET PROJECTED RETURNS				\$ 1,657,486.43	\$ 624,868.53	\$ 3,054,124.32	\$ 2,688,164.68	\$ 626,808.17
Lamb Sales	863,147	Lbs	\$ 2.49	\$ 2,149,236.03	\$ 1,719,388.82	\$ 2,579,083.24	\$ 2,149,236.03	\$ 2,149,236.03
Beef Sales	4,696,188	Lbs	\$ 2.09	\$ 9,815,032.92	\$ 7,852,026.34	\$ 11,778,039.50	\$ 9,815,032.92	\$ 9,815,032.92
By Product Sales	18,201	Animal	\$ 10.00	\$ 182,010.00	\$ 145,608.00	\$ 218,412.00	\$ 182,010.00	\$ 182,010.00
TOTAL GROSS INCOME				\$ 11,964,268.95	\$ 9,717,023.16	\$ 14,575,534.74	\$ 11,964,268.95	\$ 11,964,268.95
TOTAL OPERATING COSTS				\$ 9,851,786.89	\$ 9,851,786.89	\$ 9,851,786.89	\$ 7,881,429.51	\$ 11,822,144.27
TOTAL OWNERSHIP COSTS				\$ 454,995.63	\$ 454,995.63	\$ 454,995.63	\$ 363,996.51	\$ 545,994.76
TOTAL COSTS				\$ 10,306,782.52	\$ 10,306,782.52	\$ 10,306,782.52	\$ 8,245,426.02	\$ 12,368,139.03
NET PROJECTED RETURNS				\$ 1,657,486.43	\$ (589,759.36)	\$ 4,268,752.22	\$ 3,718,842.93	\$ (403,870.08)

V. MARKETING RECOMMENDATIONS

Due to the preferences for freshness, safety and taste/ flavor of meat products by both the consumer survey respondents and the Hispanic sub sample, we recommend marketing Nevada meat products to specialty stores and butchers who cater to the Hispanic population and high-end restaurants in Reno and Las Vegas. Consumer survey respondents noted that they make 27% of their meat purchases through butchers or specialty stores. This constitutes a large portion of their meat purchases. Specific meat cuts preferred by consumers are noted in the consumer demand section.

High-end restaurants tend to be less price-sensitive and place a higher emphasis on product taste and quality, as is shown in the results of the restaurant and store survey. Additionally, high-end restaurant consumers are willing to pay more for local, natural, and other specialty meat products. Specific meat cuts preferred by stores and restaurants are noted in the consumer demand section. Of the restaurants surveyed, 17% mentioned they currently purchase local products and 56% would like to see a third-party certification on their local purchases. Thus, it is recommended that the facility use a third-party such as NevadaGrown or Made in Nevada to certify their products (see Appendix D for more information). The following paragraphs detail the potential demand for Nevada meat products by specialty stores and butchers focused on Hispanic consumers, as well as high-end restaurants in Nevada.

Commercial Demand for Beef and Sheep/Lamb Products

To determine the commercial demand for beef and sheep/lamb products the proposed facility might expect from local (Nevada) businesses, the average and total

purchases of these products was calculated using data collected from the store and restaurant survey. Based on the information collected from the Nevada Restaurant Association, as well as from directories of markets and wholesale suppliers, it was found that Nevada has a total of 15 Basque restaurants, 55 meat markets, butchers, and *carnicerías*, and 11 wholesale meat suppliers/distributors. Additionally, there are 345 high-end and Hispanic restaurants registered with the Nevada Restaurant Association (Table 5.01). Using these numbers, it was possible to estimate demand for beef and sheep/lamb products in Nevada by taking the average monthly purchases and multiplying them by the number of each type of establishment. This was done to estimate demand on both a monthly and annual basis.

Table 5.01: Food Service Establishments in Nevada

Type	Number in NV
Basque restaurants	15
Meat markets/butchers	55
Wholesale	11
Restaurants	345

Table 5.02 shows the estimated demand for beef products. On average, it was found that food service establishments purchase 10,116 pounds of beef each month, which translates into 121,394 pounds per establishment per year. For Basque restaurants, the total purchases (over all Basque establishments in the state) were estimated as 151,743 pounds per month and 1,820,915 pounds per year; while meat markets, butchers, and *carnicerías* purchase a total of 556,391 pounds of beef per month and 6,676,688 pounds of beef per year. The total beef purchases by wholesale distributors was estimated as 111,278 pounds per month and 1,335,338 pounds per year; while total beef purchases by restaurants was found to be 3,490,087 pounds per month and 41,881,044 pounds per year. Overall, these figures come to 4,309,499 pounds of beef being

purchased by these meat supplying establishments each month, which translates into total annual beef purchases of 51,713,985 pounds.

Table 5.02: Estimated Beef Purchases by Establishment Type

Beef	Purchases (lbs/mo)	Purchases (lbs/yr)
Sum of average beef consumption	10,116	121,394
Beef by Basque restaurants	151,743	1,820,915
Beef by meat markets/butchers	556,391	6,676,688
Beef by wholesale	111,278	1,335,338
Beef by restaurants	3,490,087	41,881,044
Total Beef by Food service industry	4,309,499	51,713,985

Table 5.03 shows estimated sheep/lamb demand for food service establishments in Nevada. The average amount of sheep and lamb purchased was found to be 219 pounds per establishment per month, or 2,623 pounds of sheep and lamb per establishment per year. For Basque restaurants, the total sheep and lamb purchases was estimated as 3,279 pounds per month and 39,347 pounds per year; while sheep and lamb product purchases by meat markets, butchers, and *carnicerías* was estimated as 12,023 pounds per month and a total of 144,271 pounds per year. Wholesale meat suppliers were estimated to purchase a total of 2,405 pounds of sheep and lamb meat per month, and 28,854 pounds per year; and restaurants were estimated to purchase 75,414 pounds of sheep and lamb per month, or 904,971 pounds per year. Overall, total sheep and lamb meat purchases by these establishments comes to 93,120 pounds per month, and 1,117,442 pounds per year.

Table 5.03: Estimated Sheep/Lamb Purchases by Establishment Type

Sheep/Lamb	Purchases (lbs/mo)	Purchases (lbs/yr)
Sum of average Sheep/Lamb consumption	219	2,623
Sheep/Lamb by Basque restaurants	3,279	39,347
Sheep/Lamb by meat markets/butchers	12,023	144,271
Sheep/Lamb by wholesale	2,405	28,854
Sheep/Lamb by restaurants	75,414	904,971
Total Sheep/Lamb by Food service industry	93,120	1,117,442

Based on the estimates of demand presented above, and the estimated annual production of the proposed facility, a comparison of demand and supply was made (Table 5.04). It was found that annual commercial demand for beef in Nevada would be 51,713,985 pounds, while the facility would produce only 4,696,188 pounds of beef per year. For beef, demand exceeds supply by 47,017,797 pounds per year. Estimated annual commercial demand for sheep and lamb products was estimated at 1,117,442 pounds, while the facility would produce only 863,147 pounds; meaning demand would exceed supply by 254,295 pounds per year.

Table 5.04: Estimated Meat Demand vs. Estimated Facility Supply

Meat type	Estimated Annual Commerical Demand (lbs)	Estimated Annual Production (lbs)	Excess Annual Demand Over Supply (lbs)
Beef	51,713,985	4,696,188	47,017,797
Sheep/Lamb	1,117,442	863,147	254,295

VI. SUMMARY AND RECOMMENDATIONS

The purpose of this study is to conduct an in-depth feasibility study for a multi-species producer-owned slaughter and processing plant to be located in Northeastern Nevada. The following provides recommendations that interested ranchers may wish to consider as they move forward.

In the economic feasibility section we find that the multi-species slaughter and processing facility would be profitable given the costs and revenues estimated for this study. However, the sensitivity analysis shows that the facility's economic feasibility is very sensitive to changes in both costs and revenues. At a 20% increase in costs or a 20% decrease in revenues the facility is no longer making a profit. Due to this sensitivity, current economic conditions as noted in the discussion of restaurant sales below, and the prevalence of meat recalls and slaughter facility closures (see discussion below) it is our recommendation that the facility not be constructed at this time. Should economic conditions and livestock pricing improve, the facility would have a higher probability for success. For those ranchers interested in local slaughter at this time, a mobile slaughter situation might be preferable. See Curtis et al. (2007) for more information.

Restaurant Sales

The National Restaurant Association estimates that consumers in the United States spent a total of \$536.9 billion dollars in restaurants in 2007, and projects that in 2008, 48% of each dollar spent on food will be in restaurants (National Restaurant Association, 2008). In Nevada alone, the National Restaurant Association estimates that

consumers made expenditures of \$4.0 billion in restaurants in 2007(National Restaurant Association, 2007).

However, in spite of these estimates, a study conducted by the National Restaurant Association at the end of 2007 found that in November 2007, restaurant activity in the United States fell to its lowest level since February 2003 (The Business Review, 2008). The study based its performance assessment on the association's monthly Restaurant Performance Index, which is composed of two other indices, the Current Situation Index the Expectations Index. The Current Situation Index measures current trends in four industry categories, same-store sales, traffic, labor, and capital expenditures, all of which showed declines in November, which was the third straight month of declines, indicating that the restaurant industry is in contraction. Additionally, the study found that restaurant operators were not optimistic about sales growth and were set to decrease capital spending. Only 16% of restaurant operators included in the study said they expected economic conditions to improve over the next six months, which was the lowest percentage of optimism on record for this monthly study, while 41% of restaurant operators said they expected economic conditions to worsen over the next six months.

Meat Recalls

From 2006-2007, there were a total of 86 USDA FSIS meat recalls in the United States, recalling nearly 40 million pounds of meat (Table 6.01). Seventy of those cases (81.4% of recall cases from 2006-2007) were classified as Class I High Risk situations, which the USDA defines as “a health hazard situation where there is a reasonable

probability that the use of the product will cause serious, adverse health consequences or death” (USDA FSIS, 2008). In 32.6% of these cases, the driving factor behind the recall was suspicion of *Escherichia coli* O157:H7 (*E. coli*) contamination, a strain of bacteria that is found in the intestines of healthy livestock, but which can cause illness and death in humans when digested. The most common cause of illness from digestion is that of undercooked contaminated meat (Centers for Disease Control and Prevention, 2008). More than 30 million pounds of recalled meat was recalled due to suspected *E. coli* contamination. While 2006 had 34 recalls (totaling 5,461,655 pounds of meat), 2007 saw meat recalls on a much larger scale, with a total of 52 recalls of nearly 34 million pounds of meat. In 2007, almost 85% of meat recalls were classified as Class I High Risk.

Table 6.01: Domestic Meat Recalls in the United States, 2006-2007

Year	Number of Meat Recalls	Amount of Meat Recalled (lbs.)	E. Coli Recall Cases, % of total in parentheses	E. Coli Recalls by Weight, % of total in parentheses	Percentage Class I High Risk Recall
2006	34	5,461,655	8 (23.5%)	181,900 (3.33%)	26 (76.5%)
2007	52	33,966,950	20 (38.5%)	30,317,649 (89.3%)	44 (84.6%)
Total	86	39,428,605	28 (32.6%)	30,499,549 (77.4%)	70 (81.4%)

Data from USDA FSIS Recall Archives, 2006 & 2007

Slaughter Plant Closures

Since 2001, the number of federally-inspected livestock slaughtering plants has steadily decreased (Table 6.02). In 2001, there were 910 federally-inspected livestock slaughtering facilities in the United States, but by the end of 2007, there were only 793, a decrease of 117 plants. In 1990, there were over 1,200 federally inspected plants in the

United States, meaning that from the period of 1990 to 2007, 475 slaughtering plants were closed.

Table 6.02: Federally Inspected Slaughter Plants in the United States, 1990-2007

Year	Plants slaughtering under federal inspection	Change from Previous
1990	1,268	---
2000	908	360
2001	910	-2
2002	881	29
2003	879	2
2004	853	26
2005	826	27
2006	806	20
2007	793	13
Closures from 1990-2007		475

Data from USDA NASS Livestock Annual Summary years 2000-2007

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APPENDIX

Appendix A: Producer Survey

When answering the survey questions, please check the box next to the most appropriate response (*only one please*). Please write in your response when provided a lined space.

1. What is your title or position on this ranch/farm?

- Owner
- Manager
- Other: _____

2. How long have you been in the livestock industry?

- 1-5 years
- 6-10 years
- 11-20 years
- 21 years or more

3. Where is the farm/ranch located (county)?

- Elko
- White Pine
- Eureka
- Lincoln
- Humboldt
- Lander
- Other: _____

4. How many acres does the ranch/farm own/lease (including allotments)? _____
(specify #)

5. In the following table list the number and type of animals you produce annually, any specific breed used (i.e. black angus), special production methods employed (grass-fed, natural, etc.), and the calving season if appropriate.

Animal Type (beef, pork, lamb, etc.)	Number of Animals	Breed	Production Method	Calving Season (spring, fall, etc.)

6. How does your ranch/farm currently market its livestock products? (*Check all that apply*)

- Yearlings sold to the feedlot, # _____.
- Fed and sold fat, # _____.
- Quarter, halves, or whole carcasses sold direct to consumer, # _____.
- Small cuts boxed/packaged and sold direct to consumer, # _____.

Other: _____.

7. If your ranch/farm currently markets its livestock products directly to the consumer, what outlets does it use? *(Check all that apply)*

- Farmers market
- Internet/mail order
- Word-of-mouth
- Other: _____
- Not applicable

8. How many employees currently work on the ranch/farm? Please include any family members and other non-paid help.

- 1-2
- 3-4
- 5-6
- 7 or more

9. If a local USDA inspected slaughter/processing/packing plant was available what volume of animals might your farm/ranch send to the plant? *(Use separate lines for same animal types of differing ages)*

Animal Type (beef, pork, lamb, etc.)	Number of Animals	Average Weight	Animal Age (yearling, cull, etc.)

10. If a cooperative or other business entity of local producers was established to process and/or market livestock products, what functions would you want this entity to do for your farm/ranch? *(Check all that apply)*

- Slaughtering
- Aging
- Packaging/Wrapping
- Marketing

11. Starting a new business requires start-up capital. If this business entity were shown to be a potentially profitable venture, would you be willing to invest in this business entity?

- Yes
- No *(Skip to question 13)*

12. If this was a worthwhile investment of time and money, what amount would you be willing to invest in a local producer business entity?

- \$1-\$2500
- \$2501 to \$5000
- \$5000 or more
- Expertise, specify _____

13. If you were to participate in this local producer business entity, briefly describe how your current livestock operation might change (i.e. feed out and not sell on the hoof, reduce the number or animals produced, produce specialty product (grass-fed, natural), etc.).

14. If the University of Nevada Cooperative Extension offered one or more of the following educational topics, which would provide the most benefit to your livestock operation. *(Check all that apply)*

- Marketing (value-added, niche marketing, direct marketing)
- Business planning/investment analysis
- Animal fertility/genetics
- Meat tenderness and quality variants (stress, genetics, etc.)
- USDA label specifications
- Special production methods (grass-fed, natural, organic)
- Other: _____

Thank you for your time!

Appendix B: Consumer Survey

Consumer Survey Version 1

1. Introduction

Consumer concerns regarding food safety and nutritional content of food products have initiated a movement focused on consumption of locally grown foods. For this reason, the Department of Resource Economics at the University of Nevada, Reno is conducting a study to assess consumer demand for specialty meat products grown and processed in the southwestern U.S. Your response to this questionnaire will provide valuable information on the level of consumer interest in locally grown specialty meat products. You are under no obligation to complete this questionnaire, and all responses are anonymous. However, your participation would be much appreciated.

You may report (anonymously, if you so choose) any complaints or comments regarding the manner in which this study is being conducted to the University of Nevada, Reno Social Behavioral Institutional Review Board at (775) 327-2368 or by addressing a letter to the Chair of the Board, c/o UNR Office of Human Research Protection, 205 Ross Hall/ MS 331, University of Nevada, Reno, Reno, NV 89557.

Thank you for your time!

2. Shopping Preferences

1. Are you the primary grocery shopper for your household?

Yes No

2. How often do you consume meat products on a weekly basis?

Never 1-5 times 5-10 times 10-15 times More than 15 times

3. What percentage of your total meat purchases are made at the following outlets? Please select the category that best fits your household's meat purchasing habits.

	I do not purchase meat at this type of store	1-25% of my total meat purchases	26-50% of my total meat purchases	51-75% of my total meat purchases	76-100% of my total meat purchases
Supermarket/Grocery store	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural/Health food store	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialty meat store (i.e. butcher)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Directly from farmer (farmers' market)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Meat Preferences

4. When purchasing meat, how important are the following features to you?

	Not important	Slightly important	Somewhat important	Very important	Extremely important
Freshness	<input type="radio"/>				
Tenderness	<input type="radio"/>				
Marbling	<input type="radio"/>				
Muscle texture	<input type="radio"/>				
Leanness	<input type="radio"/>				
Taste and flavor	<input type="radio"/>				
Brand name	<input type="radio"/>				
Cut type	<input type="radio"/>				
Food safety	<input type="radio"/>				
Packaging (packaging material and size)	<input type="radio"/>				
Sales or promotion	<input type="radio"/>				
Organic	<input type="radio"/>				
Natural	<input type="radio"/>				
Origin of product (grown locally or not)	<input type="radio"/>				
Environmentally friendly production	<input type="radio"/>				
Humane treatment of animal in production	<input type="radio"/>				
Feed type (grain or grass)	<input type="radio"/>				
Price	<input type="radio"/>				

4. Organic and Natural Production

The following questions were designed to illustrate your understanding of organic and natural grass-fed meat production processes. Please answer each question to the best of your knowledge.

5. In order for a meat product to be labeled organic, the animal it was produced from must have been given organic feed.

True

False

6. In order for a meat product to be labeled natural grass-fed, the animal it was produced from must have been fed at least an 80% ration of grasses and forbs.

True

False

7. In order for livestock to be considered organic, they must not be given antibiotics.

True

False

8. In order for livestock to be considered natural, they may be given antibiotics.

True

False

9. In order for livestock to be considered organic or natural, they may not be given growth hormones.

True

False

5. Organic and Natural Production

10. Natural meat products must be certified by the USDA or a third-party certifier.

True

False

11. Organic meat products must be certified by the USDA or a third-party certifier.

True

False

12. Livestock raised through traditional methods are not fed grass or forage diets.

True

False

13. Natural grass-fed livestock may not be sent to feedlots prior to slaughter.

True

False

14. Organic and natural livestock may not be exposed to chemical pesticides.

True

False

6. Beef Purchasing History

15. How many pounds of the following beef cuts did you purchase for your household in the last 30 days?

	1-5 lbs.	5-10 lbs.	10-20 lbs.	More than 20 lbs.	Did not purchase
Beef tri-tip	<input type="radio"/>				
Beef roast	<input type="radio"/>				
Ground beef	<input type="radio"/>				
Prime rib	<input type="radio"/>				
Preformed hamburgers or meatballs	<input type="radio"/>				
Rib eye steak	<input type="radio"/>				
Sir loin steak	<input type="radio"/>				
Beef chuck	<input type="radio"/>				
Beef stew meat	<input type="radio"/>				
Carne asada	<input type="radio"/>				
Beef carnitas	<input type="radio"/>				
Beef liver/kidney/tripe	<input type="radio"/>				

7. Pork Purchasing History

16. How many pounds of the following pork cuts did you purchase for your household in the last 30 days?

	1-5 lbs.	5-10 lbs.	10-20 lbs.	More than 20 lbs.	Did not purchase
Shoulder	<input type="radio"/>				
Belly/Bacon	<input type="radio"/>				
Ribs	<input type="radio"/>				
Leg	<input type="radio"/>				
Feet	<input type="radio"/>				
Loin	<input type="radio"/>				
Ground pork	<input type="radio"/>				
Pork chops	<input type="radio"/>				
Pork carnitas	<input type="radio"/>				
Port cutlets	<input type="radio"/>				

8. Sheep & Lamb Purchasing History

17. How many pounds of the following sheep/lamb cuts did you purchase for your household in the last 30 days?

	1-5 lbs.	5-10 lbs.	10-20 lbs.	More than 20 lbs.	Did not purchase
Shoulder	<input type="radio"/>				
Rack	<input type="radio"/>				
Breast	<input type="radio"/>				
Leg	<input type="radio"/>				
Lamb chops	<input type="radio"/>				
Loin	<input type="radio"/>				
Shank	<input type="radio"/>				
Whole lamb	<input type="radio"/>				
Mutton	<input type="radio"/>				

9. Goat Purchasing History

18. How many pounds of the following goat cuts did you purchase for your household in the last 30 days?

	1-5 lbs.	5-10 lbs.	10-20 lbs.	More than 20 lbs.	Did not purchase
Shoulder	<input type="radio"/>				
Belly	<input type="radio"/>				
Ribs	<input type="radio"/>				
Leg	<input type="radio"/>				
Loin	<input type="radio"/>				
Goat stew meat	<input type="radio"/>				
Whole goat	<input type="radio"/>				

10. Special Occasion Purchasing History

19. Does your household consume meat products to celebrate the following holidays?

	Beef	Pork	Lamb	Goat
New Year's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Epiphany	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Passover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eid ul-Adha	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cinco de Mayo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Christmas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chanukka	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ramadan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dassai	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Hypothetical Bias

In the next few questions we ask you to compare several different meat products and choose the one you would be most likely to purchase. Studies have found that when answering questions such as these, people often have a tendency to respond differently on a survey than they would in the actual market. This is called "hypothetical bias." In other words, what people say they will do in a hypothetical situation is different from how they act in a real market setting. In order to lessen the effects of hypothetical bias, we ask you to keep two things in mind as you answer this next set of questions.

First, please consider your household's budget for meat products. If you think you would be interested in purchasing one of the presented products, but would not be able to afford the cost, then please select the option that best fits your budget.

Second, please try to imagine how you would behave if the situation presented was real rather than hypothetical. This means that even if all the presented products fit into your household's budget, we would like you to select the product that you think you would be most likely to purchase if you were actually presented with these options when making a meat purchase.

12. Willingness to Pay

In this section, you will be presented with seven cases where meat products are compared. In each case, three products are offered side by side. The first product is one that you may commonly see in stores. The other two products differ from the first product by processing features and price. Except for these differences, the three products are exactly the same in all other aspects (quality, marbling, USDA grade, etc.). You are asked to indicate which product you think you would be most likely to purchase given the differences presented.

20. Consider the following types of PRIME RIB.

- Conventional prime rib, \$9.99/lb. Natural, grass-fed prime rib, \$11.99/lb. Organic prime rib, \$15.48/lb.

21. Consider the following types of TRI-TIP STEAK/BISTEC.

- Conventional tri-tip steak/bistec, \$5.99/lb. Natural, grass-fed tri-tip steak/bistec, \$10.78/lb. Organic tri-tip steak/bistec, \$7.19/lb.

22. Consider the following types of GROUND BEEF/CARNE ASADA.

- Conventional ground beef/carne asada, \$3.99/lb. Natural, grass-fed ground beef/carne asada, \$3.79/lb. Organic ground beef/carne asada, \$2.79/lb.

23. Consider the following types of PORK CHOPS.

- Conventional pork chops, \$4.69/lb. Natural, grass-fed pork chops, \$5.63/lb. Organic pork chops, \$5.63/lb.

24. Consider the following types of PORK RIBS.

- Conventional pork ribs, \$3.49/lb. Natural, grass-fed pork ribs, \$6.98/lb. Organic pork ribs, \$6.98/lb.

25. Consider the following types of LEG OF LAMB.

- Conventional leg of lamb, \$4.99/lb. Natural, grass-fed leg of lamb, \$8.98/lb. Organic leg of lamb, \$4.74/lb.

26. Consider the following types of GOAT ROAST.

- Conventional goat roast, \$5.49/lb. Natural, grass-fed goat roast, \$5.49/lb. Organic goat roast, \$7.41/lb.

13. Willingness to Pay

Conventional meat products are typically fed a diet of grains for at least 120 to 200 days prior to slaughter. Often, livestock that is raised for conventional meat products is fed only a diet of grain to increase body weight, rather than the grass and forages most livestock would consume outside of domestication. Natural grass-fed livestock, on the other hand, is fed a diet composed of no less than 80% grass and forages throughout its lifespan. Organic livestock is normally fed a grain diet, but must be fed only organic grains. You are asked to indicate which product you think you would be most likely to purchase given the differences presented.

27. Consider the following types of PRIME RIB.

- Conventional prime rib, \$9.99/lb. Natural, grass-fed prime rib, \$11.99/lb. Organic prime rib, \$15.48/lb.

28. Consider the following types of TRI-TIP STEAK/BISTEC.

- Conventional tri-tip steak/bistec, \$5.99/lb. Natural, grass-fed tri-tip steak/bistec, \$10.78/lb. Organic tri-tip steak/bistec, \$7.19/lb.

29. Consider the following types of GROUND BEEF/CARNE ASADA.

- Conventional ground beef/carne asada, \$3.99/lb. Natural, grass-fed ground beef/carne asada, \$3.79/lb. Organic ground beef/carne asada, \$2.79/lb.

30. Consider the following types of PORK CHOPS.

- Conventional pork chops, \$4.69/lb. Natural, grass-fed pork chops, \$5.63/lb. Organic pork chops, \$5.63/lb.

31. Consider the following types of PORK RIBS.

- Conventional pork ribs, \$3.49/lb. Natural, grass-fed pork ribs, \$6.98/lb. Organic pork ribs, \$6.98/lb.

32. Consider the following types of LEG OF LAMB.

- Conventional leg of lamb, \$4.99/lb. Natural, grass-fed leg of lamb, \$8.98/lb. Organic leg of lamb, \$4.74/lb.

33. Consider the following types of GOAT ROAST.

- Conventional goat roast, \$5.49/lb. Natural, grass-fed goat roast, \$5.49/lb. Organic goat roast, \$7.41/lb.

14. Willingness to Pay

Livestock raised for conventional meat products is exposed to fertilizers and chemical pesticides that have been used on the feed, as well as growth hormones (to promote growth) and antibiotics to control for illness. Natural grass-fed meat products and organic meat products are raised without the use of antibiotics, growth hormones, and implants (though all types of livestock are administered standard vaccinations). You are asked to indicate which product you think you would be most likely to purchase given the differences presented.

34. Consider the following types of PRIME RIB.

- Conventional prime rib, \$9.99/lb. Natural, grass-fed prime rib, \$11.99/lb. Organic prime rib, \$15.48/lb.

35. Consider the following types of TRI-TIP STEAK/BISTEC.

- Conventional tri-tip steak/bistec, \$5.99/lb. Natural, grass-fed tri-tip steak/bistec, \$10.78/lb. Organic tri-tip steak/bistec, \$7.19/lb.

36. Consider the following types of GROUND BEEF/CARNE ASADA.

- Conventional ground beef/carne asada, \$3.99/lb. Natural, grass-fed ground beef/carne asada, \$3.79/lb. Organic ground beef/carne asada, \$2.79/lb.

37. Consider the following types of PORK CHOPS.

- Conventional pork chops, \$4.69/lb. Natural, grass-fed pork chops, \$5.63/lb. Organic pork chops, \$5.63/lb.

38. Consider the following types of PORK RIBS.

- Conventional pork ribs, \$3.49/lb. Natural, grass-fed pork ribs, \$6.98/lb. Organic pork ribs, \$6.98/lb.

39. Consider the following types of LEG OF LAMB.

- Conventional leg of lamb, \$4.99/lb. Natural, grass-fed leg of lamb, \$8.98/lb. Organic leg of lamb, \$4.74/lb.

40. Consider the following types of GOAT ROAST.

- Conventional goat roast, \$5.49/lb. Natural, grass-fed goat roast, \$5.49/lb. Organic goat roast, \$7.41/lb.

15. Willingness to Pay

Natural grass-fed meat products have been minimally processed and contain no additives, artificial flavors, colors, or preservatives. Additionally, they are not given growth hormones or antibiotics, and are not exposed to chemical pesticides and fertilizers. Organic meat products are also not exposed to chemical pesticides or fertilizers and are only given organic feed. Aside from the difference in feed, these two production processes may seem similar. However, the main difference is that a certified organic meat product has been subject to inspection by government-approved certifiers in order to ensure that the livestock has been raised according to the USDA Organic standards. Additionally, companies that handle or process organic meat products must also be certified by the USDA. Traditional meat and natural grass-fed meat products, on the other hand, are *not* subject to certification standards; this means any agricultural producer can claim that his/her products are natural. You are asked to indicate which product you think you would be most likely to purchase given the differences presented.

41. Consider the following types of PRIME RIB.

- Conventional prime rib, \$9.99/lb. Natural, grass-fed prime rib, \$11.99/lb. Organic prime rib, \$15.48/lb.

42. Consider the following types of TRI-TIP STEAK/BISTEC.

- Conventional tri-tip steak/bistec, \$5.99/lb. Natural, grass-fed tri-tip steak/bistec, \$10.78/lb. Organic tri-tip steak/bistec, \$7.19/lb.

43. Consider the following types of GROUND BEEF/CARNE ASADA.

- Conventional ground beef/carne asada, \$3.99/lb. Natural, grass-fed ground beef/carne asada, \$3.79/lb. Organic ground beef/carne asada, \$2.79/lb.

44. Consider the following types of PORK CHOPS.

- Conventional pork chops, \$4.69/lb. Natural, grass-fed pork chops, \$5.63/lb. Organic pork chops, \$5.63/lb.

45. Consider the following types of PORK RIBS.

- Conventional pork ribs, \$3.49/lb. Natural, grass-fed pork ribs, \$6.98/lb. Organic pork ribs, \$6.98/lb.

46. Consider the following types of LEG OF LAMB.

- Conventional leg of lamb, \$4.99/lb. Natural, grass-fed leg of lamb, \$8.98/lb. Organic leg of lamb, \$4.74/lb.

47. Consider the following types of GOAT ROAST.

- Conventional goat roast, \$5.49/lb. Natural, grass-fed goat roast, \$5.49/lb. Organic goat roast, \$7.41/lb.

16. Demographic Information

48. How many members are in your household, including yourself?

- 1-2
- 3-4
- 5-6
- 7 or more

49. Where is your residence located?

- Arizona
- Nevada
- New Mexico
- Utah

50. Are there any children under 18 in your household?

- Yes
- No

51. What is your marital status?

- Married
- Single

52. Which of the following categories best represents your 2006 annual household income?

- Less than \$30,000
- \$30,001 to \$45,000
- \$45,001 to \$60,000
- \$60,001 to \$75,000
- \$75,001 to \$100,000
- Above \$100,000
- Prefer not to answer

17. Demographic Information

53. Which of the following categories best represents your completed level of education?

- Middle school
- High school
- Some college
- 2-year degree
- 4-degree
- Graduate degree or higher

54. Which of the following best describes your employment status?

- Full-time employed
- Part-time employed
- Unemployed
- Homemaker
- Retired
- Student

55. What is your gender?

- Male
- Female

56. What is your age?

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 66-75
- Over 75

18. Demographic Information

57. What is your ethnic background?

- African-American
- Asian/Hawaiian/Pacific Islander
- Caucasian
- Hispanic
- Middle Eastern
- Native American
- Other
- Prefer not to answer

Appendix C: Store/Restaurant Survey

Surveyor Name _____ Date _____

Business Name _____

Grocery Restaurant (*Circle one*)

Hi, my name is [...] and I am working with a team of researchers in the Department of Resource Economics at the University of Nevada, Reno. We are trying to assess the interest for locally-produced beef, pork, sheep, and goat products by area stores and restaurants by conducting a telephone survey. If you agree to participate, the survey will take approximately ten minutes to complete and will greatly benefit our research. Would you like to participate in this survey?

I. Demographics

1. Out of the following choices, which foodservice/grocery segment would your establishment most identify with?
 - Gourmet
 - Specialty
 - Ethnic (Basque or Hispanic) (please circle)
 - Health Food
 - Traditional grocery
 - Conventional/Family
 - Other _____
2. Which of the following best describes the ownership status of your establishment?
 - Chain/Franchise
 - Corporate
 - Independent
 - Other _____
3. (If a restaurant): Approximately how many meal units does your establishment serve daily?
_____ Units
4. What is your title/position? _____ Establishment location?
_____ (city)
5. How much autonomy or freedom do you have to select suppliers? Please rate autonomy on a scale of 1 to 10 where 1 indicates you have *No Autonomy* and 10 indicates you have *Complete Autonomy*.

	No Autonomy								Complete
	Autonomy								
1	2	3	4	5	6	7	8	9	10
6. How long have you had this level of autonomy? _____ (Years/Months)

II. Preferences and Buying Habits

7. I am going to list 15 meat attributes for you. After I read each attribute, please rate it on a scale of 1 to 5 where 1 indicates the attribute is *Not Important* and 5 indicates it is *Extremely Important*.

<u>Attribute</u>	<u>Not Important</u>	<u>Slightly Important</u>	<u>Somewhat Important</u>	<u>Very Important</u>	<u>Extremely Important</u>
Product quality	1	2	3	4	5
Product taste	1	2	3	4	5
Product marketability	1	2	3	4	5
Product is nutritious & healthy	1	2	3	4	5
Product price	1	2	3	4	5
Unique or special meat or cut	1	2	3	4	5
Signature product for my establishment	1	2	3	4	5
Product has a variety of menu applications	1	2	3	4	5
Product is locally (Nevada) grown	1	2	3	4	5
Ease of preparation	1	2	3	4	5
Product's brand	1	2	3	4	5
Personally know grower/processor	1	2	3	4	5
Product is certified organic or natural	1	2	3	4	5
Producer is environmentally conscious and/or conducts humane animal treatment	1	2	3	4	5
Personally aware of growing process	1	2	3	4	5

8. I am going to list another 18 attributes for you. This time, I would like you to rate how important you think these meat attributes are to your customers. The 1 to 5 scale is the same, where 1 indicates the attribute is not important, and 5 indicates it is extremely important.

<u>Attribute</u>	<u>Not Important</u>	<u>Slightly Important</u>	<u>Somewhat Important</u>	<u>Very Important</u>	<u>Extremely Important</u>
Freshness	1	2	3	4	5
Tenderness	1	2	3	4	5
Marbling	1	2	3	4	5
Muscle texture	1	2	3	4	5
Leanness	1	2	3	4	5
Taste and flavor	1	2	3	4	5
Brand name	1	2	3	4	5
Cut type	1	2	3	4	5
Food safety	1	2	3	4	5
Packaging (material & size)	1	2	3	4	5
Sales or promotion	1	2	3	4	5
Organic	1	2	3	4	5
Natural	1	2	3	4	5
Origin of meat (grown locally or not)	1	2	3	4	5
Environmentally friendly production	1	2	3	4	5
Humane treatment of animal in production	1	2	3	4	5
Feed type (grain or grass)	1	2	3	4	5
Price	1	2	3	4	5

9. Does your establishment currently purchase locally grown (in Nevada) products?

- Yes, currently (Continue on)
- Yes, in the past but not currently (Skip to Question 14)
- No (Skip to Question 14)

10. How long has your establishment been offering locally grown foods?

_____ (Years/Months)

11. What percent of your establishment's monthly food purchases are locally grown food products? _____ % (Please provide your best estimate)

12. Where has your establishment purchased locally grown food (select as many as apply)?

- Direct from a farmer
- Direct from a farmer's co-op
- From a farmers' market
- From a local manufacturer or processor
- From a foodservice distributor
- From a food broker
- Other (please list) _____

13. What type of labeling or certification would you require to ensure that your purchases are truly locally grown?

- Independent (producer) "Product of Nevada" label
- Third party certification, such as "Nevada Grown" or "Made in Nevada" program
- Not necessary
- Other _____

14. How many pounds of the following beef cuts did you purchase for your establishment in the last 30 days? (Check the appropriate box)

Cut type	1-10 lbs.	10-20 lbs.	20-30 lbs.	More than 30 lbs.	Did not purchase
Beef tri-tip					
Beef roast					
Ground beef					
Prime rib					
Preformed hamburgers or meatballs					
Rib eye steak					
Sirloin steak					
Beef chuck					
Beef stew meat					
Carne asada					
Beef carnitas					
Beef liver/kidney/tripe					
Other:					
Other:					

15. How many pounds of the following pork cuts did you purchase for your establishment in the last 30 days? *(Check the appropriate box)*

Cut type	1-10 lbs.	10-20 lbs.	20-30 lbs.	More than 30 lbs.	Did not purchase
Shoulder					
Belly/Bacon					
Ribs					
Leg					
Feet					
Loin					
Ground pork					
Pork chops					
Pork carnitas					
Pork cutlets					
Other:					
Other:					

16. How many pounds of the following sheep/lamb cuts did you purchase for your establishment in the last 30 days? *(Check the appropriate box)*

Cut type	1-10 lbs.	10-20 lbs.	20-30 lbs.	More than 30 lbs.	Did not purchase
Shoulder					
Rack					
Breast					
Leg					
Lamb chops					
Loin					
Shank					
Whole lamb					
Mutton					
Other:					
Other:					

17. How many pounds of the following goat cuts did you purchase for your establishment in the last 30 days? *(Check the appropriate box)*

Cut type	1-10 lbs.	10-20 lbs.	20-30 lbs.	More than 30 lbs.	Did not purchase
Shoulder					
Belly					
Ribs					
Leg					
Loin					
Goat stew meat					
Whole goat					
Other:					
Other:					

18. Are you familiar with natural grass-fed livestock production practices?
- Yes
 - No (ask question 20 as well)
19. Are you familiar with organic livestock production practices?
- Yes (if yes to question 18 and 19 skip question 20)
 - No (ask question 20 as well)
20. Would you like a brief overview of natural grass-fed and organic livestock production practices?
- Yes (read script)
 - No (continue to next section)

III. Willingness to Pay

In a recent survey, we found that consumers are on average willing to pay a premium of 30-50% for natural grass-fed higher grade meat products, such as steak and lamb and a premium of 5-15% for lower grade natural grass-fed meat products, such as ground beef. All pricing was based at grocery retail levels.

In the following section, we ask you to identify your customer's preferences for natural grass-fed and organic production methods across seven different meat products at differing discount and premium levels.

<p><i>The first product is conventional prime rib or prime rib entree</i></p> <ul style="list-style-type: none"> • Is this product available in your store/restaurant? Yes No <i>(Circle one)</i> • What is the price of this product in your store/restaurant? _____ per plate per pound <p>If the product was a natural, grass-fed prime rib or prime rib entree</p> <ul style="list-style-type: none"> • How many, out of 12 customers, would pay a premium of 20% for this product? ____ <p>If the product was organic prime rib or prime rib entree</p> <ul style="list-style-type: none"> • How many, out of 12 customers, would pay a premium of 55% for this product? ____
<p><i>The second product is conventional tri-tip steak or tri-tip entree</i></p> <ul style="list-style-type: none"> • Is this product available in your store/restaurant? Yes No <i>(Circle one)</i> • What is the price of this product in your store/restaurant? _____ per plate per pound <p>If the product was a natural, grass-fed tri-tip steak or tri-tip entree</p> <ul style="list-style-type: none"> • How many, out of 12 customers, would pay a premium of 80% for this product? ____ <p>If the product was organic tri-tip steak or tri-tip entree</p> <ul style="list-style-type: none"> • How many, out of 12 customers, would pay a premium of 20% for this product? ____
<p><i>The third product is conventional ground beef/carne asada or entrée made with ground beef/carne asada</i></p> <ul style="list-style-type: none"> • Is this product available in your store/restaurant? Yes No <i>(Circle one)</i> • What is the price of this product in your store/restaurant? _____ per plate per pound <p>If the product was a natural, grass-fed ground beef/carne asada or entrée made with ground beef/carne asada</p> <ul style="list-style-type: none"> • How many, out of 12 customers, would pay a discount of 5% for this product? ____ <p>If the product was organic ground beef/carne asada or entrée made with ground beef/carne</p>

asada

- How many, out of 12 customers, would pay a discount of 30% for this product? _____

The fourth product is conventional pork chops or pork chop entree

- Is this product available in your store/restaurant? Yes No *(Circle one)*
- What is the price of this product in your store/restaurant? _____ per plate per pound

If the product was a natural, grass-fed pork chops or pork chop entree

- How many, out of 12 customers, would pay a premium of 20% for this product? _____

If the product was organic pork chops or pork chop entree

- How many, out of 12 customers, would pay a premium of 20% for this product? _____

The fifth product is conventional pork ribs or pork rib entree

- Is this product available in your store/restaurant? Yes No *(Circle one)*
- What is the price of this product in your store/restaurant? _____ per plate per pound

If the product was a natural, grass-fed pork ribs or pork rib entree

- How many, out of 12 customers, would pay a premium of 100% for this product? _____

If the product was organic pork ribs or pork rib entree

- How many, out of 12 customers, would pay a premium of 100% for this product? _____

The sixth product is conventional leg of lamb or leg of lamb entree

- Is this product available in your store/restaurant? Yes No *(Circle one)*
- What is the price of this product in your store/restaurant? _____ per plate per pound

If the product was a natural, grass-fed leg of lamb or leg of lamb entree

- How many, out of 12 customers, would pay a premium of 80% for this product? _____

If the product was organic leg of lamb or leg of lamb entree

- How many, out of 12 customers, would pay a discount of 5% for this product? _____

The last product is conventional goat roast or goat product

- Is this product available in your store/restaurant? Yes No *(Circle one)*
- What is the price of this product in your store/restaurant? _____ per plate per pound

If the product was a natural, grass-fed goat roast or goat product

- How many, out of 12 customers, would pay the same price for this product? _____

If the product was organic goat roast or goat product

- How many, out of 12 customers, would pay a premium of 35% for this product? _____

This completes our survey, thank you for taking the time to help us with our study.

Appendix D: Local Certification Programs

NevadaGrown

To date, the "NevadaGrown" program demonstrates one of the only large-scale uses of Nevada-produced labeling techniques. The NevadaGrown program is a government-sponsored third-party certification program. For a producer of agriculture or food products to be considered for NevadaGrown certification, he or she must either reside or own property or a business in the State of Nevada. For a raw agricultural product, such as meat, to be certified as NevadaGrown, it must be grown (raised) in Nevada. Processed agricultural products must have at least 60% of their composition grown in Nevada. The use of the NevadaGrown logo is restricted to members in good standing. Certification is a cost-free process and membership is reconsidered on an annual basis. More information about the NevadaGrown program can be found on the program's website at <http://www.nevadagrown.com>, or by calling (775) 423-8587.

Made in Nevada

The Nevada Commission on Economic Development has established the "Made in Nevada" program, designed to increase support for products grown or produced within the State of Nevada. The goal of the program is to increase the volume of member business through education programs for consumers both within Nevada and outside the state. The Commission also provides business expansion expertise and assistance by partnering with the Management Assistance Program and the Small Business Development Center. Made in Nevada tags and adhesive labels are provided at no cost to

members, and additional marketing opportunities exist through the Made in Nevada program.

There is a strict selection process to ensure high quality products and to maintain the reputation of Made in Nevada; for gift items, 75% of the end product must be produced, finished, and packaged in Nevada; specialty food items must be entirely produced and processed in Nevada; and agricultural and pet products must be entirely produced or processed in Nevada. Businesses are allowed to use the Made in Nevada logo if they advertise or promote the sale/distribution of Made in Nevada products, while manufacturers may qualify for benefits of the program if 50% or more of their products are manufactured in Nevada. Associate members of the program may include Nevada-based service product companies, non-profit organizations, and other grandfathered member companies. The standard membership fee for a company or organization is \$50 per year. Additional membership and requirement information can be found online at <http://www.expand2nevada.com/MadeinNevada2/index.php>, or by calling (775) 687-4325.