OKLAHOMA QUALITY BEEF NETWORK: PRICE PREMIUMS FROM A PRECONDITIONING PROGRAM

By

CHANDRA DAWN RATCLIFF

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Thesis Approved:

Dr. Clem Ward
Thesis Advisor

Dr. David Lalman

Dr. Derrell Peel

Dr. Al Carlozzi
Dean of the Graduate College

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PREFACE

The Oklahoma Quality Beef Network (OQBN) is owned and operated by beef producers for the benefit of beef producers as well as beef consumers (Dewald, Lalman, and Ward 2002). The Oklahoma Cattlemen's Association directs this multi-phase producer network. The proposed study will determine if an extra value exists in the preconditioned feeder calves involved in this particular program. Models are specified to estimate the price differences between cattle sold through the OQBN program and cattle not preconditioned, both sold through livestock auction markets.

The management practices that cow-calf producer's implement before sending animals to the feedlot in order to improve the immune systems and nutrition of the animal while reducing the risk of stress is preconditioning. Preconditioning includes vaccinating, weaning, castrating, dehorning, nutrition, and other management practices that reduce stress in calves. Preconditioning is not new to the industry but it is a practice that is becoming more customary. There have been many organizations and networks that have attempted to develop programs that produce calves with certain certifiable health and nutritional protocols. One such program is OQBN, which is determined to produce an all-around inexpensive product for consumers. The problem is that producers are uncertain of the potential profitability of a preconditioning program. Having the pricing premium information available is important to Oklahoma cattlemen so they can have the opportunity to decide if this program will increase or decrease their net income.

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Chapter I

Introduction

The Oklahoma Quality Beef Network (OQBN) is owned and operated by beef producers for the benefit of beef producers as well as beef consumers (Dewald, Lalman, and Ward 2002). The Oklahoma Cattlemen's Association and the Oklahoma Cooperative Extension Service direct this multi-phase producer network. This study will determine if an extra value exists in the preconditioned feeder calves involved in this particular program. Models are specified to estimate the price differences between feeder cattle sold through the OQBN program and other feeder cattle sold at traditional livestock auction markets.

The management practices that cow-calf producers implement before sending calves to the feedlot in order to improve the immune systems and nutrition of the animal while reducing the risk of stress are referred to as preconditioning. Preconditioning includes vaccinating, weaning, castrating, dehorning, nutrition, and other management practices that reduce stress in calves. Preconditioning is not new to the industry and for the past 35 years many organizations and networks have attempted to develop programs that produce calves with certain certifiable health and nutritional protocols. Programs such as OQBN are intended to produce less expensive, higher quality products for consumers. The problem is that producers are uncertain of the potential profitability of a preconditioning program. Having the pricing premium information available is important

to Oklahoma cattlemen so they can have the opportunity to decide if this program will increase or decrease their net income.

Problem Statement

By working with producers, livestock market managers, veterinarians, animal health companies, feed companies, cattle feeders, and marketing organizations, the Oklahoma Quality Beef Network (OQBN) is working toward producing better cattle one head at a time. The program adds value to Oklahoma cattle and attempts to capture a part of this added value for Oklahoma cattle producers. This program contains specific guidelines and criteria that producers must follow in their health and management programs. Certification requirements include a minimum 45-day post-weaning period prior to sale or shipment. Bull calves must be castrated and healed, horned calves must be dehorned and healed, all calves should receive clostridial and bacterial vaccinations with boosters, and calves should be fed a concentrate supplement for a minimum of 14 days after weaning. The program also requires a third party verification, which involves a ranch visit by a certified OQBN representative. This visit and the final certification steps must be completed at least 21 days prior to the sale or shipping date. The purpose for the ranch visit is to verify that the cattle have been weaned, castrated, dehorned, and that the records are complete.

Feeder calves have both inherent and value enhancing characteristics. A complete description of feeder cattle characteristics can be found in Table I-1. Maintaining the health of calves through the feedlot stage of production is just one method of improving efficiency. The process verification system associated with health and management

practices, coupled with a accompanying marketing effort, is designed to capture part of the value that OQBN producers have added to these animals.

Currently, the question is, what price premiums were OQBN producers being paid in 2001, 2002, and 2003? Premiums are the differences in price between cattle sold through the OQBN value-added program and traditional management practices. Determining this information is very important to both producers and buyers. Economic theory suggests that prices paid for OQBN calves may indeed be higher than prices paid for calves raised through traditional methods (Bailey, Peterson, and Brorsen 1991). An example of the effects that preconditioning can have on the price of feeder calves as compared to those sold at a traditional market can be found in Table I-2, it was put together for the "Market Valuation of Preconditioned Feeder Calves" by Avent, Ward, and Lalman (2004). Information obtained on the added value that is brought to these feeder calves will prove to be important for OQBN. Producers and buyers will have access to accurate and reliable information, enabling them to determine whether they want to be a part of OQBN.

Producers need to know if they will receive enough benefit for participating in this program to offset added costs they have incurred. Some buyers are lacking trust that preconditioned calves really have received the proper vaccinations. To have a successful program, the sponsoring organization must build a reputation for the animals they are certifying, reassuring these buyers that they will be able to select from large groups of uniform healthy cattle that will perform on pasture or feed. Then buyers will pay premiums to OQBN producers, resulting in the program being successful.

Objectives

The main objective of this study is to determine the price differences between cattle characteristics as compared to OQBN characteristics and the price premiums, if any existed, that OQBN producers were paid in 2001, 2002, and 2003. More generally this research is intended to aide in increasing the net income of Oklahoma cattlemen by giving them the information they need to decide whether to participate in the Oklahoma Quality Beef Network (OQBN) preconditioning program.

Chapter II

Literature Review

The management of beef calves before they are marketed affects their growth rate before being sold to the feedlot and while in the feedlot. Calves that are processed prior to sale experience less stress going into the feedlot and exhibit faster feedlot gains. Vaccination before being sold to the feedlot improves an animal's feedlot performance (Ladd et al. 1989). Vaccinations by the cow-calf producer may also be very beneficial to the feeder. Gardner et al. (1999) found there to be significant feedlot and carcass performance benefits and lower medicine costs from preconditioning. In a preconditioning program calves are not sold directly at weaning. But instead, they are kept for an additional 30 to 45 days to acclimate them to drylot feeding, stabilize their immune systems, and reduce stress. This is key to a preconditioning program. Weaning calves so that they learn how to eat dry feed before entering into the feedlot improves average daily gain. If they are stressed less frequently through dehorning, castrating, and vaccinating all at the same time, but before the stress of weaning, calves will perform better in the feedlot (Ladd et al. 1989). This leads buyers to want to pay higher prices for healthy preconditioned cattle rather than severely stressed cattle. It also potentially reduces a buyer's death loss and veterinary costs. Distributing these stresses over time is presumed to improve feed efficiency. Producers must perform basic management

practices several weeks before weaning or marketing and these management practices need to be performed at a single handling of the calves.

Preconditioning programs have allowed smaller producers to come together and pool cattle of like quality and size in order to attract more buyers, which can lead to the generation of a price premium. The pooling of feeder calves into larger lots has been shown to be more effective in producing greater profits than at regular auctions (Avent 2002). It was found that pooling source verified calves according to sex, class, and average weight produced premiums of $0.96 to $2.14 per hundredweight in Iowa (Avent 2002, Lawrence and Yeboah 2000). Preconditioning should increase calf gains, reduce transit risk shrink, reduce feedlot morbidity and mortality, improve feedlot performance and increase profits (Mendez and Pritchard 1990, Cole 1985). But the question of whether preconditioning programs have consistently provided these advantages to cow-calf producers has been raised. Ladd et al. (1989) found that preconditioned calves had a higher required minimum sale price than calves that were not preconditioned. This suggests that cow-calf producers must receive a substantial price premium for preconditioning their calves in order for them to cover the added costs that were incurred by preconditioning. Most cow-calf producers do not precondition their calves, mostly because the benefits of those cattle are not being properly communicated through the industry. The producer will pay for the cost of preconditioning but many of the benefits generated will be viewed as being received by the feedlot. Information failure or asymmetry exists regarding the benefits of preconditioning (Avent 2002, Nyamusika et al 1994). Common preconditioning programs will cost cow-calf producers from $35 to $60 per head, depending upon the nutrition ration, health of the calves, and length of the

preconditioning program (Avent, Ward, Lalman 2004, Cravey 1996). This added cost is significantly more than selling calves at weaning. This leads to the issue of whether or not feeder cattle buyers pay a sufficient premium for preconditioned calves to cover the marginal cost of preconditioning. Limited evidence to date has suggested that buyers do pay a price premium but one that is insufficient to cover the costs of preconditioning. Even with some optimization among the cattle industry, there has been no development of a more cost-effective health program from any one else to date (Herrick 1989). There is an opportunity for total quality assurance in preconditioning programs and there are movements toward improving the type of cattle that are available to be put into feedlots. Preconditioning should be reinvented as a management tool and no longer viewed as a marketing tool (Thornsbury 1991).

Cattle buyers will discriminate on a variety of attributes that are essential in most agricultural commodities. Including weight, age, sex, horns, muscling, fleshiness, frame, health, and uniformity, these are factors that a preconditioning program attempts to make more uniform among the cattle in the program. In evaluating some of these attributes, research has consistently indicated that feeder cattle prices decline as feeder cattle weight increases, though the extent of this differs with market conditions (Avent, Ward, Lalman 2004, Buccola 1980; Faminow and Gum 1986; Lambert et al. 1989; Marsh 1985; Schroeder et al. 1988; Smith et al.2000; Turner, McKissick, and Dykes 1993). Break-even analysis can be used to successfully clarify our understanding of market price differentials between different lots of feeder cattle. Break-even prices will differ according to the characteristics listed previously because both expected slaughter cattle revenue and animal production costs vary accordingly. Calves that are preconditioned

will be marketed as heavier animals compared to the calves that are marketed at weaning. So, cow-calf producers can expect to receive lower prices for preconditioned calves due to these heavier weights *ceteris paribus.* The same variables that affect the price levels themselves also affect the price differentials observed between different classes of feeder cattle (Buccola 1980).

There is a hypothesis that quality-corrected prices will usually decrease during auctions, to the extent that prices will trend downward and several consequences transpire because of this (Buccola 1982). Particularly during the early part of a sale, livestock sellers as a group are at least partially successful in obtaining economic rent from livestock buyers. Livestock auctions will tend to transmit rather distorted relative price signals for these lots, especially for the ones that are sold near the beginning and the end of the sale. Owners of livestock offered for sale early in an auction will tend to receive sizeable gains associated with this lot position while owners of livestock later in the sale suffer corresponding extensive losses (Buccola 1982).

Schroeder et al. (1988) found that price was also impacted by several physical traits that depend upon the season. During the fall, buyers will bid up prices of heavier bulkier animals and bid down the prices of lighter and thinner cattle. While during the spring the opposite trend prevails. Some of the lower prices that cattle producers can expect to receive may be offset by the seasonal price component associated with preconditioning programs geared toward spring calving and fall weaning programs (Avent, Ward, Lalman 2004). Thus, instead of selling calves are weaning, e.g., in mid-October, calves would be marketed 30-45 days later and into the typical seasonal increase

in feeder calf prices (Peel and Meyer 2002). A buyer or seller's behavior depends on the acceptance of any pricing method (Buccola 1980).

Previous research has also consistently shown a significant difference in feeder calf prices among steers, heifers, and bulls (Avent, Ward, Lalman 2004; Faminow and Gum 1986; Lambert et al. 1989; Smith et al. 2000; Troxel et al. 2001; Turner, McKissick, and Dykes 1993). Consequently, when cow-calf producers sell their bull calves at weaning versus steers after preconditioning, they can expect to receive higher prices for the castration stipulation that is a guideline of the preconditioning program.

When evaluating the effects that the horns attribute has, polled feeder calves will normally receive a price premium when compared with horned calves and often compared with dehorned calves (Avent, Ward, Lalman 2004; Schroeder et al. 1988; Smith et al. 2000; Troxel et al. 2001). Accordingly, cow-calf producers that market preconditioned dehorned calves as compared to marketing horned calves at weaning can expect to receive higher prices from yet another requirement from the preconditioning program.

The condition of feeder cattle can also significantly affect prices but this effect will vary by the time of the study and market conditions (Avent, Ward, Lalman 2004; Schroeder et al. 1988; Smith et al. 2000; Troxel et al. 2001). Cattle that are thin may be discounted, particularly if there is evidence of the thinness being related to poor health or muscling of the animal. If nutrition is poor and related to being the problem, then thin cattle may receive a premium, because buyers can expect compensatory gains after improving the nutritional level. If buyers recognize that no compensatory gains are likely, fleshy cattle will usually be discounted, but could possibly be preferred as long as

the degree of fleshiness is slight or moderate and is associated with the health or thriftiness of the animal. A discount may be encountered when dealing with preconditioned calves because they typically have a higher degree of nutrition and can appear to be fleshy at sale time. On the other hand, some buyers may associate the increased fleshiness with higher nutrition and health and then pay a price premium for preconditioned calves.

Lot size and uniformity are two other factors that commonly affect feeder cattle prices in the sale lot. According to Avent, Ward, and Lalman (2004), stocker producers and cattle feedlots want truckload size lots for more efficient shipping and to fill pre-established pasture and pen sizes. Increasing the uniformity of sale lots through sorting and pooling often is associated with efforts to increase sale lot size. It is common for some sorting and pooling to be done with the intention of creating larger, more uniform sale lots to increase production and feeding efficiencies. Research has found that buyers pay premiums for both larger and more uniform sale lots (Avent, Ward, Lalman 2004; Faminow and Gum 1986; Schroeder et al. 1988; Smith et al. 2000; Turner, McKissick, and Dykes 1993; Lawrence and Yeboha 2000). Cow-calf producers that participate in preconditioning programs can expect that sorting and pooling be a part of their protocol, can expect a premium for larger, more uniform sale lots of calves. The purpose of a certified preconditioning program is to allow smaller producers to come together and pool cattle of like quality and size in order to attract more buyers and possibly receive a premium. The pooling of feeder calves into larger lots will be more effective in producing greater profits than regular auctions.

Health-related attributes will often have the most profound effect on price when comparing all other feeder cattle characteristics. Unhealthy traits generally translate into severe price discounts (Avent, Ward, Lalman 2004; Schroeder et al. 1988; Smith et al. 2000; Troxel et al. 2001). Preconditioned calves are expected to be healthier animals, exposed to less stress, and have stronger immune systems than calves that are sold at weaning. Therefore, cow-calf producers should expect to receive a premium for preconditioned calves, because these animals' health has been improved. More and more research indicates the importance that health has on stocker, feedlot and carcass performance, and consequently profitability. A key finding from the Texas A&M Ranch to Rail program has been the impact that health has on the ability of cattle to express their genetic potential, both feedlot and carcass performance (Avent, Ward, Lalman 2004; McNeill 1999).

Most preconditioned calves will receive premiums. However, the premium is usually not as large as many producers expect it to be. This is especially true for the first few years of a program. It will take a while to build a reputation. But as the program expands, the greatest benefit then becomes the opportunity to sell the cattle and have strong buyer interest year in and year out, even when the market is depressed (Stough 1999).

Conceptual Framework

A hedonic price function is a regression of the observed price of a commodity against its quality traits (Brorsen, Grant, Rister 1984; Lucas 1975). Hedonic pricing involves implied prices of characteristics of a commodity rather than the price of the commodity itself. Hedonic pricing models consider the demand for a product or input as

a function of its characteristics (Brorsen, Grant, Rister 1984). Agricultural markets provide many opportunities to value commodities with non-tradable attributes and hedonic pricing approaches have been used to estimate the value of characteristics for a variety of agricultural products and inputs.

Price reflects the demand for a sale lot of preconditioned cattle given the available supply (Schroeder et al. 1988). The market price (P) of a lot of preconditioned cattle (*i*) at time (*t*) given cattle (*k*) and lot characteristics (*C*) could be conceptualized as

$$P_{it} = \sum_{K} V_{ikt} C_{ikt} \tag{1}$$

where *P, C, i,* and *k* are defined above (Schroeder et al. 1988; Buccola 1980; Turner, Dykes, McKissick 1993). The coefficient *V* represents the value of each trait.

A buyer's confidence in the seller or the preconditioning program can greatly affect the price given for preconditioned cattle. Reputations can help buyers estimate quality in the absence of complete information. Reputations do matter because they mean expected quality and because perfectness and completeness are rarely achieved in competitive markets (Turner, McKissick, Dykes 1993). Just the idea of a reputation makes sense in a world of imperfect information because sellers' reputations are more likely to exist in markets that transfer less information to buyers. In a study by Turner, McKissick, and Dykes (1993) on reputation selling in feeder cattle teleauctions, they found a seller's reputation may be an important factor in feeder cattle pricing and should be considered in the development and testing of cattle pricing. Reputations can provide help to buyers during their decision making process when not all information is available to them. In agriculture, a homogenous product is often assumed but traders, processors, and producers know that differences in quality are important when it comes to value as

well. If a program such as OQBN can build a reputation for having producers that produce quality cattle and provide assurance to the buyers then the program will have success. The market will begin to put more emphasis, i.e. value on preconditioned cattle, as buyers gain more confidence in these animals and the sellers' reputation.

It is hypothesized that the OQBN preconditioning program will increase the net income of Oklahoma cattlemen. This research will determine whether or not price premiums existed for producers who participated in the program from 2001 to 2003.

Data

County, district, and state extension specialists collected the data from six locations and seven sales in 2001, from six locations and seven sales in 2002, and from five locations and eight sales in 2003. The same type of data was collected on the certified OQBN calves as on all other calves that were not certified. Summary statistics for the data in the study can be found in Table II-1. There were a total of 1,224 lots (13,824 head) in 2001 and 1,120 lots (11,125 head) in 2002 and 849 lots (11,258 head) in 2003. These lots consisted of 6,999 head of certified OQBN calves being sold in 2001, 5,214 head sold in 2002, and 4,169 head sold in 2003. The remaining 6,825 head in 2001, 6,001 head in 2002 and 7,089 head in 2003 were classified as calves other than OQBN certified. A condensed version of the information that was just discussed can be found in Table II-2. The sale lots within each sale were sorted by management type, cattle gender, and weight. At least one sale from each year was eliminated from this study due to the following reasons: incomplete data, the sale failed to announce OQBN sale lots, and too little volume. Table II-3 illustrates the break down of the number of OQBN certified lots that were at each sale location.

Chapter III

Procedures

At each of the sales an announcement was made that OQBN certified calves would be available, following advertisements that these calves would be available for purchase that day. This research will use a hedonic price analysis model. In essence, the price of a lot of cattle is regressed against management practices, inherent calf characteristics, and non-tradable attributes of the animal.

The first model to be estimated is

$$P_{it} = \alpha_{it} + \sum_{j=1}^{6} \beta_1 M_{it} + \beta_2 W_{it} + \beta_3 W_{it}^2 + \beta_4 LS_{it} + \beta_5 LS_{it}^2 + \sum_{j=1}^{3} \beta_{6j} S_{ijt} + \sum_{j=1}^{3} \beta_{7j} FS_{ijt}$$
$$+ \sum_{j=1}^{3} \beta_8 MS_{jt} + \sum_{j=1}^{3} \beta_{9j} F_{ijt} + \sum_{j=1}^{4} \beta_{10j} B_{ijt} + \sum_{j=1}^{2} \beta_{11j} U_{ijt} + \sum_{j=1}^{2} \beta_{12j} H_{ijt} \quad (2)$$
$$+ \sum_{j=1}^{2} \beta_{13j} X_{ijt} + e_{it}$$

where t=1,…, N denoted where the sale took place. The dependent variable in model (1) is price per hundredweight of each lot of feeder calves sold at each auction market. Independent variables are those that are expected to have an influence on the sale price. The management of the animals (*M*) is classified as: vaccination unknown, not weaned; vaccinated, not weaned; vaccination unknown, weaned; vaccinated, weaned, not certified; OQBN certified; and other certified preconditioning program. The average weight of a lot (*W*) is used to describe what effect average weight has on the price. It is expected to have a negative relationship, as the average weight increases, it is anticipated

that the price will decrease at a decreasing rate. A quadratic term (W^2) is used to capture the curvature of the price and average weight relationship due to the nonlinear relationship of weight and price (Faminow and Gum 1986). This is due to the cost per pound of gain increasing as weight goes up. The number of head per lot (*LS*) is expected to have a positive relationship with average price. As the number of head increases, prices increase at a decreasing rate. A quadratic term (LS^2) is used for the curvature of the relationship of head per lot on price. The LS and LS^2 are used to explain the effect of pooling like cattle within a given lot (Avent 2002, Yeboha and Lawrence 2000).

The sex (*S*) is used to describe the price differences among steers, heifers, and bulls. The frame score (*FS*) describes whether the animal has a small, medium, or large frame. The muscle score (*MS*) describes the thickness of the muscling of the animal, and is categorized as thick (heavy), medium (average), and slightly thin (thin). The fleshiness (*F*) is described as whether the animal was thin, average, or fleshy. Breed (*B*) describes the breed differences for a lot of feeder calves. They are categorized as: English, Angus, Angus X; Exotic, Exotic X; Brahman Influence; and Hereford. Next is uniformity (*U*), that describes whether the lot is uniform or not. Health (*H*), is to whether the calves are healthy or not. Finally, horns (*X*), indicates the presence or absence of horns in the lot of feeder calves.

The model cannot be estimated by ordinary least squares as shown in equation (1). The equation in model (1) will be estimated using the reg procedure in SAS (SAS Institute). There must be one variable from each set of dummy variables (management, sex, frame, muscle, fleshiness, breed, uniformity, health, and horns) dropped to properly estimate the model, to avoid exact multicollinearity.

The second model to be estimated is

$$
\begin{aligned}
P_{it} &= \alpha_t + \beta_1 W_{it} + \beta_2 W_{it}^{\,2} + \sum_{j=1}^{3} \beta_{3j} S_{ijt} + \sum_{j=1}^{3} \beta_{4j} FS_{ijt} \\
&+ \sum_{j=1}^{3} \beta_{5j} MS_{ijt} + \sum_{j=1}^{3} \beta_{6j} F_{ijt} + \sum_{j=1}^{4} \beta_{7j} B_{ijt} + \lambda OQBN_{it} \\
&+ \beta_8 U_{it} + \beta_9 H_{it} + \beta_{10} X_{it} + e_{it}
\end{aligned} \tag{3}
$$

where $t=1,\ldots, N$ denotes the sale date and location. The dependent variable in model (2) is price per hundredweight of the *i*th lot of feeder calves sold at the *t*th auction market. Independent variables are those that are expected to influence the sale price. The average weight of a lot (*W*) is expected to have the same negative relationship as in Model 1.

The quadratic term (W^2) will have the same effects as mentioned previously in Model 1. The sex (*S*) is used to describe the price differences among steers, heifers, and bulls. Frame score (*FS*) describes whether the animal has a small, medium, or large frame. Muscle score (*MS*) describes the thickness of the muscling of the animal, which is categorized as thick (heavy), medium (average), and slightly thin (thin). Fleshiness (*F*) describes whether the animal was thin, average, or fleshy. Breed (*B*) describes the breed differences for a lot of feeder calves, as previously discussed for Model 1. The primary difference between Model (1) and Model (2) is the introduction of a dummy variable intercept shifter OQBN, which specifies whether the lot of cattle is certified OQBN or not. OQBN is described as a lot of cattle consisting of ten head or more, categorized under *Management 5* criteria, having no visible horns, grouped in a uniform nature, and exhibiting no visible health problems. It is a zero-one dummy variable, as are several other feeder cattle attributes. This OQBN variable has an influence on the remaining

variables. Uniformity (*U*) describes the change in uniformity. Health (*H*) evaluates the change in health with the OQBN program. Then there is a horns dummy (*X*), which indicates if there is a presence of horns in the lot of feeder calves or not. Note that the ten or more head stipulation for the lots of cattle to be classified under the OQBN dummy variable in this second model is an arbitrary number. This model was also run with two other scenarios for the minimum number of head in each lot, these being 5 or 15 head. With the lot size being classified as 5 head or more, there were not that many more lots that were picked up by the model and with the lot size of 15 head or more, there were quite a few of the lots that had been previously picked up by the model now not eligible to be a part of this dummy variable. So, as a result of these conclusions, it was decided that the stipulation of 10 or more head for these lots of cattle was sufficient for this second model.

Both in Model (1) and Model (2) there is *e* as an error term, which is normally distributed, but is thought to be heteroscedastic. The model in equation (3) will be estimated using the reg procedure in SAS (SAS Institute). In order for the model to find a solution there must be one variable from each group of dummy variables (sex, frame score, fleshiness, breed, and OQBN) dropped to properly estimate the model. The model will be tested for heteroscedasticity and if found corrected. A complete list of variables for the two models is in Table III-1.

Chapter IV

Results

The models developed for this study were used to reveal if a price premium was generated from Oklahoma Quality Beef Network preconditioned cattle relative to non-preconditioned cattle. The second equation estimated model (1), in which the price associated with the type of management practice that was used is found with respect to the OQBN management practice, with a uniform lot of healthy, English, Angus, and Angus cross steers, with average fleshiness, moderate muscling, medium frames, and no visible horns as the basis, given the average weight and lot size. The third equation estimated model (2) where price is found relative to the OQBN certified variable in which lots were 10 head or greater, and had uniform healthy calves with no visible horns also based on English, Angus, and Angus cross steers, with average fleshiness, moderate muscling, and medium frame.

Model 1

The results for model (1) (equation 2) for each sale over the three year time period can be found in TableIV-1 through Table IV-20. For 2001 the adjusted R-square ranged from 0.6445 to 0.8952. For 2002 the adjusted R-square spanned from 0.4059 to 0.8951. Then for 2003 it ranged from 0.7361 to 0.9516. This is considered fairly reasonable for

this model and also indicates in general that the model is explaining 40-95% of the variation in price.

The Breusch-Pagan, Glejser, and Harvey tests were used to test for heteroskedasticity and all resulted in the rejection of the null hypothesis of homoskedasticity. Therefore, to correct the problem of heteroskedasticity, Harvey's procedure was used to create weights for the Feasible Generalized Least Squares (FGLS) estimation (Avent 2002).

Model 1, Year 2001

Lot Size and Weight

Referring to Table IV-1 through Table IV-6, for the first year of this study, the lot size variable, *Head*, had a positive value for each sale and was significant at the 1% level in all sales except for two; they were significant at the 10% level. The quadratic term for lot size, *Head squared,* had the expected negative sign throughout all sales and was significant at the 1% level for three of the six sales, while one of the six sales had significance at the 5% level. The variable used to represent weight for each lot, *Weight*, exhibited a negative value, which is expected, and was significant at the 1% level in all cases. The quadratic term for weight, *Weight squared,* also displayed the anticipated positive sign and was significant at the 1% level in all sales expect for one, in which it was significant at the 10% level.

Breed

Lots of English, Angus, and Angus crossbred, *Breed*, were used as the base for breed comparison. For the majority of sales, the Exotic and Exotic crossbred category

displayed a discount. There was one of the six sales that found this variable significant at the 1% level and had a discount of $4.52 per hundredweight. Discounts of $1.92 and $1.98 per hundredweight were obtained for two of the sales and were significant at the 5% level. Those lots with Brahman influence were discounted from $3.03 to $6.55 per hundredweight and were significant at the 1% level, while one sale was significant at the 5% level and displayed a discount of $6.72 per hundredweight. Only three sales contained cattle that were straightbred Hereford and two of them discounted lots $7.17 and $8.56 at the 1% significance level, while the remaining sale was significant at the 5% level and discounted $4.47 per hundredweight. Dairy, Longhorn, and mixed breed lots were found only in two of the sales and neither coefficient was significant.

Flesh

Cattle of average condition, *Flesh*, were the basis for comparison for lot condition. The lot with thin cattle that displayed significance at the 5% level received a premium, which was $2.73 per hundredweight. This premium is consistent with the study by Troxel et al. (2001) but other studies by Avent (2002), Schroeder et al (1988), and Smith et al (2000). discounted lots that were considered thin, ranging from $0.22 to $4.37 per hundredweight. Cattle described as fleshy were discounted $2.56 per hundredweight at the 1% significance level in one of the six sales. In two of the sales, at the 10% level, there was a discount of $2.06 and $4.46 per hundredweight for fleshy cattle. These results are comparable to studies by Smith et al. (2000) and Schroeder et al. (1988) but are considerably higher than those studies by Avent (2002) and Troxel et al (2001).

Muscling

Lots of cattle with an average muscle thickness, *Muscle*, were used as the base variable. Overall, the cattle that were classified as being heavily muscled received a premium, $2.64 per hundredweight at the 5% significance level, in one of the six sales. There was also a premium of $1.33 per hundredweight with this coefficient at the 10% significance level in another one of the six sales. The lots of cattle categorized as having slightly thin or thin muscling were discounted at the 1% significance level, these two sales discounted these cattle $4.19 and $23.31 per hundredweight. Two other sales generated a discount of $4.37 and $13.70 per hundredweight for thin muscled calves at the 5% level.

Frame

Cattle with medium frame scores, *Frame*, were used as the basis of comparison. The lots that were evaluated as having large frame scores received a discount of $1.88 per hundredweight at the 1% level of significance for one of the six sales. While one other sale contained a premium for this variable, $2.23 per hundredweight at the 1% significance level. Smaller framed cattle were discounted fairly heavily, $17.08 and $17.65 per hundredweight at the 1% level and at the 10% level of significance one of the six sales discounted the lot $6.20 per hundredweight.

Uniformity

Lots of cattle that were uniform, *Uniform*, were used as the base variable. Discounts for this variable at the 10% level of significance was $1.95 per hundredweight for one of the six sales for this first year of the study. This discount is slightly higher

than those in the studies by Avent (2002) and Schroeder et al. (1988) but within the range of the study by Smith et al (2000).

Gender

Lots of cattle that contained steers, *Sex*, were used as the basis for comparison. The lots that contained heifers brought significant discounts extending from $6.09 to $11.66 per hundredweight when compared to lots that included steers. All the coefficients for this particular variable were consistently significant throughout the sales in this year under examination. Discounting heifers could be attributed to owners retaining the higher quality animals as being herd replacements. The lots that were classified as having bulls or mixed steers and bulls were discounted, $4.56 per hundredweight at the 10% significance level for one of the six sales. Bulls will be discounted due to the added stress and lower performance due to later castration and these discounts are consistent with previous studies (Avent 2002).

Horns

Cattle with no visible signs of horns, *Horns*, were used as the base variable. Those lots that contained horns or were mixed in which at least one head exhibited horns, were generally discounted but this coefficient illustrated no significance in any of the sales. The results for cattle with horns are consistent with studies by Troxel et al. (2001) and Schroeder et al. (1988), but are considerably less than those in the study by Smith et al. (2000) in which the cattle were discounted $3.42 per hundredweight (Avent 2002).

Health

Cattle that demonstrated no visible health problems, *Health*, were used as the base variable for comparison. Lots of cattle that appeared sick, had bad eyes, were lame, etc.

but did not include healed eye lesions were significant at the 10% level but were discounted $5.79 per hundredweight for this particular lot. These discounts are relatively lower than those found in the studies of Avent (2002), Troxel et al. (2001), Schroeder et al. (1988), and Smith et al. (2000) for these characteristics.

Management

The management of these lots was categorized in six different groups. For this model, the base variable for comparison is OQBN certified, *Management* 5, and other management groups are projected to have a negative value. Prices for the lots of cattle that were classified as not being weaned and the vaccinations of these animals were unknown, *Management 1*, were significantly different in three of the six sales for the first year of this study. Two of the sales displayed significance at the 1% level for this particular coefficient; one exhibited an unexpected premium of $3.42 per hundredweight and the other an expected discount of $5.88 per hundredweight. For the remaining sale, significance was at the 10% level and these calves were discounted $2.07 per hundredweight. The next management group, *Management 2*, contained lots of vaccinated animals but had not yet been weaned. There was only one sale that demonstrated any significance for this variable, this was at the 1% level of significance, and lots were discounted $3.56 per hundredweight. Lots in which vaccinations were unknown but the animals had been weaned were classified as being under *Management 3*. Only one sale displayed significance for this category at the 10% level and discounted lots $2.66 per hundredweight. *Management 4* lots of cattle contained vaccinated and weaned animals but were not certified. One of the sales in this grouping was significant at the 10% level and displayed a premium of $4.54 per hundredweight for these lots,

which was not an anticipated result. There was only one sale for the first year of this study that contained lots of cattle classified as being a part of another preconditioning program, *Management 6*, but this coefficient was not significant.

Model 1, Year 2002

Lot Size and Weight

Referring to Table IV-7 through Table IV-13, for the second year of this study, the lot size variable, *Head*, had a positive value for each sale and was significant at the 1% level in all sales except for one, it was significant at the 5% level. The quadratic term for lot size, *Head squared*, had the expected sign throughout all sales and was significant, at the 1% level for four of the seven sales, while one of the seven sales was significant at the 5% level. The variable used to represent weight for each lot, *Weight*, exhibited a negative value, which is expected, and was significant at the 1% level in all cases except for one, in which it was significant at the 5% level. The quadratic term for weight, *Weight squared*, also displayed the anticipated results and was significant at the 1% level in five of the seven sales, while one sale was determined to be significant at the 5% level.

Breed

Again lots of English, Angus, and Angus crossbred, *Breed*, were used as the base for breed comparison. For the Exotic and Exotic crossbred category of cattle only two of the seven sales generated coefficients of significance and both were at the 1% level, discounting these cattle $4.21 and $5.48 per hundredweight. There was only one sale that contained lots with Brahman influence in the second year of this study and they were heavily discounted at $10.47 per hundredweight with significance at the 1% level. Only

one of the seven sales held significance that contained cattle that were straightbred Hereford and they were discounted $7.18 per hundredweight at the 1% significance level. Dairy, Longhorn, and mixed breed lots where not classified under any lots of cattle for the second year of this study. In four of the sales, there were not enough lots within these sales that the designated breed types, therefore, another category was created in which cattle were classified as, *BraHer.* These lots consisted of combining both categories of Breed 3 and Breed 4. With this approach, only one sale had a coefficient that held any significance, this was at the 10% level of significance and these lots were discounted $4.67 per hundredweight.

Flesh

Under the *Flesh* category in the second year, cattle of average condition were used as the basis for comparison of lot condition. There was only one sale that had lots with thin cattle that displayed significance at the 10% level and these lots were discounted $2.42 per hundredweight. These results are somewhat higher than those of Avent (2002) and Schroeder et al. (1988) but are slightly less than the results of the study by Smith et al (2000). In the study by Troxel et al (2001), there was a premium for cattle classified within the thin flesh category. There were two of the seven sales that had lots that consisted of cattle depicted as fleshy and they were discounted $2.69 and $6.11 per hundredweight at the 1% significance level. In another one of these seven sales, at the 10% level, there was a discount $1.18 per hundredweight found for fleshy cattle. This is a little higher than that of Avent (2002) and Troxel et al (2001) but consistent with what was found by Smith et al.(2000) and Schroeder et al. (1988).

Muscling

The lots of cattle under the grouping of *Muscle* that contained animals with an average muscle thickness were used as the base variable. In one of the seven sales the cattle that were classified as being heavily muscled received a premium of $2.14 per hundredweight at the 1% significance level. There was also a premium of $1.93 per hundredweight with this coefficient at the 5% significance level in another one of the seven sales. The lots of cattle categorized as having slightly thin or thin muscling in one sale received a premium at the 5% significance level of $2.61 per hundredweight. One other sale discounted lots $6.39 per hundredweight for this group of muscling with significance at the 10% level. In this category it was once again necessary to make a modification to the coefficient in order to make it relevant to the sale and generate a value, Muscle 2 and Muscle 3 were combined, *ModTh*, for one of these seven sales, it discounted lots $17.89 per hundredweight at the 10% significance level.

Frame

Lots that were composed of cattle with medium frame scores, *Frame*, were used as the basis of comparison. There was one sale with lots that were evaluated as having large frame scores and they received a discount of $1.67 per hundredweight at the 5% level of significance. The smaller framed cattle in these sales did not generate any coefficients that displayed any level of significance. There were a couple of sales in which it was necessary to combine both categories of Frame 2 and 3, *MedSm*, but again none of these coefficients exhibited any level of significance.

Uniformity

Lots of cattle that were uniform, *Uniform,* were used again as the base variable for the second year of this study. At the 1% level of significance there was one of the seven sales that discounted lots $5.70 per hundredweight. Then there were coefficients for three other sales that displayed significance at the 10% level for these non-uniform cattle and discounts ranged from $1.08 to $3.90 per hundredweight.

Gender

Lots of steer cattle for the *Sex* variable, were used as the basis for comparison. Compared to the lots that consisted of steers, lots that contained heifers brought significant discounts throughout all sales and ranged from $5.93 to $12.42 per hundredweight. All of these coefficients for this particular variable were consistently significant throughout the sales in the second year under examination. The lots that were classified as having bulls or mixed steers and bulls were also discounted in two of the seven sales, $4.13 and $8.21 per hundredweight at the 1% significance level. One other sale that contained lots in this category discounted them $3.96 per hundredweight at the 10% level of significance.

Horns

Under the *Horns* category these lots contained cattle with no visible signs of horns and were used as the base variable. Those lots that contained horns or were mixed in which at least one head exhibited horns, discounted lots $4.35 and $8.39 per hundredweight at the 1% level of significance. There was another sale that contained a significant coefficient at the 10% level and it discounted lots $1.28 per hundredweight. Again these results for cattle with horns are consistent with studies by Troxel et al. (2001)

and Schroeder et al. (1988), but are valued a little higher than those in the study by Smith et al. (2000) in which the cattle were discounted $3.42 per hundredweight (Avent 2002).

Health

Cattle that demonstrated no visible health problems, *Health*, were again used as the base variable for comparison in the second year of this study. Lots of cattle that appeared sick, had bad eyes, were lame, etc. but did not include healed eye lesions were significant at the 1% level for three of the seven sales and discounts for these lots ranged from $5.19 to $24.11 per hundredweight. There was one other sale that contained a coefficient with significance at the 10% level and it discounted lots $4.11 per hundredweight. These discounts are relatively similar as compared to those found in the studies of Avent (2002), Troxel et al. (2001), Schroeder et al. (1988), and Smith et al. (2000) for these characteristics.

Management

The management of these lots for the second year of sales was also categorized in the same manner as the first year confining them to the six different groups. Again for this model, the base variable for comparison is OQBN certified, *Management* 5, other management groups are projected to have a negative value. The lots of cattle that were classified as not being weaned and the vaccinations of these animals were unknown, *Management 1*, were significant in four of the seven sales in this category. Three of the sales displayed significance at the 1% level for this particular coefficient; all sales exhibited a discount ranging from $3.63 to $10.59 per hundredweight. The remaining sale presented significance at the 10% level and discounted lots $1.87 per hundredweight. The next management group, *Management 2*, contained lots of vaccinated animals but

had not yet been weaned. There was only one sale that demonstrated any significance for this variable, this was at the 5% level, and lots received an unexpected premium of $4.48 per hundredweight. For those lots where vaccinations were unknown but the animals had been weaned were classified as being under *Management 3*. Only one sale displayed significance for this category at the 1% level and discounted lots $5.85 per hundredweight. *Management 4* lots of cattle contained vaccinated and weaned animals but were not certified. One of the sales in this grouping had significance at the 1% level and displayed a discount for lots of $13.74 per hundredweight. There was also one sale that exhibited significance at the 5% level for this particular coefficient and it discounted lots $3.15 per hundredweight. There were two sales for the second year of this study that contained lots of cattle classified as being a part of another preconditioning program, *Management 6*, but these coefficients did not display any significance.

Model 1, Year 2003

Lot Size and Weight

Referring to Table IV-14 through Table IV-20, for the third year of this study, the lot size variable, *Head*, had a positive value for each sale and was significant at the 1% level in three of the seven sales. Coefficients for two other sales were significant at the 5% level. The quadratic term for lot size, *Head squared*, had the expected sign throughout all sales and was significant at the 1% level for three of the seven sales similar to the variable mentioned before, while two of the seven sales were significance at the 10% level. The coefficient used to represent weight for each lot, *Weight*, exhibited a negative value, which was expected, and was significant at the 1% level in all sales

except for one. The quadratic term for weight, *Weight squared,* also displayed the probable results and was significant at the 1% level in all sales expect for two, in which either sale failed to demonstrate any level of significance.

Breed

The base for breed comparison for this coefficient again for the third year of this study consisted of lots of English, Angus, and Angus crossbred, *Breed*. The Exotic and Exotic crossbred category were discounted lots $3.07 per hundredweight. There was only one of the seven sales that found this variable significant at the 1% level. A discount of $2.07 per hundredweight was attained for one of the sales at the 5% significance level. Those lots with Brahman influence were discounted at the 1% level of significance, in one of the seven sales by $13.26 per hundredweight. The remaining two sales were significant at the 10% level and discounted lots $3.93 and $5.16 per hundredweight. Two sales included cattle that were straightbred Hereford and they comprised of discounted lots by $9.66 per hundredweight at the 1% significance level and $3.34 per hundredweight at the 5% level.

Flesh

Thin cattle, under the *Flesh* grouping, received a premium in two of the seven sales. In one sale significance was at the 5% level and buyers paid a premium of $2.18 per hundredweight while at the 10% level of significance, these lots in a second sale received a premium of $5.33 per hundredweight. Cattle described as fleshy were discounted $3.32 per hundredweight at the 1% significance level in one of the seven sales. Only one other coefficient displayed significance and this occurred at the 5% level, there was a premium for these lots of $5.37 per hundredweight.

Muscling

The lots that contained cattle with an average muscle thickness, *Muscle*, were used as the basis. In one of the seven sales, cattle that were classified as being heavily muscled were discounted $2.47 per hundredweight at the 10% significance level. No cattle categorized as having slightly thin or thin muscling were sold in any of the sales in the third year of this study.

Frame

Cattle with medium frame scores, *Frame*, were used as the base variable. In one of the seven sales, there were lots that contained cattle with large frame scores, and were discounted $3.52 per hundredweight at the 1% level of significance. Smaller framed cattle were discounted in one sale by $3.15 per hundredweight at the 5% level.

Uniformity

Persons collecting data in the third year of this study were concerned that buyers would not understand what was meant by the term uniformity, which had been used as a general term in the previous two years. Was uniformity referring to the breed of the calves or was it describing some of the attributes of these animals such as fleshiness and muscling? Instead of there being just one category for the characteristic of uniformity and in order to help buyers understand how collectors were approaching this matter, three new categories were formed. As for uniformity of the breed of these animals only two of the seven sales displayed significance at the 1% level and they both discounted lots $2.96 and $6.86 per hundredweight. One other sale discounted lots $1.48 per hundredweight at the 10% level. With uniformity in fleshiness of the calves, it was found in one sale to be significant at the 5% level and lots were discounted $2.58 per hundredweight. No other

sales had coefficients that were significant in this grouping. As for uniformity in muscling, none of the seven sales had coefficients that displayed any significance for this new category of attributes that were evaluated.

Gender

The lots that contained heifers, *Sex*, once again brought significant discounts ranging from $7.36 to $10.88 per hundredweight when compared to lots that included steers. All the coefficients for this particular variable were consistently significant throughout the sales in this third year under examination. The lots that were categorized as having bulls or mixed steers and bulls were discounted, $4.60 and $5.85 per hundredweight at the 1% significance level for two of the seven sales. There was also one sale that discounted lots with this criteria $2.46 per hundredweight at the 5% level of significance.

Horns

Cattle with no visible signs of horns, *Horns*, were used as the base variable. Those lots that contained horns or were mixed in which at least one head exhibited horns, did not have any coefficients that illustrated any significance in any of the sales, although a few of these sales did discount lots of cattle for categorizing these calves in this manner. There were also a couple of sales that exemplified a premium for having horns but neither one of these coefficients contained any significance.

Health

Cattle that demonstrated no visible health problems, *Health*, were used as the base variable for comparison. Lots of cattle that appeared sick, had bad eyes, were lame, etc. but did not include healed eye lesions were significant at the 10% level but were

discounted $7.82 per hundredweight. These discounts are slightly lower than those found in the studies of Avent (2002), Troxel et al. (2001), Schroeder et al. (1998), and Smith et al. (2000) for this particular characteristic.

Management

The management of these lots for the third year of sales was categorized in the same manner as the previous two years restricting them to the six different groups. The base variable for comparison is OQBN certified, *Management* 5, other management groups are projected to have a negative value. The lots of cattle that were classified as not being weaned and the vaccinations of these animals were unknown, *Management 1*, were significant in five of the seven sales in this category at the 1% level of significance. There were discounts for these lots of $3.49 to $9.57 per hundredweight. One other sale displayed significance at the 5% level for this particular coefficient; these lots were discounted as well at $2.76 per hundredweight. The next management group, *Management 2*, contained lots of vaccinated animals but had not yet been weaned. There was only one sale that contained lots within this specific category and it demonstrated significance at the 10% level, and lots received an expected discount of $3.31 per hundredweight. For those lots that vaccinations were unknown but the animals had been weaned were classified as being under *Management 3*. Only two of the seven sales displayed significance for this category at the 1% level and discounted lots $5.81 and $8.90 per hundredweight. *Management 4* lots of cattle contained vaccinated and weaned animals but were not certified. Two of the sales in this grouping had significance at the 1% level and displayed an expected discount for lots of $10.06 per hundredweight but also exhibited an unexpected premium of $3.34 per hundredweight. There was only one

sale for the third year of this study that contained lots of cattle classified as being a part of another preconditioning program, *Management 6*. In it, buyers paid a premium of $7.57 per hundredweight at the 5% level of significance. This was anticipated.

Model 2

The results for equation (3) for each sale over the three year time period can be found in Table IV-21 through Table IV-40. For 2001 the adjusted R-square ranged from 0.6106 to 0.8191. For 2002 the adjusted R-square spanned from 0.3879 to 0.7499. Then for 2003 it ranged from 0.7028 to 0.9600. This is considered reasonable for this model and also indicates in general that the model is explaining 39-96% of the variation in price.

The Breusch-Pagan, Glejser, and Harvey tests were again used in this model to test for heteroskedasticity and all resulted in the rejection of the null hypothesis of homoskedasticity. Therefore, to correct the problem of heteroskedasticity, Harvey's procedure was used to create weights for the Feasible Generalized Least Squares (FGLS) estimation (Avent 2002).

Model 2, Year 2001

Lot Size and Weight

Referring to Table IV-21 through TableIV-26, for the first year of this study, the variable used to represent weight for each lot, *Weight*, exhibited a negative value, which is expected, and was significant at the 1% level in all sales except for one and it exhibited significance at the 5% level. The quadratic term for weight, *Weight squared*, also

displayed the anticipated positive sign and was significant at the 1% level in five of the six sales; then one other sale displayed significance at the 5% level.

Breed

Lots of English, Angus, and Angus crossbred, *Breed*, were used as the base for breed comparison in this second model as well. For the majority of sales that displayed any significance, the Exotic and Exotic crossbred category displayed a discount. There was one of the six sales that found this variable significant at the 1% level and discounted these lots $3.05 per hundredweight. A discount of $2.72 per hundredweight was found for one of the sales and was significant at the 5% level. Then two other sales were significant at the 10% level, one discounting lots $1.51 per hundredweight while the other sale generated a premium of $3.31 per hundredweight for Exotic and Exotic crossed calves. Those lots with Brahman influence were discounted $5.74 and $8.21 per hundredweight for two of the six sales and were significant at the 1% level, while two other sales were significant at the 5% level and displayed discounts of $3.73 and $4.52 per hundredweight. Only two sales contained cattle that were straightbred Hereford and they were discounted of $6.06 and $6.58 at the 1% significance level. Dairy, Longhorn, and mixed breed lots were in two of the sales and only one sale had a coefficient that was significant, this occurred at the 10% level and lots were discounted $3.90 per hundredweight.

Flesh

Cattle of fleshy or average condition, *Flesh*, were the basis for comparison for lot condition in this second model as well. The lots with thin cattle that displayed significance at the 10% level received a premium, which was $1.64 and $2.08 per

hundredweight. Cattle described as fleshy were discounted $3.87 per hundredweight at the 1% significance level in one of the six sales. In two of the sales, at the 5% level, there was a discount in one sale of $7.55 per hundredweight and a premium in another of $2.49 per hundredweight for fleshy cattle. One other sale had significance at the 10% level and it also discounted lots $2.94 per hundredweight

Muscling

In the *Muscle* category, lots of cattle with an average muscle thickness were used as the basis. In one of the six sales, cattle that were classified as being heavily muscled received a premium, $2.36 per hundredweight at the 1% significance level. There was also a premium of $2.53 per hundredweight with this coefficient at the 10% significance level in another one of the sales. The lots of cattle categorized as having slightly thin or thin muscling were discounted at the 1% significance level. These three sale discounts ranged from $4.56 and $21.74 per hundredweight. One other sale generated a discount of $4.22 per hundredweight for this group of muscling but was significant at the 10% level.

Frame

Cattle with medium frame scores, *Frame*, were used as the basis of comparison. The lots that were evaluated as having large frame scores received a discount of $2.43 and $2.88 per hundredweight at the 1% level of significance for two of the six sales in the first year of this study for this particular model. Smaller framed cattle were discounted relatively heavily, $16.80 and $18.93 per hundredweight at the 1% level and at the 5% level of significance one of the six sales discounted lots $7.31 per hundredweight.

Gender

Lots of cattle that contained heifers, *Sex*, brought significant discounts ranging from $6.32 to $12.45 per hundredweight when compared to lots that included steers. All the coefficients for this particular variable were consistently significant throughout the sales in 2001. The lots that were classified as having bulls or mixed steers and bulls were discounted over all sales that had lots of cattle in this category but none of the coefficients were significant at any level.

Preconditioning

What sets this model apart from the one model discussed earlier is the introduction of dummy variable intercept shifter OQBN, which specifies whether the lot of cattle is certified OQBN or not. OQBN is described as a lot of cattle consisting of ten head or more, categorized under *Management 5* criteria, having no visible horns, grouped in a uniform nature, and exhibiting no visible health problems. It is a zero-one dummy variable, as are several other feeder cattle characteristics. This criterion was used to determine whether or not a premium was generated in any of the sales that were used in this study. In five of the six sales in this first year under examination there was a premium for the lots of cattle that had qualified under these stipulations. At the 1% level of significance lots received a premium ranging from $3.48 to $8.43 per hundredweight. In one of the sales, there were not enough lots of OQBN certified cattle to show the significance of its value.

Model 2, Year 2002

Lot Size and Weight

Referring to Table IV-27 through Table IV-33, for the second year of this study, the variable used to represent weight for each lot, *Weight*, exhibited a negative value, which was expected, and was significant at the 1% level in all sales except for one and it portrayed significance at the 5% level. The quadratic term for weight, *Weight squared*, also displayed the anticipated positive sign and was significant at the 1% level in two of the seven sales, then in three other sales displayed significance at the 5% level, and one other sale displayed significance for this coefficient at the 10% level.

Breed

Lots of English, Angus, and Angus crossbred, *Breed*, were used as the base for breed comparison. Again for the sales that displayed any significance, the Exotic and Exotic crossbred category exhibited a discount. There was one of the seven sales that found this variable significant at the 1% level and discounted these lots $4.66 per hundredweight. Discounts of $2.37 and $3.02 per hundredweight were found for two of the sales and were significant at the 10% level. Only one sale contained lots with Brahman influence and were discounted $8.64 per hundredweight, this sale was significant at the 1% level. Two sales contained cattle that were straightbred Hereford and comprised of discounting lots $4.55 per hundredweight at the 1% significance level. The other sale was significant at the 10% level and discounted lots $5.08 per hundredweight. There were no sales that contained lots categorized as having Dairy, Longhorn, and mixed breed characteristics in the second year of this study.

Flesh

Cattle of fleshy or average condition, *Flesh,* were used as the base variable for comparison for lot condition. The lots with cattle that were considered thin displayed significance at the 5% level in one of the seven sales and were discounted $11.38 per hundredweight. There were also two other sales that were significant at the 10% level. Buyers in one of these sales paid a premium of $2.24 per hundredweight while the other discounted lots $4.70 per hundredweight for thin cattle. Cattle described as fleshy were discounted $4.57 and $7.51 per hundredweight at the 1% significance level in two of the seven sales.

Muscling

Under the *Muscle* category, lots of cattle with an average muscle thickness were used as the basis. The cattle that were classified as being heavily muscled received a premium in two of the seven sales, of $1.45 and $2.36 per hundredweight at the 10% significance level. Again at the 10% significance level, there was one sale that discounted lots of cattle in this category $5.24 per hundredweight. Lots of cattle classified as having slightly thin or thin muscling were discounted at the 1% significance level, this one sale discounted lots $6.94 per hundredweight. One other sale generated a discount of $7.92 per hundredweight for this group of muscling but was significant at the 5% level.

Frame

Cattle with medium frame scores, *Frame,* were used as the base of comparison. In general the lots that were categorized as having large frame scores were discounted but for this particular year none of the sales displayed coefficients that were significant at any

level. Smaller framed cattle were also discounted overall for each sale but again none of the coefficients exhibited significance at any level.

Gender

In all seven sales for the second year of this study, lots of cattle that contained heifers, *Sex*, brought significant discounts from $5.41 to $11.17 per hundredweight when compared to lots that included steers. All the coefficients for this particular variable were consistently significant at the 1% level throughout all sales. The two sales that had coefficients significant at the 1% level and included lots that were categorized as having bulls or mixed steers and bulls were discounted $6.22 and $10.98 per hundredweight.

Preconditioning

Again with this model, a dummy variable intercept shifter, OQBN, specified whether the lot of cattle were certified OQBN or not. OQBN is described as a lot of cattle consisting of ten head or more, categorized under *Management 5* criteria, having no visible horns, grouped in a uniform nature, and exhibiting no visible health problems. This criterion was again used to determine whether or not a premium was generated in any of the sales that were used in this study for this particular year. In six of the seven sales there was a premium for the lots of cattle that had been classified as being certified under these stipulations. At the 1% level of significance, lots received a premium ranging from $5.33 to $10.22 per hundredweight. In one sale, a premium was generated for these lots but the coefficient lacked significance.

Model 2, Year 2003

Lot Size and Weight

Referring to Table IV-34 through Table IV-40, for the third year of this study, the variable used to represent weight for each lot, *Weight*, exhibited a negative value, which was expected, and was significant at the 1% level in all sales except for one in which it did not portray any significance at any level. The quadratic term for weight, *Weight squared*, also displayed the anticipated positive sign and was significant at the 1% level in four of the seven sales, then in one other sale it displayed significance at the 5% level, and for the two remaining sales it did not display significance for this coefficient at any level.

Breed

Lots of English, Angus, and Angus crossbred, *Breed*, were used as the basis for breed comparison. There was only one sale that displayed any significance for the Exotic and Exotic crossbred category. It discounted these lots $1.53 per hundredweight and was significant at the 10% level. There were three sales that contained lots with Brahman influence. They discounted lots of cattle ranging from $4.18 to 13.76 per hundredweight and were found to be significant at the 1% level. Two sales contained cattle that were straightbred Hereford and buyers discounted these lots $13.39 per hundredweight at the 1% significance level. The other sale was significant at the 5% level and discounted lots $3.53 per hundredweight. No sales contained lots categorized as having Dairy, Longhorn, and mixed breed characteristics in the third year of this study.

Flesh

Under the *Flesh* category, cattle of fleshy or average condition were used as the basis for comparison for lot condition. Cattle that were considered thin demonstrated significance at the 1% level in one of the seven sales. These cattle were discounted $8.29 per hundredweight in this one sale. In another one of the seven sales, lots of cattle that were depicted as being fleshy were discounted $5.79 per hundredweight at the 1% significance level. Under this same grouping of cattle, two other sales exhibited significance at the 5% level and lots received a premium of $3.43 and $4.31 per hundredweight.

Muscling

The lots of cattle with an average muscle thickness, *Muscle*, were used as the base variable for comparison. There was one of the seven sales that contained cattle classified as being heavily muscled. It discounted lots $4.52 per hundredweight and was found to be significant at the 1% level. Another one of the seven sales also had this coefficient significant at the 5% significance level. Buyers discounted lots of heavily muscled cattle $3.20 per hundredweight. None of the sales for the third year of this study contained lots of cattle that were classified as having slightly thin or thin muscling.

Frame

In reference to the *Frame* category, cattle with medium frame scores were used as the basis of comparison. The lots that were categorized as having large frame scores were found to be significant in only one of the seven sales. Large framed cattle received a premium of $2.24 per hundredweight at the 10% level of significance. Smaller framed cattle received a premium of $5.32 per hundredweight in one of the seven sales at the 1% level.

Gender

For the third year of this study, all seven sales that contained lots of cattle classified as being heifers, *Sex,* brought significant discounts varying from $7.48 to $13.09 per hundredweight when compared to lots that included steers. All coefficients for this particular variable were consistently significant at the 1% level. There were five of the seven sales that had coefficients significant at the 1% level and included lots that were categorized as having bulls or mixed steers and bulls, these discounts ranged from $6.62 to $12.60 per hundredweight.

Preconditioning

Again with this particular model a dummy variable intercept shifter was introduced, OQBN, specifying whether the lot of cattle was certified OQBN or not. OQBN is described as a lot of cattle consisting of ten head or more, categorized under *Management 5* criteria, having no visible horns, grouped in a uniform nature, and exhibiting no visible health problems. This criterion was again used to determine whether or not a premium was generated in any of the sales that were used in this study for this particular year. In all seven sales there was a premium for the lots of cattle that had been classified as being certified under the OQBN stipulations. At the 1% level of significance lots received a premium ranging from $2.77 to $13.04 per hundredweight.

Chapter V

Conclusions

Over the three year time period that this study took place, the *Management 1* variable was found significant in thirteen of the total twenty sales. In all but one of these sales, lots were discounted as expected. For this one sale buyers paid a premium for lots that were managed according to the Management 1 category, which was not anticipated. Only three of the twenty sales were significant for the *Management 2* variable. In two of the sales, lots were discounted while for the remaining sale buyers paid a premium for lots of cattle that contained the attributes of this particular variable. Four of the twenty sales contained lots with the Management 3 characteristics and all were significant. All of the sales discounted the lots of cattle, which was the projected result. Five of the twenty sales were significant for the *Management 4* variable, most of these sales discounted lots, which was the anticipated result, but there were a couple of sales where buyers paid premiums for the lots of cattle that displayed these traits, something that was not expected. There was only one sale that contained a significant coefficient for the *Management 6* variable. Buyers did pay a premium for the lots categorized as having these characteristics. Considering this was another certified preconditioning program but not one under the OQBN preconditioning stipulations, this was not an unlikely finding. Note that all of these averages were taken from the management coefficients that were significant for that particular year.

Figure 1. Yearly Average for each Management Variable

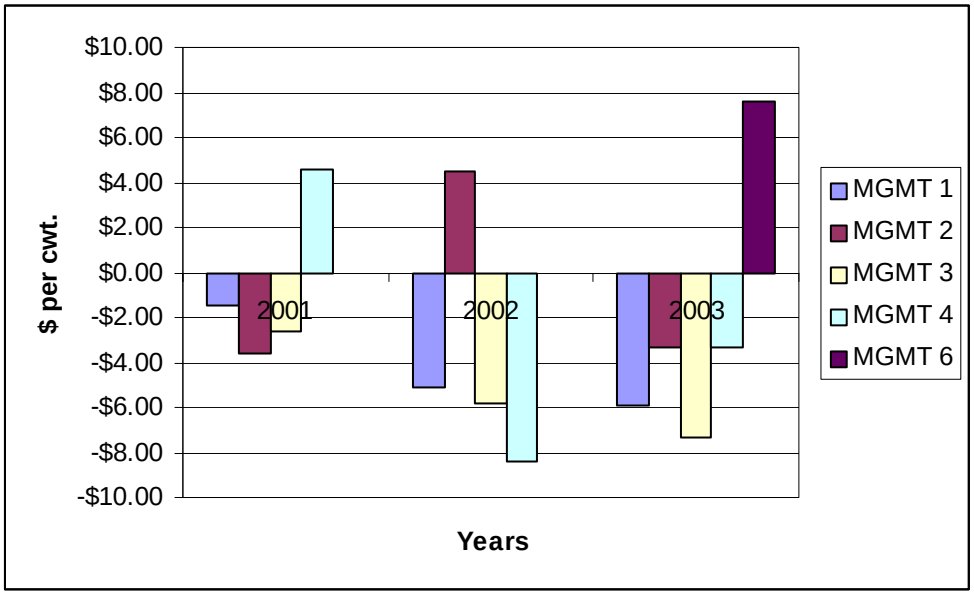


Figure 1 is a comparison between the three years in this study for the average of each management variable. Referring to the graph, each year discounted *Management 1*, not weaned and vaccinations unknown, ranging from $1.51 in 2001 to $5.89 per hundredweight in 2003. These results were anticipated.

This was not the case when observing the results for *Management 2*, vaccinated animals but not yet weaned. On average, lots were discounted $3.31 in 2003 and $3.56 per hundredweight in 2001, which was expected, but then it was found buyers paid a premium of $4.48 per hundredweight for the lots of cattle within this management type in 2002. This premium could not be offset by any discounts because there was only one sale in which this coefficient was significant at any level, at this sale buyers paid a premium for the lots, and none of the other lots of cattle that were discounted within this management group exhibited a significant coefficient.

Each year, on average, lots were discounted $2.66 in 2001 to $7.36 per hundredweight in 2003 when evaluating *Management 3*, vaccinations unknown but weaned. These results were anticipated

With *Management 4*, vaccinated and weaned but not certified, the same scenario was illustrated as it was in *Management 2*, two of the three years revealed a discount, this time in 2002 and 2003 of $3.37 and $8.44 per hundredweight. But there was one year (2001) in which buyers paid a premium of $4.54 per hundredweight; again this was the only sale in that particular year that had this coefficient significant at any level.

For the last category, *Management 6*, part of another preconditioning program, this coefficient was only significant in 2003 and in one sale. As mentioned previously, lots received a premium of $7.57 per hundredweight when being classified in this manner.

Figure 2. 3-Year Average of each Management Variable

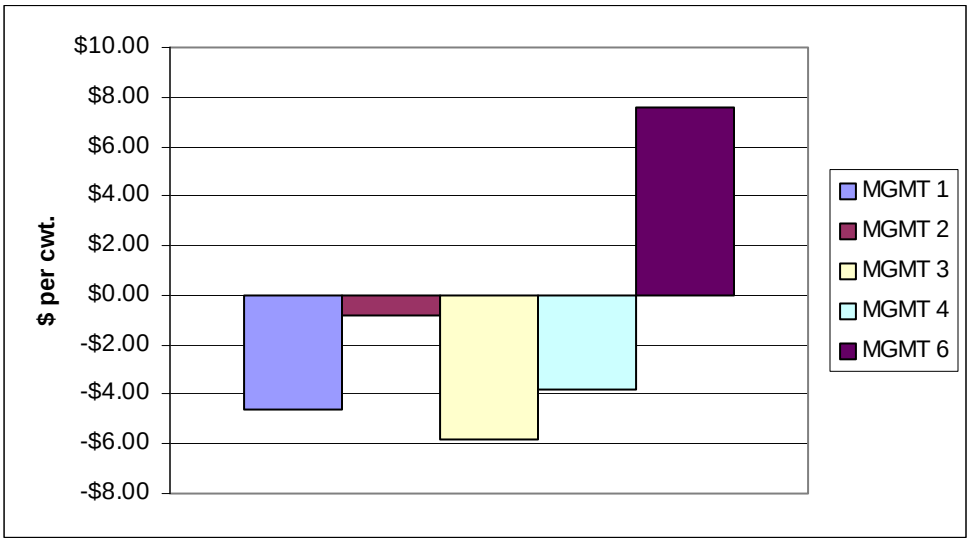


Figure 2 shows the overall three-year average for each management coefficient. The *Management 1* coefficient discounted lots $4.64 per hundredweight. Because of the

premium in year two for the *Management 2* coefficient, lots were discounted but by only $0.80 per hundredweight when looking at the three-year average. The *Management 3* coefficient discounted lots by $5.81 per hundredweight when referring to the three-year average. And, over the three years there was an average discount of $3.81 per hundredweight for the *Management 4* coefficient. Since *Management 6* was another preconditioning program buyers paying a premium of $7.57 per hundredweight was not an unexpected result. For an overall, three-year average for each of these management coefficients results that were generated were anticipated. The previous two figures and results that are discussed were generated from Model 1.

Figure 3. Yearly Value of the OQBN Variable for Each Sale

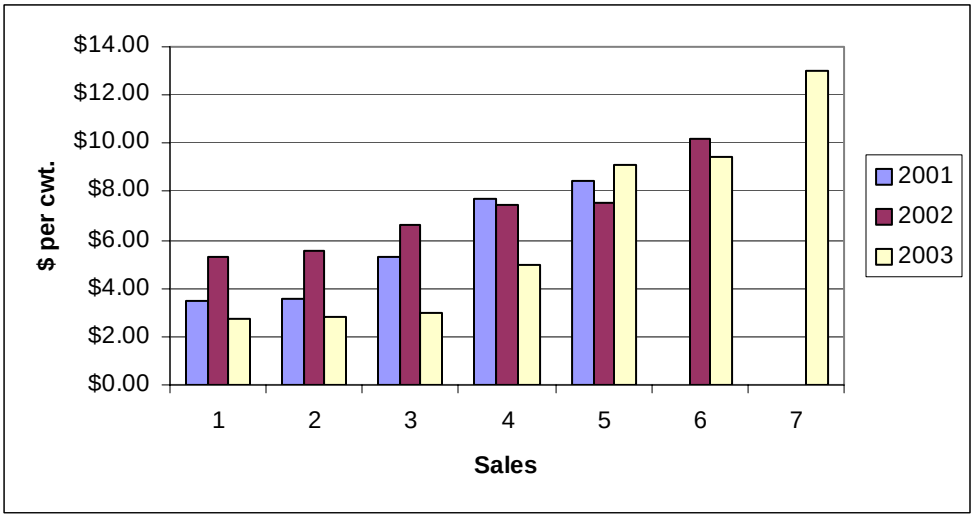


Figure 3 displays the value of the OQBN variable for each sale that had a significant coefficient in 2001, 2002, and 2003. These sales are displayed in a random order, each year had a different number of sales and prices are listed from lowest to highest premium. As you can see from Figure 3 in 2001, premiums ranged from $3.48 to $8.43 per hundredweight in five of the six sales. In 2002, buyers paid premiums ranging

from $5.33 to $10.22 per hundredweight in six of the seven sales. And in 2003, premiums ranged from $2.77 to $13.04 per hundredweight in seven of the sales. In 2001 and 2002, one sale for each of those time periods exhibited an OQBN coefficient that was found not to be significant for this variable.

Figure 4. 3-Year Average for OQBN Variable

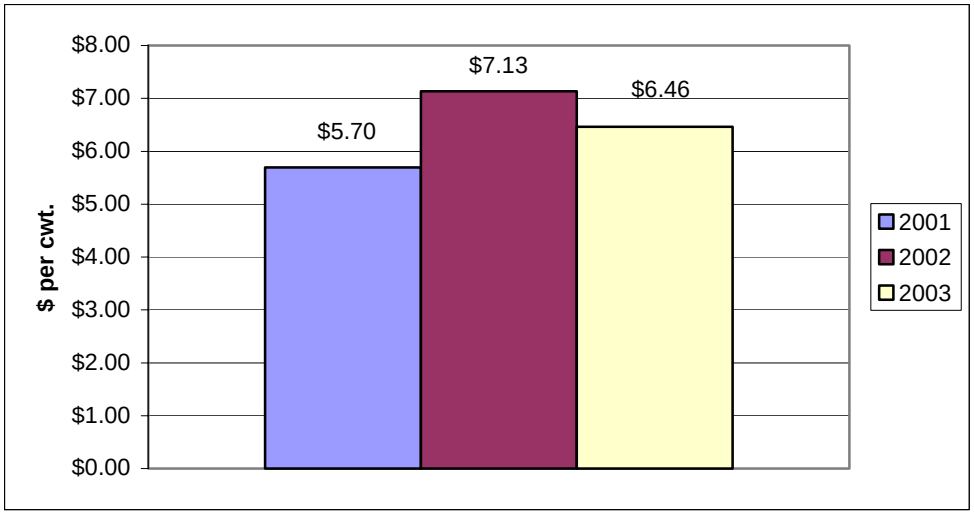


Figure 4 illustrates the average of the OQBN premium over the three year time period of this study. This graph combines all sales that had significant coefficients for each year. The OQBN variable, which contained lots of cattle consisting of ten or more head, categorized under the *Management 5* criteria, having no visible horns, grouped in a uniform nature, and exhibiting no visible health problems, generated a premium for cattle producers that participated in the program in eighteen of the twenty sales that participated in the Oklahoma Quality Beef Network sales. Overall, for all three years combined, the lots that were classified as being OQBN certified had buyers pay an average premium of $6.47 per hundredweight. Figures 3 and 4 and the results that are discussed were generated from Model 2.

Figure 5 illustrates averages for each sale location in regards to all management coefficients combined over the three years that this study took place. These sales are again in no particular order and are arranged from highest discount to the highest premium. Discounts ranged from $2.39 to $7.69 per hundredweight and premiums ranged from $2.04 to $3.42 per hundredweight. The overall average for all management coefficients and for every sale location combined discounted lots $3.75 per hundredweight as compared with the *Management 5* or OQBN management category. The results that are discussed about Figure 5 were taken from the significant coefficients generated from Model 1.

Figure 5. Sale Location Average – Management Variable

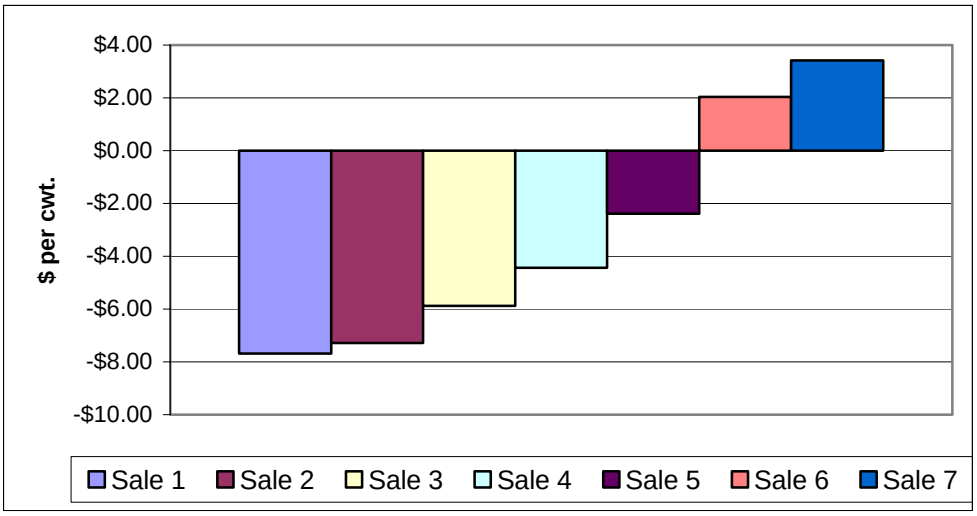


Figure 6 demonstrates for each sale location the average of all significant OQBN coefficients over the duration of the three years that this study took place. On average at each sale location, buyers paid premiums for lots of OQBN certified cattle that ranged from $2.77 to $8.40 per hundredweight. The overall average for all OQBN coefficients and for every sale location combined buyers paid premiums of $6.47 per hundredweight.

The results that are discussed for Figure 6 were taken from the significant coefficients generated from Model 2.

Figure 6. Sale Location – OQBN Variable

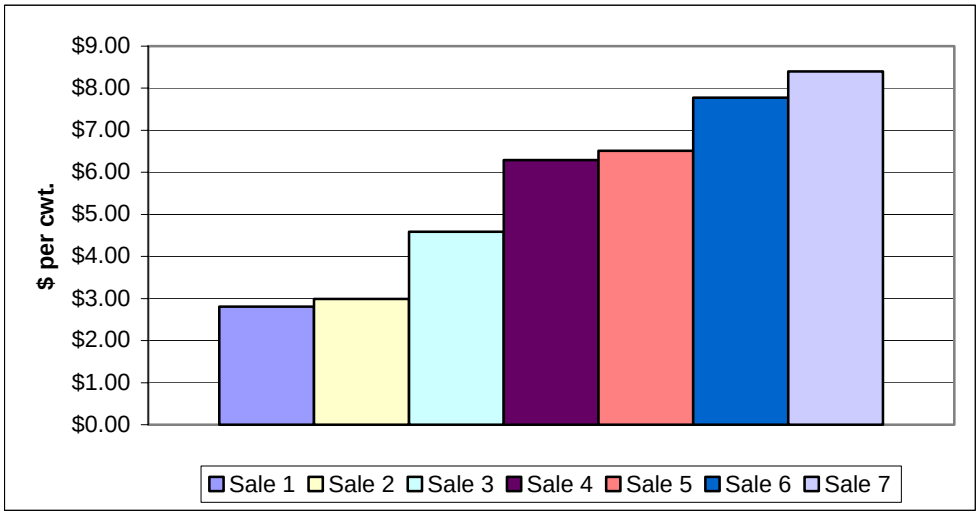
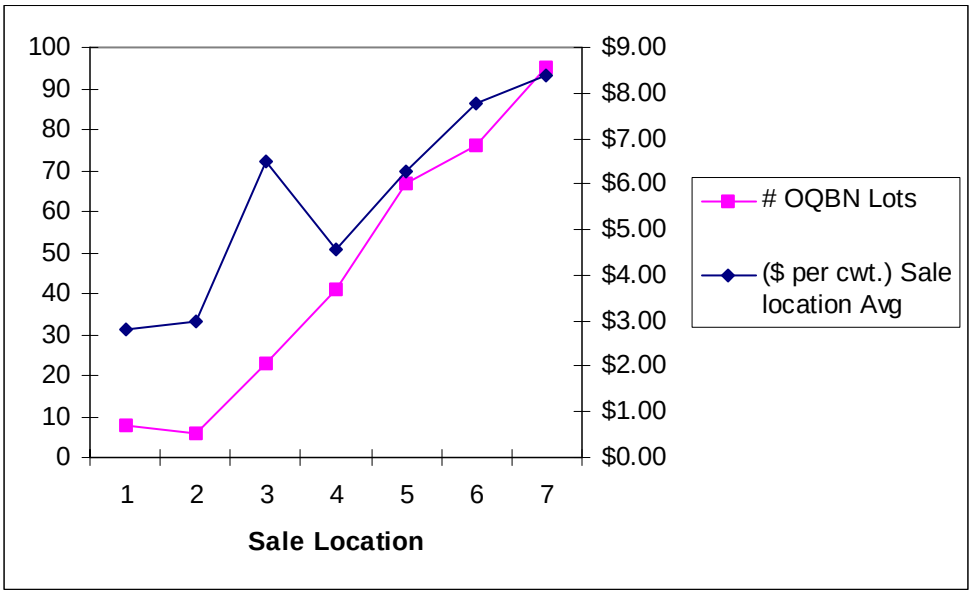


Figure 7 illustrates the number of lots of OQBN certified cattle for each sale location as compared to the average price premium that was paid by buyers for these lots at that particular sale over the three years included in this study. It can be seen by this graph that as the number of lots of OQBN certified cattle increases, so does the premium for these lots. There were fewer lots of cattle at location 3 and a greater price premium given to lots at this sale as compared to those in location 4. This could be due to the geographic location of that sale, but overall it is shown by this graph that as the number of lots of these OQBN certified cattle increased so did the premium that was paid by buyers for these lots. The results that are discussed for Figure 7 were taken from the significant coefficients generated from Model 2.

Figure 7. Comparison of OQBN Premiums to # of OQBN Head



Implications Statement

The more rigorous practices that a management program instills within itself, the more likely expectations of generating a higher premium will be. Illustrated in a study by King (2003), in which over a nine-year period premiums across different management practices were substantially higher for those programs that contained more requirements in the way that the lots of cattle were handled. Also, over the nine-year period, lots that contained characteristics similar to those of the OQBN program displayed a relative increase in the amount of premiums that were received year after year.

The purpose of this study was to determine how much of an extra value existed in the preconditioned feeder calves involved with the Oklahoma Quality Beef Network preconditioning program. It is also supposed to help begin building a reputation for sellers, in that buyers are forming expectations of the quality of the cattle they are purchasing. This study also may reassure producers that with the OQBN preconditioning program, there is a potential for making a profit when their cattle are OQBN certified.

This can be illustrated by using a spreadsheet developed for a study over the "Market Valuation of Preconditioned Feeder Calves" by Avent, Ward, and Lalman (2004) to calculate the net returns that a producer can expect at each sale location. Net return is defined as the premium less the costs of preconditioning according to OQBN guidelines. The average of all significant management coefficients and all significant OQBN management coefficients were used to get an average net return by sale location.

Figure 8. Net Return ($/cwt.)

Net Returns	El Reno	Enid	Idabel	Holdenville	Woodward	Tulsa	Welch
OQBN MGMT	24.61	21.18	3.53	14.21	12.99	-5.33	-6.32

As can be seen from Figure 8, for the OQBN coefficient, as previously discussed, five of the seven sale locations had a positive net return, as compared to selling calves at weaning. The two sales that exhibited a negative net return were due to having a small number of observations, in that there were a small number of lots that were OQBN certified. These particular sales are not generating enough profit in order to make the program worthwhile to producers.

Cow-calf producers must receive a substantial price premium for preconditioning their calves in order for them to cover the added costs that are incurred by preconditioning. This spreadsheet helps determine if OQBN producers are receiving that type of premium and it also suggests OQBN producers would have to receive at least a premium of $3.95 per hundredweight in order to breakeven. With at least this premium, this added value that is brought to the OQBN cattle should earn Oklahoma cattlemen a higher income, given average expected preconditioning costs.

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Table I-1. Description of Feeder Cattle Characteristics

Management	1	Vaccinations unknown, not weaned	
	2	Vaccinated, not weaned	
	3	Vaccinations unknown, weaned	
	4	Vaccinated, weaned, not certified	
	5	OQBN certified	
	6	Other certified preconditioning program	
Breed Type	1	English, Angus, and Angus X	Straightbred Angus, red Angus, Hereford, or Shorthorn
	2	Exotic and Exotic X	Angus X Limo, Hereford X Simmental, Angus X Char, Char and Char X, Limo X Char, South Devon, Simmental
	3	Brahman Influence	Anything with > ¼ ear (Brangus, Beefmaster, SantaGertrudis, etc.)
	4	Hereford	Straightbred Hereford
	5	Mixed	Dairy, Longhorn, and mixed
Flesh	1	Thin	
	2	Average	
	3	Fleshy	
Muscling	1	Heavy	Heavy muscled
	2	Moderate	"Average" muscling
	3	Slightly thin, thin	Dairy, Dairy cross, Longhorn
Frame	1	Large Steers	Low Choice at >1250 lbs For heifers, reduce
	2	Medium Steers	Low Choice between 1100 and 1250 lbs these values by 100 lbs
	3	Small Steers	Low Choice at < 1100 lbs
Uniformity	1	Uniform	
	2	Uneven	
Sex	1	Steers	
	2	Heifers	
	3	Bulls or mixed steers and bulls	
Horns	1	No Horns	No horns visible
	2	Horns and mixed	At least one head had horns
Health	1	Healthy	No visible health problems
	2	Not healthy	Sick, bad eyes, lame, etc. (do not include healed eye lesion)

Table I-2. Preconditioning Partial Budgeting Comparison

Traditional marketing alternative	Base Example	Lower Gain	Higher Gain	Lower Morbidity	Higher Morbidity	Lower Medical	Higher Medical
Gross Revenue($/head)	456.00	456.00	456.00	456.00	456.00	456.00	456.00
Preconditioning revenue							
ADG (lbs//day)	1.50	1.20	1.80	1.50	1.50	1.50	1.50
Ranch (marketing) weight (lbs.)	567.50	554.00	581.00	567.50	567.50	567.50	567.50
Sale weight (lbs.)	556.15	542.99	569.38	556.15	556.15	556.15	556.15
Gross revenue ($/head)	509.99	497.86	522.12	509.99	509.99	509.99	509.99
Preconditioning Costs ($/head)[c]							
Health Supplies and medicine	8.00	8.00	8.00	8.00	8.00	4.00	12.00
Death loss	2.55	2.49	2.61	1.02	4.08	2.55	2.55
Total cost	60.92	60.86	60.98	59.39	62.45	56.92	64.92
Cost and returns comparison ($/head)							
Traditional gross revenue	456.00	456.00	456.00	456.00	456.00	456.00	456.00
Preconditioning gross revenue	209.99	497.86	522.12	509.99	509.99	509.99	509.99
Increased revenue	53.99	41.86	66.12	53.99	53.99	53.99	53.99
Less preconditioning costs	60.92	60.86	60.98	59.39	62.45	56.92	64.92
Net return from preconditioning	-6.93	-19.00	5.14	-5.40	-8.46	-2.93	-10.93

[a]Assumes 500 lb. marketing weight, 4% shrink, and a sale price of $95.00/cwt.
[b]Assumes 500 lb. weaning weight, 45-day preconditioning period, 2% shrink at6 marketing, and a weaning day price of $95.00/cwt., $1/cwt. seasonal price increases, $7/cwt. price slide for heavier weight, $0.60/cwt. discount for fleshiness, $3.30/cwt. price premium for preconditioning, and a final sale of $91.70/cwt.
[c]Assumes 7% interest rate, $6/head labor and equipment expense, $35/head feed, hay, and pasture expense, and $5/head additional marketing costs for eartags, commissions, etc.

Table II-1. 2001, 2002, and 2003 Summary Stastics[1]

Variable	Mean	Standard Deviation	Minimum	Maximum
Time Series Data Summary Statistics 2001.[a]				
Head	11.294	16.487	1.000	99.000
Weight	508.884	108.717	228.000	905.000
Price	90.554	13.146	31.000	140.000
Time Series Data Summary Statistics 2002.[b]				
Head	9.933	15.264	1.000	152.000
Weight	513.753	115.441	195.000	878.000
Price	84.028	11.920	37.000	131.000
Time Series Data Summary Statistics 2003.[a]				
Head	13.260	16.454	1.000	120.000
Weight	531.605	113.280	238.000	1075.000
Price	104.982	12.081	70.000	151.000

[a] 1224 observations

[b] 1121 observations

[c] 855 observations

Table II-2. Summary of 3-Year Data Set

		2001	2002	2003
Number of Sales		7	7	8
Total Number of Lots		1,224	1,121	855
Total Number of Head		13,824	11,215	11,258
OQBN Certified				
	Lots	400	326	221
	Head	6,999	5,214	4,169
Non-Certified				
	Lots	824	795	634
	Head	6,825	6,001	7,089

Table II-3. Certified OQBN Lots by Sale Location

2001	El Reno	Enid	Idabel	Holdenville	Woodward
OQBN Certified					
Number of Lots	43	29	27	16	52
2002	El Reno	Enid	Idabel	Holdenville	Woodward
OQBN Certified					
Number of Lots	41	32	14	7	15
2003	El Reno	Enid	Tulsa	Welch	Woodward
OQBN Certified					
Number of Lots	11	15	6	8	2

Table III-1. Models (1) and (2) Definition of Regression Variables and Expected Signs.

Dependent Variable	Variable Definition
P_{it}	Transaction price ($/cwt) for the i^{th} sale lot of calves and location

Independent Variable	Variable Definition	Expected Sign
α_{it}	Zero-one dummy variable for management program for calves in a sale lot, j=1-6, 1=Vaccinations unknown, not weaned, 2=Vaccinated, not weaned, 3=Vaccinations unknown, weaned, 4=Vaccinated, weaned, not certified, 5=OQBN certified, 6=Other certified preconditioning program; Base=OQBN certified	-
W_{it}	Average weight of cattle in a sale lot	-
W_{it}^2	Quadratic term for average weight	+
LS_{it}	Number of head in a sale lot	+
LS_{it}^2	Quadratic term for number of head	-
S_{ijt}	Zero-one dummy variable for the sex of calves in a sale lot, j=1-3, 1=Steers, 2=Heifers, 3=Mixed steers and heifers; Base=Steers	-
FS_{ijt}	Zero-one dummy variable for frame size of claves in a sale lot, j=1=3, 1=Large, 2=Medium, 3=Small; Base=Medium	+/-
MS_{ijt}	Zero-one dummy variable for muscle thickness of calves in a sale lot, j=1-3, 1=Heavy, 2=Moderate, 3=Slightly thin, thin; Base=Moderate	+/-
F_{ijt}	Zero-one dummy variable for condition or fleshiness of cattle in a sale lot, j=1-3, 1=Thin, 2=Average, 3=Fleshy; Base=Average	+/-
B_{ijt}	Zero-one dummy variable for breed of calves in a sale lot, j=1-4, 1=English, Angus, Angus crossbred, 2=Exotic, Exotic crossbred, 3=Brahman influence, 4=Hereford; Base=English, Angus, Angus crossbred	-
$OQBN_{it}$	Zero-one dummy variable for specified, certified sale lot of calves, j=1-2,1=OQBN certified, 10 or more head, no horns, healthy, uniform, 2=all other; Base=OQBN certified, 10 or more head, no horns, healthy, uniform	-
U_{it}	Zero-one dummy variable for uniformity of calves in a sale lot, j=1-2, 1=Uniform, 2=Not uniform; Base=Uniform	-
H_{it}	Zero-one dummy variable for the health of calves in a sale lot, j=1-2, 1=Healthy, 2=Not healthy, dead hair, sick, bad eye, lame, lump; Base=Healthy	-
X_{it}	Zero-one dummy variable for the presence of horns on calves in a sale lot, j=1-2, 1=No horns, 2=Horns, unhealed, mixed; Base=No horns	-

Table IV-1. Model (1) Apache 2001 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	173.85535***	19.95	<.0001
Head	0.12318*	1.90	0.0584
Head squared	-0.00078811	-0.74	0.4580
Weight	-0.20645***	-6.08	<.0001
Weight squared	0.0001065***	3.21	0.0016
Management 1	N/A	N/A	N/A
Management 2	1.2848	0.84	0.4029
Management 3	1.57998	1.00	0.3171
Management 4	1.02694	0.52	0.6063
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	-0.27538	-0.31	0.7577
Breed 3	0.20771	0.22	0.8265
Breed 4	N/A	N/A	N/A
Breed 5	N/A	N/A	N/A
Flesh 1	2.73107**	2.38	0.0181
Flesh 2	Base	Base	Base
Flesh 3	0.72275	0.77	0.4451
Muscle 1	1.3272*	1.86	0.0640
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-1.87948***	-2.61	0.0097
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity 1	Base	Base	Base
Uniformity 2	-1.49887	-1.37	0.1722
Sex 1	Base	Base	Base
Sex 2	-9.93578***	-16.96	<.0001
Sex 3	N/A	N/A	N/A
Horns 1	Base	Base	Base
Horns 2	-0.89767	-1.25	0.2135
Health 1	Base	Base	Base
Health 2	-4.56187	-0.98	0.3268

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 219
Adjusted r-square – 0.8500

Table IV-2. Model (1) El Reno 2001 Sale 1 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	142.30110***	14.67	<.0001
Head	0.10876*	1.80	0.0739
Head squared	-0.00044644	-0.65	0.5189
Weight	-0.13678***	-4.39	<.0001
Weight squared	0.0000765***	3.12	0.0023
Management 1	N/A	N/A	N/A
Management 2	-3.55758***	-3.15	0.0021
Management 3	N/A	N/A	N/A
Management 4	N/A	N/A	N/A
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	-1.97474**	-2.24	0.0272
Breed 3	-6.72082**	-2.26	0.0261
Breed 4	-4.47134**	-2.29	0.0240
Breed 5	N/A	N/A	N/A
Flesh 1	1.91597	0.65	0.5151
Flesh 2	Base	Base	Base
Flesh 3	0.20219	0.23	0.8163
Muscle 1	-0.1708	-0.13	0.8979
Muscle 2	Base	Base	Base
Muscle 3	0.37397	0.44	0.6606
Frame 1	0.86882	0.81	0.4202
Frame 2	Base	Base	Base
Frame 3	2.37458	1.08	0.2841
Uniformity 1	Base	Base	Base
Uniformity 2	-0.71466	-0.59	0.5551
Sex 1	Base	Base	Base
Sex 2	-8.60948***	-11.12	<.0001
Sex 3	-3.13297	-0.70	0.4868
Horns 1	Base	Base	Base
Horns 2	0.7823	0.92	0.3594
Health 1	Base	Base	Base
Health 2	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 128
Adjusted r-square – 0.7499

Table IV-3. Model (1) Enid 2001 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	160.36164***	29.56	<.0001
Head	0.56949***	4.50	<.0001
Head squared	-0.00473***	-2.72	0.0071
Weight	-0.1909***	-9.78	<.0001
Weight squared	0.00010744***	6.54	<.0001
Management 1	-2.07463*	-1.85	0.0656
Management 2	-2.51982	-0.69	0.4926
Management 3	-0.17705	-0.04	0.9715
Management 4	4.5381*	1.72	0.0877
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	0.11753	0.11	0.9128
Breed 3	-4.94703***	-2.83	0.0052
Breed 4	-8.56273***	-3.26	0.0013
Breed 5	N/A	N/A	N/A
Flesh 1	0.61731	0.37	0.7094
Flesh 2	Base	Base	Base
Flesh 3	-2.05617*	-1.66	0.0995
Muscle 1	0.96649	0.94	0.3466
Muscle 2	Base	Base	Base
Muscle 3	-13.70112**	-2.08	0.0389
Frame 1	1.14624	0.94	0.3497
Frame 2	Base	Base	Base
Frame 3	-17.6472***	-4.79	<.0001
Uniformity 1	Base	Base	Base
Uniformity 2	1.80701	1.14	0.2556
Sex 1	Base	Base	Base
Sex 2	-6.62594***	-7.21	<.0001
Sex 3	-2.67456	-1.15	0.2498
Horns 1	Base	Base	Base
Horns 2	-1.0721	-0.90	0.3703
Health 1	Base	Base	Base
Health 2	-5.78881*	-1.96	0.0512

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 200
Adjusted r-square – 0.8253

Table IV-4. Model (1) Holdenville 2001 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	167.07359***	14.82	<.0001
Head	0.38082***	3.20	0.0016
Head squared	-0.00428**	-2.18	0.0302
Weight	-0.17751***	-4.23	<.0001
Weight squared	0.00007562*	1.95	0.0530
Management 1	-5.88062***	-4.25	<.0001
Management 2	N/A	N/A	N/A
Management 3	N/A	N/A	N/A
Management 4	-1.92418	-1.37	0.1707
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	-4.51553***	-3.83	0.0002
Breed 3	-6.5465***	-3.87	0.0002
Breed 4	N/A	N/A	N/A
Breed 5	-1.08934	-0.30	0.7616
Flesh 1	-3.19044	-1.20	0.2329
Flesh 2	Base	Base	Base
Flesh 3	0.87073	0.81	0.4175
Muscle 1	0.64901	0.51	0.6082
Muscle 2	Base	Base	Base
Muscle 3	-23.30798***	-7.33	<.0001
Frame 1	1.52838	1.41	0.1607
Frame 2	Base	Base	Base
Frame 3	-6.1954*	-1.94	0.0535
Uniformity 1	Base	Base	Base
Uniformity 2	0.78731	0.29	0.7690
Sex 1	Base	Base	Base
Sex 2	-8.67329***	-8.47	<.0001
Sex 3	0.48711	0.29	0.7705
Horns 1	Base	Base	Base
Horns 2	-0.33292	-0.34	0.7375
Health 1	Base	Base	Base
Health 2	-0.61284	-0.28	0.7803

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 211
Adjusted r-square – 0.6956

Table IV-5. Model (1) Idabel 2001 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	163.72282***	17.85	<.0001
Head	0.45533***	4.69	<.0001
Head squared	-0.00413***	-3.15	0.0018
Weight	-0.22203***	-6.34	<.0001
Weight squared	0.00013368***	4.13	<.0001
Management 1	3.416446***	2.64	0.0088
Management 2	N/A	N/A	N/A
Management 3	N/A	N/A	N/A
Management 4	N/A	N/A	N/A
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	2.51457	1.41	0.1606
Breed 3	-0.87894	-0.48	0.6329
Breed 4	N/A	N/A	N/A
Breed 5	-2.07179	-0.61	0.5434
Flesh 1	-0.20635	-0.21	0.8373
Flesh 2	Base	Base	Base
Flesh 3	-4.46049*	-1.68	0.0942
Muscle 1	-1.58953	-1.48	0.1398
Muscle 2	Base	Base	Base
Muscle 3	-4.18567***	-3.55	0.0005
Frame 1	-0.15533	-0.18	0.8571
Frame 2	Base	Base	Base
Frame 3	-2.69632	-0.78	0.4343
Uniformity 1	Base	Base	Base
Uniformity 2	1.45778	0.69	0.4907
Sex 1	Base	Base	Base
Sex 2	-6.08761***	-7.51	<.0001
Sex 3	0.41433	0.36	0.7224
Horns 1	Base	Base	Base
Horns 2	0.32958	0.38	0.7075
Health 1	Base	Base	Base
Health 2	-8.35597	-1.34	0.1806

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 260
Adjusted r-square – 0.6445

Table IV-6. Model (1) Woodward 2001 Parameter Estimates^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	228.58361***	19.87	<.0001
Head	0.29216***	4.39	<.0001
Head squared	-0.00323***	-2.78	0.0060
Weight	-0.43476***	-9.98	<.0001
Weight squared	0.00032538***	8.00	<.0001
Management 1	N/A	N/A	N/A
Management 2	N/A	N/A	N/A
Management 3	-2.65822*	-1.71	0.0882
Management 4	-0.2354	-0.25	0.8045
Management 5	Base	Base	Base
Management 6	-0.37658	-0.35	0.7285
Breed 1	Base	Base	Base
Breed 2	-1.91881**	-2.15	0.0331
Breed 3	-3.02707***	-2.71	0.0075
Breed 4	-7.17182***	-3.20	0.0016
Breed 5	N/A	N/A	N/A
Flesh 1	0.91402	0.66	0.5108
Flesh 2	Base	Base	Base
Flesh 3	-2.55749***	-2.76	0.0063
Muscle 1	2.64446**	2.15	0.0328
Muscle 2	Base	Base	Base
Muscle 3	-4.37146**	-2.46	0.0148
Frame 1	2.22712*	1.68	0.0941
Frame 2	Base	Base	Base
Frame 3	-17.08306***	-7.68	<.0001
Uniformity 1	Base	Base	Base
Uniformity 2	-1.94761*	-1.87	0.0628
Sex 1	Base	Base	Base
Sex 2	-11.65554***	-17.41	<.0001
Sex 3	-4.5554*	-1.89	0.0598
Horns 1	Base	Base	Base
Horns 2	-0.83485	-0.84	0.4026
Health 1	Base	Base	Base
Health 2	-1.20433	-0.44	0.6616

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 200
Adjusted r-square – 0.8952
^ - Management 1 & 3 combined

Table IV-7. Model (1) El Reno 2002 Sale 1 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	171.53630***	23.67	<.0001
Head	0.27507***	6.31	<.0001
Head squared	-0.00172***	-3.67	0.0003
Weight	-0.2517***	-9.75	<.0001
Weight squared	0.00016991***	7.81	<.0001
Management 1	-1.86911*	-1.78	0.0770
Management 2	4.48258**	2.18	0.0307
Management 3	-1.03609	-1.08	0.2811
Management 4	-3.15036**	-2.48	0.0145
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	-0.10262	-0.15	0.8838
Breed 3	-0.27268	-0.19	0.8487
Breed 4	-2.32045	-1.50	0.1347
BraHer	N/A	N/A	N/A
Flesh 1	-1.75472	-0.57	0.5696
Flesh 2	Base	Base	Base
Flesh 3	-2.68586***	-2.95	0.0037
Muscle 1	2.14387***	2.91	0.0042
Muscle 2	Base	Base	Base
Muscle 3	2.61091**	2.11	0.0369
Frame 1	-1.67379**	-2.33	0.0214
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity 1	Base	Base	Base
Uniformity 2	-1.08195*	-1.72	0.0872
Sex 1	Base	Base	Base
Sex 2	-6.44836***	-10.40	<.0001
Sex 3	-4.13258***	-3.57	0.0005
Horns 1	Base	Base	Base
Horns 2	-1.27678*	-1.66	0.0998
Health 1	Base	Base	Base
Health 2	-5.18845***	-3.40	0.0009

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 161
Adjusted r-square – 0.825

Table IV-8. Model (1) El Reno 2002 Sale 2 Parameter Estimates^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	167.57155***	13.84	<.0001
Head	0.35208***	3.42	0.0011
Head squared	-0.0026	-1.48	0.1426
Weight	-0.23727***	-5.39	<.0001
Weight squared	0.00018028***	4.43	<.0001
Management 1	-4.43551***	-2.96	0.0042
Management 2	-3.16991	-0.44	0.6641
Management 3	-0.23458	-0.10	0.9185
Management 4	1.86468	1.07	0.2865
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	-5.48378***	-4.43	<.0001
Breed 3	-10.47099***	-3.68	0.0005
Breed 4	-7.18224***	-3.46	0.0009
BraHer	N/A	N/A	N/A
Flesh 1	-3.77458	-1.59	0.1173
Flesh 2	Base	Base	Base
Flesh 3	-2.053	-1.56	0.1243
Muscle 1	N/A	N/A	N/A
Muscle 2	Base	Base	Base
Muscle 3	-0.04809	-0.01	0.9913
Frame 1	N/A	N/A	N/A
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
MedSm	-1.58065	-1.09	0.2791
Uniformity 1	Base	Base	Base
Uniformity 2	-1.93507*	-1.85	0.0680
Sex 1	Base	Base	Base
Sex 2	-8.73966***	-8.89	<.0001
Sex 3	-0.28736	-0.04	0.9674
Horns 1	Base	Base	Base
Horns 2	1.99045	1.15	0.2534
Health 1	Base	Base	Base
Health 2	-3.64956	-1.20	0.2328

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 90
Adjusted r-square – 0.7448
^ - Frame 2 and 3 combined

Table IV-9. Model (1) Enid 2002 Sale 1 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	139.98940***	16.03	<.0001
Head	0.5262***	3.77	0.0002
Head squared	-0.00423	-1.21	0.2263
Weight	-0.14146***	-4.17	<.0001
Weight squared	0.0000787**	2.45	0.0153
Management 1	-3.63004***	-2.71	0.0075
Management 2	-2.50762	-1.15	0.2524
Management 3	-0.53279	-0.15	0.8794
Management 4	-2.34058	-1.34	0.1828
Management 5	Base	Base	Base
Management 6	-3.74273	-1.23	0.2211
Breed 1	Base	Base	Base
Breed 2	0.92819	0.73	0.4641
Breed 3	1.19835	0.95	0.3435
Breed 4	-2.30094	-0.78	0.4364
BraHer	N/A	N/A	N/A
Flesh 1	1.6085	1.35	0.1802
Flesh 2	Base	Base	Base
Flesh 3	2.38596	0.92	0.3577
Muscle 1	-1.26588	-0.36	0.7173
Muscle 2	Base	Base	Base
Muscle 3	-3.46079	-1.48	0.1399
Frame 1	-1.02587	-0.81	0.4206
Frame 2	Base	Base	Base
Frame 3	-5.13791	-1.37	0.1715
Uniformity 1	Base	Base	Base
Uniformity 2	2.15439	1.14	0.2548
Sex 1	Base	Base	Base
Sex 2	-12.42461***	-12.14	<.0001
Sex 3	-3.96199*	-1.89	0.0600
Horns 1	Base	Base	Base
Horns 2	-1.73399	-0.98	0.3303
Health 1	Base	Base	Base
Health 2	-15.05236***	-3.88	0.0002

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 184
Adjusted r-square – 0.7656

Table IV-10. Model (1) Enid 2002 Sale 2 Parameter Estimates^^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	121.56497***	15.52	<.0001
Head	0.50515**	2.26	0.0284
Head squared	-0.20306***	-3.12	0.0031
Weight	-0.06424**	-2.17	0.0352
Weight squared	0.00002945	1.09	0.2806
Management 1	-10.59302***	-5.03	<.0001
Management 2	N/A	N/A	N/A
Management 3	-5.84717***	-3.12	0.0031
Management 4	-13.73451***	-6.01	<.0001
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	-4.21087***	-3.50	0.0010
Breed 3	N/A	N/A	N/A
Breed 4	N/A	N/A	N/A
BraHer	0.09832	0.06	0.9528
Flesh 1	-2.41954*	-1.98	0.0538
Flesh 2	Base	Base	Base
Flesh 3	-6.11169***	-4.41	<.0001
Muscle 1	1.92649**	2.40	0.0206
Muscle 2	Base	Base	Base
Muscle 3	-6.3921*	-1.91	0.0620
Frame 1	-0.17285	-0.17	0.8663
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity 1	Base	Base	Base
Uniformity 2	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-5.92655***	-6.27	<.0001
Sex 3	-8.20511***	-4.88	<.0001
Horns 1	Base	Base	Base
Horns 2	0.24245	0.27	0.7892
Health 1	Base	Base	Base
Health 2	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 64
Adjusted r-square – 0.8951
^^ - Breed 3 and 4 combined

Table IV-11. Model (1) Holdenville 2002 Parameter Estimates^^^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	146.25720***	8.61	<.0001
Head	1.52657***	4.64	<.0001
Head squared	-0.03232***	-3.20	0.0016
Weight	-0.18975***	-3.58	0.0004
Weight squared	0.00013502***	2.64	0.0089
Management 1	0.36926	0.21	0.8312
Management 2	N/A	N/A	N/A
Management 3	N/A	N/A	N/A
Management 4	N/A	N/A	N/A
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	0.94439	0.52	0.6061
Breed 3	N/A	N/A	N/A
Breed 4	N/A	N/A	N/A
BraHer	-0.40431	-0.23	0.8207
Flesh 1	0.17956	0.11	0.9112
Flesh 2	Base	Base	Base
Flesh 3	N/A	N/A	N/A
Muscle 1	N/A	N/A	N/A
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
ModTh	-17.89256*	-1.85	0.0653
Frame 1	-7.21896	-0.75	0.4540
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity 1	Base	Base	Base
Uniformity 2	-5.69626***	-2.88	0.0044
Sex 1	Base	Base	Base
Sex 2	-6.50337***	-4.42	<.0001
Sex 3	1.3525	0.81	0.4213
Horns 1	Base	Base	Base
Horns 2	-4.35263***	-2.98	0.0032
Health 1	Base	Base	Base
Health 2	-4.11096*	-1.74	0.0837

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 221
Adjusted r-square – 0.4059
^^^ - Breed 3 and 4 combined and Muscle 2 and 3 combined

Table IV-12. Model (1) Idabel 2002 Parameter Estimates^^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	134.11831***	12.18	<.0001
Head	0.78064***	4.35	<.0001
Head squared	-0.01185***	-2.93	0.0039
Weight	-0.15826***	-3.85	0.0002
Weight squared	0.00010227***	2.66	0.0086
Management 1	0.90829	0.70	0.4824
Management 2	N/A	N/A	N/A
Management 3	N/A	N/A	N/A
Management 4	N/A	N/A	N/A
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	2.29567	1.36	0.1754
Breed 3	N/A	N/A	N/A
Breed 4	N/A	N/A	N/A
BraHer	1.23902	0.75	0.4540
Flesh 1	0.61731	0.57	0.5677
Flesh 2	Base	Base	Base
Flesh 3	N/A	N/A	N/A
Muscle 1	-0.75855	-0.53	0.5995
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	0.97804	0.68	0.4952
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity 1	Base	Base	Base
Uniformity 2	-3.90135*	-1.87	0.0633
Sex 1	Base	Base	Base
Sex 2	-8.29696***	-9.29	<.0001
Sex 3	N/A	N/A	N/A
Horns 1	Base	Base	Base
Horns 2	-8.38758***	-8.51	<.0001
Health 1	Base	Base	Base
Health 2	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 183
Adjusted r-square – 0.6123
^^ - Breed 3 and 4 combined

Table IV-13. Model (1) Woodward 2002 Parameter Estimates^^^^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	156.50876***	19.01	<.0001
Head	0.18268***	3.77	0.0002
Head squared	-0.00151**	-2.05	0.0413
Weight	-0.18433***	-6.42	<.0001
Weight squared	0.00011178***	4.50	<.0001
Management 1	-1.29058	-1.31	0.1908
Management 2	-1.59112	-0.93	0.3558
Management 3	-0.61665	-0.34	0.7359
Management 4	0.10649	0.09	0.9251
Management 5	Base	Base	Base
Management 6	-0.13428	-0.16	0.8769
Breed 1	Base	Base	Base
Breed 2	-0.8446	-0.80	0.4240
Breed 3	N/A	N/A	N/A
Breed 4	N/A	N/A	N/A
BraHer	-4.67067*	-1.73	0.0854
Flesh 1	-0.59519	-0.23	0.8161
Flesh 2	Base	Base	Base
Flesh 3	-1.18272*	-1.74	0.0829
Muscle 1	-0.10432	-0.09	0.9272
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	N/A	N/A	N/A
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	Base
MedSm	1.72766	1.22	0.2251
Uniformity 1	Base	Base	Base
Uniformity 2	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-7.67355***	-13.87	<.0001
Sex 3	-1.18225	-0.66	0.5121
Horns 1	Base	Base	Base
Horns 2	0.07164	0.09	0.9320
Health 1	Base	Base	Base
Health 2	-24.10778***	-10.04	<.0001

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 210
Adjusted r-square – 0.7588
^^^^ - Breed 3 and 4 combined and Frame 2 and 3 combined

Table IV-14. Model (1) El Reno 2003 Sale 1 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	231.46684***	22.93	<.0001
Head	0.2514***	5.43	<.0001
Head squared	-0.00133000***	-3.10	0.0024
Weight	-0.38067***	-10.41	<.0001
Weight squared	0.00027158***	8.59	<.0001
Management 1	-4.54209***	-3.30	0.0012
Management 2	-3.31245*	-1.90	0.0589
Management 3	-1.06757	-0.67	0.5041
Management 4	-1.65969	-1.47	0.1432
Management 5	Base	Base	Base
Management 6	-1.07896	-0.75	0.4574
Breed 1	Base	Base	Base
Breed 2	-1.68293*	-1.66	0.0993
Breed 3	-3.92706*	-1.94	0.0542
Breed 4	N/A	N/A	N/A
Flesh 1	-1.11812	-0.66	0.5091
Flesh 2	Base	Base	Base
Flesh 3	-1.36815	-1.01	0.3145
Muscle 1	-0.50952	-0.63	0.5269
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	1.05452	1.14	0.2573
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
UniformityBreed 1	Base	Base	Base
UniformityBreed 2	-1.4778*	-1.71	0.0886
UniformityFleshiness1	Base	Base	Base
UniformityFleshiness2	0.73386	0.91	0.3655
Uniformity Muscling 1	Base	Base	Base
Uniformity Muscling 2	-0.47968	-0.51	0.6097
Sex 1	Base	Base	Base
Sex 2	-9.27919***	-12.53	<.0001
Sex 3	-2.45857**	-1.95	0.0532
Horns 1	Base	Base	Base
Horns 2	-0.01937	-0.02	0.9852
Health 1	Base	Base	Base
Health 2	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 169
Adjusted r-square – 0.8158

Table IV-15. Model (1) El Reno 2003 Sale 2 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	
Intercept	216.07967***	31.03	<.0001
Head	0.3856***	6.70	<.0001
Head squared	-0.00364***	-4.45	<.0001
Weight	-0.29582***	-11.73	<.0001
Weight squared	0.00018555***	8.59	<.0001
Management 1	-2.75683**	-2.20	0.0293
Management 2	N/A	N/A	N/A
Management 3	-0.70455	-0.70	0.4830
Management 4	0.469245	0.54	0.6199
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	-3.07028***	-3.33	0.0011
Breed 3	-13.2588***	-3.63	0.0004
Breed 4	-3.34112**	-2.08	0.0389
Flesh 1	2.17762**	2.26	0.0253
Flesh 2	Base	Base	Base
Flesh 3	1.37213	0.32	0.7463
Muscle 1	-1.6498	-1.44	0.1516
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	1.28696	1.14	0.2553
Frame 2	Base	Base	Base
Frame 3	3.15404**	2.45	0.0154
Uniformity Breed 1	Base	Base	Base
Uniformity Breed 2	-0.65801	-0.85	0.3956
UniformityFleshiness	Base	Base	Base
UniformityFleshiness2	-0.87029	-1.07	0.2863
Uniformity Muscling 1	Base	Base	Base
Uniformity Muscling 2	-0.46207	-0.63	0.5282
Sex 1	Base	Base	Base
Sex 2	-10.87725***	-8.82	<.0001
Sex 3	-4.59502***	-3.54	0.0005
Horns 1	Base	Base	Base
Horns 2	-0.76552	-0.99	0.3248
Health 1	Base	Base	Base
Health 2	-7.82043*	-1.93	0.0549

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 184
Adjusted r-square – 0.8638

Table IV-16. Model (1) Enid 2003 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	175.50390***	29.97	<.0001
Head	0.13833	1.57	0.1200
Head squared	0.00063644	0.40	0.6915
Weight	-0.16878***	-7.57	<.0001
Weight squared	0.00007607***	3.75	0.0003
Management 1	-7.45557***	-4.77	<.0001
Management 2	N/A	N/A	N/A
Management 3	-0.17175	-0.09	0.9296
Management 4	3.34138***	2.77	0.0070
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	1.60312	1.40	0.1662
Breed 3	N/A	N/A	N/A
Breed 4	N/A	N/A	N/A
Flesh 1	N/A	N/A	N/A
Flesh 2	Base	Base	Base
Flesh 3	-1.01063	-0.88	0.3815
Muscle 1	-2.47462*	-1.73	0.0870
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	1.98892	1.48	0.1417
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity Breed 1	Base	Base	Base
Uniformity Breed 2	-2.96412***	-2.78	0.0067
UniformityFleshiness1	Base	Base	Base
UniformityFleshiness2	-2.58008**	-2.04	0.0448
Uniformity Muscling 1	Base	Base	Base
Uniformity Muscling 2	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-9.12888***	-10.38	<.0001
Sex 3	-1.25515	-0.68	0.4989
Horns 1	Base	Base	Base
Horns 2	0.84382	0.44	0.6608
Health 1	Base	Base	Base
Health 2	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 96
Adjusted r-square – 0.9516

Table IV-17. Model (1) Tulsa 2003 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	132.32580***	15.49	<.0001
Head	0.3077**	2.32	0.0227
Head squared	-0.00258*	-1.82	0.0722
Weight	-0.0391	-1.20	0.2334
Weight squared	-0.00000887	-0.30	0.7618
Management 1	-9.57445***	-5.70	<.0001
Management 2	N/A	N/A	N/A
Management 3	-5.81003***	-4.42	<.0001
Management 4	N/A	N/A	N/A
Management 5	Base	Base	Base
Management 6	N/A	N/A	Base
Breed 1	Base	Base	Base
Breed 2	0.00707	0.01	0.9960
Breed 3	-2.29047	-0.27	0.7871
Breed 4	N/A	N/A	N/A
Flesh 1	5.32764*	1.72	0.0882
Flesh 2	Base	Base	Base
Flesh 3	-0.74284	-0.51	0.6079
Muscle 1	-2.17739	-1.13	0.2602
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	1.16686	0.87	0.3877
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity Breed 1	Base	Base	Base
Uniformity Breed 2	1.03155	0.74	0.4636
UniformityFleshiness 1	Base	Base	Base
UniformityFleshiness 2	N/A	N/A	N/A
Uniformity Muscling 1	Base	Base	Base
Uniformity Muscling 2	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-9.83625***	-6.29	<.0001
Sex 3	-3.17866	-0.62	0.5385
Horns 1	Base	Base	Base
Horns 2	N/A	N/A	N/A
Health 1	Base	Base	Base
Health 2	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 104
Adjusted r-square – 0.7361

Table IV-18. Model (1) Welch 2003 Sale 1 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	150.06580***	12.26	<.0001
Head	0.11678	0.45	0.6554
Head squared	-0.0008219	-0.19	0.8513
Weight	-0.11173***	-3.27	0.0042
Weight squared	0.00003632	1.61	0.1255
Management 1	-0.77714	-0.38	0.7076
Management 2	N/A	N/A	N/A
Management 3	5.40656	1.43	0.1698
Management 4	0.4625	0.19	0.8481
Management 5	Base	Base	Base
Management 6	7.56845**	2.72	0.0142
Breed 1	Base	Base	Base
Breed 2	0.93757	0.31	0.7610
Breed 3	N/A	N/A	N/A
Breed 4	N/A	N/A	N/A
Flesh 1	N/A	N/A	N/A
Flesh 2	Base	Base	Base
Flesh 3	5.36708**	2.41	0.0269
Muscle 1	-2.88855	-1.50	0.1507
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	1.3503	0.30	0.7693
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity Breed 1	Base	Base	N/A
Uniformity Breed 2	-6.85913***	-3.06	0.0068
UniformityFleshiness 1	Base	Base	Base
UniformityFleshiness 2	-1.0153	-0.55	0.5912
Uniformity Muscling 1	Base	Base	Base
Uniformity Muscling 2	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-9.35197***	-6.54	<.0001
Sex 3	N/A	N/A	N/A
Horns 1	Base	Base	Base
Horns 2	N/A	N/A	N/A
Health 1	Base	Base	Base
Health 2	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 33
Adjusted r-square – 0.9123

Table IV-19. Model (1) Welch 2003 Sale 2 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	200.01353***	17.39	<.0001
Head	0.32561**	2.26	0.0292
Head squared	-0.00435*	-1.85	0.0720
Weight	-0.2676***	-6.42	<.0001
Weight squared	0.00017988***	4.95	<.0001
Management 1	-3.49303***	-3.98	0.0003
Management 2	N/A	N/A	N/A
Management 3	-0.67028	-0.45	0.6549
Management 4	N/A	N/A	N/A
Management 5	Base	Base	Base
Management 6	N/A	N/A	N/A
Breed 1	Base	Base	Base
Breed 2	-2.06806**	-2.43	0.0198
Breed 3	-5.15829*	-1.96	0.0570
Breed 4	N/A	N/A	N/A
Flesh 1	-3.15818	-1.31	0.1981
Flesh 2	Base	Base	Base
Flesh 3	-3.31682***	-3.22	0.0026
Muscle 1	1.14165	1.10	0.2778
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-0.64189	-0.58	0.5638
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity Breed 1	Base	Base	Base
Uniformity Breed 2	-0.71972	-0.56	0.5787
UniformityFleshiness1	Base	Base	Base
UniformityFleshiness2	-1.20676	-1.25	0.2196
Uniformity Muscling 1	Base	Base	Base
Uniformity Muscling 2	-0.74469	-0.45	0.6571
Sex 1	Base	Base	Base
Sex 2	-8.47732***	-11.00	<.0001
Sex 3	0.54846	0.11	0.9147
Horns 1	Base	Base	Base
Horns 2	-0.20731	-0.23	0.8206
Health 1	Base	Base	Base
Health 2	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 57
Adjusted r-square – 0.9071

Table IV-20. Model (1) Woodward 2003 Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	207.41071***	25.57	<.0001
Head	0.4055***	3.91	<.0001
Head squared	-0.00646***	-2.87	0.0046
Weight	-0.29229***	-10.50	<.0001
Weight squared	0.00020761***	8.64	<.0001
Management 1	-7.50231***	-6.56	<.0001
Management 2	N/A	N/A	N/A
Management 3	-8.8972***	-8.71	<.0001
Management 4	-10.06612***	-4.03	<.0001
Management 5	Base	Base	Base
Management 6	0.77837	0.86	0.3933
Breed 1	Base	Base	Base
Breed 2	-1.27736	-1.46	0.1473
Breed 3	-1.74976	-1.044	0.1513
Breed 4	-9.65559***	-3.32	0.0011
Flesh 1	1.13506	0.86	0.3891
Flesh 2	Base	Base	Base
Flesh 3	-0.73754	-1.05	0.2955
Muscle 1	1.23591	0.98	0.3298
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-3.52384***	-3.76	0.0002
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Uniformity Breed 1	Base	Base	Base
Uniformity Breed 2	-0.56323	-0.65	0.5157
UniformityFleshiness1	Base	Base	Base
UniformityFleshiness2	N/A	N/A	N/A
Uniformity Muscling 1	Base	Base	Base
Uniformity Muscling 2	4.538	1.33	0.1856
Sex 1	Base	Base	Base
Sex 2	-7.35643***	-12.01	<.0001
Sex 3	-5.84685***	-4.20	<.0001
Horns 1	Base	Base	Base
Horns 2	1.16663	1.21	0.2260
Health 1	Base	Base	Base
Health 2	-0.35808	-0.40	0.6862

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 199
Adjusted r-square – 0.8779

Table IV-21. Model (2) Apache 2001 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	180.35752***	19.26	<.0001
OQBN Certified	-2.73676	-1.56	0.1212
Weight	-0.22844***	-6.36	<.0001
Weight squared	0.00013558***	3.94	0.0001
Breed 1	Base	Base	Base
Breed 2	-1.51391*	-1.91	0.0580
Breed 3	-1.05729	-0.89	0.3750
Breed 4	N/A	N/A	N/A
Breed 5	N/A	N/A	N/A
Flesh 1	2.07779*	1.72	0.0865
Flesh 2	Base	Base	Base
Flesh 3	-0.02167	-0.03	0.9794
Muscle 1	2.35812***	3.29	0.0012
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-2.88337***	-3.80	0.0002
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-9.97994***	-14.35	<.0001
Sex 3	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 219
Adjusted r-square – 0.7866

Table IV-22. Model (2) El Reno 2001 Sale 1 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	134.02330***	9.94	<.0001
OQBN Certified	5.26579***	5.39	<.0001
Weight	-0.11**	-2.48	0.0145
Weight squared	0.0000561	1.58	0.1178
Breed 1	Base	Base	Base
Breed 2	-1.23017	-1.22	0.2261
Breed 3	-8.21103***	-4.91	<.0001
Breed 4	-5.1736	-1.13	0.2625
Breed 5	N/A	N/A	N/A
Flesh 1	2.49598	0.94	0.3473
Flesh 2	Base	Base	Base
Flesh 3	-0.91246	-0.72	0.4731
Muscle 1	-1.30102	-0.70	0.4849
Muscle 2	Base	Base	Base
Muscle 3	-0.31735	-0.27	0.7842
Frame 1	0.66525	0.60	0.5530
Frame 2	Base	Base	Base
Frame 3	2.87818	1.13	0.2601
Sex 1	Base	Base	Base
Sex 2	-9.97994***	-10.60	<.0001
Sex 3	-5.095	-1.05	0.2966

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 128
Adjusted r-square – 0.6932

Table IV-23. Model (2) Enid 2001 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	162.60768***	19.53	<.0001
OQBN Certified	8.42458***	6.71	<.0001
Weight	-0.18783***	-6.33	<.0001
Weight squared	0.00010184***	3.94	0.0001
Breed 1	Base	Base	Base
Breed 2	-0.400927	-0.36	0.7218
Breed 3	-5.74404***	-3.08	0.0023
Breed 4	-6.57614***	-2.69	0.0078
Breed 5	N/A	N/A	N/A
Flesh 1	-0.62812	-0.38	0.7007
Flesh 2	Base	Base	Base
Flesh 3	-2.94125*	-1.82	0.0698
Muscle 1	1.64591	1.47	0.1434
Muscle 2	Base	Base	Base
Muscle 3	-18.2617***	-2.80	0.0057
Frame 1	0.3384	0.26	0.7927
Frame 2	Base	Base	Base
Frame 3	-18.92577***	-3.74	0.0002
Sex 1	Base	Base	Base
Sex 2	-8.37847***	-8.41	<.0001
Sex 3	-4.00323	-1.17	0.2438

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 200
Adjusted r-square – 0.7396

Table IV-24. Model (2) Holdenville 2001 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	164.77893***	12.85	<.0001
OQBN Certified	7.70349***	6.22	<.0001
Weight	-0.19519***	-4.14	<.0001
Weight squared	0.0000973**	2.26	0.0247
Breed 1	Base	Base	Base
Breed 2	-2.71934**	-2.38	0.0184
Breed 3	-4.51693**	-2.38	0.0180
Breed 4	N/A	N/A	N/A
Breed 5	0.72033	0.15	0.8827
Flesh 1	-1.96438	-0.44	0.6587
Flesh 2	Base	Base	Base
Flesh 3	2.49463**	2.26	0.0248
Muscle 1	1.27563	1.12	0.2627
Muscle 2	Base	Base	Base
Muscle 3	-21.73636***	-4.29	<.0001
Frame 1	0.51384	0.45	0.6547
Frame 2	Base	Base	Base
Frame 3	-7.3064**	-2.19	0.0300
Sex 1	Base	Base	Base
Sex 2	-7.75781***	-7.01	<.0001
Sex 3	-0.65287	-0.32	0.7519

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 211
Adjusted r-square – 0.6106

Table IV-25. Model (2) Idabel 2001 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	141.12484***	20.55	<.0001
OQBN Certified	3.60376***	3.46	0.0006
Weight	-0.15081***	-6.09	<.0001
Weight squared	0.00009297***	4.09	<.0001
Breed 1	Base	Base	Base
Breed 2	3.30897*	1.71	0.0881
Breed 3	1.10918	0.53	0.5952
Breed 4	N/A	N/A	N/A
Breed 5	-3.89825*	-1.90	0.0590
Flesh 1	1.64277*	1.75	0.0818
Flesh 2	Base	Base	Base
Flesh 3	-7.54865**	-2.37	0.0184
Muscle 1	-0.55267	-0.62	0.5328
Muscle 2	Base	Base	Base
Muscle 3	-4.55618***	-3.08	0.0023
Frame 1	-2.43396***	-2.73	0.0068
Frame 2	Base	Base	Base
Frame 3	-1.66345	-0.36	0.7189
Sex 1	Base	Base	Base
Sex 2	-6.32202***	-8.32	<.0001
Sex 3	1.30505	1.06	0.2887

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 260
Adjusted r-square – 0.6797

Table IV-26. Model (2) Woodward 2001 OQBN Parameter Estimates^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	224.72081***	16.86	<.0001
OQBN Certified	3.48483***	4.90	<.0001
Weight	-0.41897***	-8.41	<.0001
Weight squared	0.00031671***	6.90	<.0001
Breed 1	Base	Base	Base
Breed 2	-3.04956***	-3.32	0.0011
Breed 3	-3.73434**	-2.34	0.0204
Breed 4	-6.06418***	-3.10	0.0022
Breed 5	N/A	N/A	N/A
Flesh 1	0.18478	0.10	0.9174
Flesh 2	Base	Base	Base
Flesh 3	-3.8682***	-3.67	0.0003
Muscle 1	2.52645*	1.96	0.0509
Muscle 2	Base	Base	Base
Muscle 3	-4.22348*	-1.74	0.0836
Frame 1	2.52802	1.37	0.1718
Frame 2	Base	Base	Base
Frame 3	-16.79535***	-5.79	<.0001
Sex 1	Base	Base	Base
Sex 2	-12.45484***	-18.99	<.0001
Sex 3	-5.1067	-1.36	0.1767

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 200
Adjusted r-square – 0.8191
^ - Management 1 and 3 combined

Table IV-27. Model (2) El Reno 2002 Sale 1 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	167.70013***	16.62	<.0001
OQBN Certified	6.66255***	5.77	<.0001
Weight	-0.23065***	-6.71	<.0001
Weight squared	0.00014957***	5.15	<.0001
Breed 1	Base	Base	Base
Breed 2	-0.92749	-1.21	0.2281
Breed 3	-0.169911	-0.92	0.3586
Breed 4	-2.83927	-1.07	0.2862
Flesh 1	-3.36655	-1.21	0.2289
Flesh 2	Base	Base	Base
Flesh 3	-4.57064***	-5.25	<.0001
Muscle 1	1.44857*	1.74	0.0831
Muscle 2	Base	Base	Base
Muscle 3	0.77563	0.22	0.8288
Frame 1	0.19341	0.23	0.8165
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-6.56169***	-8.16	<.0001
Sex 3	-6.2149***	-6.67	<.0001

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 161
Adjusted r-square – 0.7499

Table IV-28. Model (2) El Reno 2002 Sale 2 OQBN Parameter Estimates^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	172.13866***	12.25	<.0001
OQBN Certified	7.55676***	6.09	<.0001
Weight	-0.247***	-4.79	<.0001
Weight squared	0.00017854***	3.71	0.0004
Breed 1	Base	Base	Base
Breed 2	-2.37234*	-1.99	0.0501
Breed 3	-8.64177***	-2.90	0.0049
Breed 4	-5.07707*	-1.88	0.0632
Flesh 1	-4.70353*	-1.76	0.0830
Flesh 2	Base	Base	Base
Flesh 3	-1.45414	-1.12	0.2649
Muscle 1	N/A	N/A	N/A
Muscle 2	Base	Base	Base
Muscle 3	-5.21416	-1.17	0.2456
Frame 1	N/A	N/A	N/A
Frame 2	Base	Base	Base
Frame 3	-2.0713	-1.12	0.2678
Sex 1	Base	Base	Base
Sex 2	-8.43784***	-7.95	<.0001
Sex 3	-0.75988	-0.30	0.7622

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 90
Adjusted r-square – 0.6864
^ - Frame 2 and 3 combined

Table IV-29. Model (2) Enid 2002 Sale 1 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	139.70705***	14.46	<.0001
OQBN Certified	10.21574***	6.68	<.0001
Weight	-0.14193***	-3.92	0.0001
Weight squared	0.00007894**	2.31	0.0219
Breed 1	Base	Base	Base
Breed 2	0.76941	0.56	0.5734
Breed 3	0.76165	0.48	0.6291
Breed 4	-2.08515	-0.43	0.6707
Flesh 1	2.2386*	1.68	0.0956
Flesh 2	Base	Base	Base
Flesh 3	1.71439	0.51	0.6111
Muscle 1	-5.23905*	-1.88	0.0612
Muscle 2	Base	Base	Base
Muscle 3	-6.93513***	-3.34	0.0010
Frame 1	-1.61269	-1.16	0.2469
Frame 2	Base	Base	Base
Frame 3	-4.23503	-0.83	0.4099
Sex 1	Base	Base	Base
Sex 2	-11.17012***	-9.47	<.0001
Sex 3	-3.10366	-1.43	0.1548

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 184
Adjusted r-square – 0.6789

Table IV-30. Model (2) Enid 2002 Sale 2 OQBN Parameter Estimates^^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	117.99747***	11.85	<.0001
OQBN Certified	7.45105***	3.94	0.0002
Weight	-0.08632**	-2.29	0.0258
Weight squared	0.00005466	1.58	0.1205
Breed 1	Base	Base	Base
Breed 2	-4.66444***	-3.35	0.0015
Breed 3	N/A	N/A	N/A
Breed 4	0.12101	0.06	0.9495
Flesh 1	-0.5108	-0.32	0.7532
Flesh 2	Base	Base	Base
Flesh 3	-7.50861***	-4.33	<.0001
Muscle 1	2.36043*	1.85	0.0705
Muscle 2	Base	Base	Base
Muscle 3	-7.91959**	-2.25	0.0288
Frame 1	-1.20059	-1.02	0.3144
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-6.56182***	-5.45	<.0001
Sex 3	-10.98387***	-4.60	<.0001

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 64
Adjusted r-square – 0.7467
^^ - Breed 3 and 4 combined

Table IV-31. Model (2) Holdenville 2002 OQBN Parameter Estimates^^^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	146.90712***	7.56	<.0001
OQBN Certified	5.32997***	3.26	0.0013
Weight	-0.18377***	-3.00	0.0030
Weight squared	0.00012876**	2.26	0.0250
Breed 1	Base	Base	Base
Breed 2	-3.02385*	-1.85	0.0655
Breed 3	N/A	N/A	N/A
Breed 4	-4.55416***	-2.67	0.0082
Flesh 1	-2.517	-1.12	0.2647
Flesh 2	Base	Base	Base
Flesh 3	N/A	N/A	N/A
Muscle 1	N/A	N/A	N/A
Muscle 2	Base	Base	Base
Muscle 3	-14.96485	-1.43	0.1535
Frame 1	-3.79011	-0.37	0.7154
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-5.41452***	-4.02	<.0001
Sex 3	1.18174	0.72	0.4745

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 221
Adjusted r-square – 0.3879
^^^ - Breed 3 and 4 combined and Muscle 2 and 3 combined

Table IV-32. Model (2) Idabel 2002 OQBN Parameter Estimates^^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	119.55214***	11.88	<.0001
OQBN Certified	5.56634***	4.67	<.0001
Weight	-0.10156***	-3.04	0.0027
Weight squared	0.00005156*	1.85	0.0655
Breed 1	Base	Base	Base
Breed 2	2.21874	1.26	0.2096
Breed 3	N/A	N/A	N/A
Breed 4	-0.14429	-0.08	0.9356
Flesh 1	0.19044	0.17	0.8690
Flesh 2	Base	Base	Base
Flesh 3	N/A	N/A	N/A
Muscle 1	1.84173	0.91	0.3665
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-1.82819	-1.54	0.1253
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-8.09285***	-8.66	<.0001
Sex 3	N/A	N/A	N/A

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 183
Adjusted r-square – 0.4878
^^ - Breed 3 and 4 combined

Table IV-33. Model (2) Woodward 2002 OQBN Parameter Estimates^^^^.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	159.06182***	10.35	<.0001
OQBN Certified	2.30298	1.34	0.1820
Weight	-0.17646***	-3.36	0.0009
Weight squared	0.0000987**	2.12	0.0354
Breed 1	Base	Base	Base
Breed 2	-2.06049	-0.75	0.4513
Breed 3	N/A	N/A	N/A
Breed 4	-3.48718	-1.16	0.2482
Flesh 1	-11.3774**	-2.18	0.0302
Flesh 2	Base	Base	Base
Flesh 3	-0.2843	-0.24	0.8106
Muscle 1	1.96379	1.22	0.2253
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	N/A	N/A	N/A
Frame 2	Base	Base	Base
Frame 3	-0.17997	-0.04	0.9653
Sex 1	Base	Base	Base
Sex 2	-8.20694***	-8.91	<.0001
Sex 3	-2.29274	-0.71	0.4810

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 210
Adjusted r-square – 0.4959
^^^^ - Breed 3 and 4 combined and Frame 2 and 3 combined

Table IV-34. Model (2) El Reno 2003 Sale 1 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	210.99105***	19.13	<.0001
OQBN Certified	13.0412***	6.03	<.0001
Weight	-0.30741***	-8.00	<.0001
Weight squared	0.00021641***	6.55	<.0001
Breed 1	Base	Base	Base
Breed 2	-0.7271	-0.60	0.5521
Breed 3	-4.00433	-1.41	0.1616
Breed 4	N/A	N/A	N/A
Flesh 1	-1.24546	-0.64	0.5253
Flesh 2	Base	Base	Base
Flesh 3	-5.78583***	-3.37	0.0009
Muscle 1	0.52294	0.55	0.5856
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-1.46131	-1.26	0.2092
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-10.40724***	-11.04	<.0001
Sex 3	-6.61769***	-3.69	0.0003

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 169
Adjusted r-square – 0.7260

Table IV-35. Model (2) El Reno 2003 Sale 2 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	209.26119***	23.59	<.0001
OQBN Certified	9.46124***	8.32	<.0001
Weight	-0.26796***	-8.70	<.0001
Weight squared	0.00016577***	6.30	<.0001
Breed 1	Base	Base	Base
Breed 2	-1.52864*	-1.72	0.0876
Breed 3	-13.7595***	-2.82	0.0054
Breed 4	-3.52925**	-1.98	0.0488
Flesh 1	1.4418	1.36	0.1760
Flesh 2	Base	Base	Base
Flesh 3	1.7959	1.12	0.2642
Muscle 1	-3.20462**	-2.33	0.0209
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-0.25538	-0.20	0.8395
Frame 2	Base	Base	Base
Frame 3	5.32221***	3.95	0.0001
Sex 1	Base	Base	Base
Sex 2	-13.09391***	-10.13	<.0001
Sex 3	-6.88136***	-4.89	<.0001

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 184
Adjusted r-square – 0.8112

Table IV-36. Model (2) Enid 2003 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	181.16497***	22.50	<.0001
OQBN Certified	4.99627***	4.95	<.0001
Weight	-0.17504***	-5.51	<.0001
Weight squared	0.00007462**	2.48	0.0150
Breed 1	Base	Base	Base
Breed 2	-0.06777	-0.05	0.9591
Breed 3	N/A	N/A	N/A
Breed 4	N/A	N/A	N/A
Flesh 1	N/A	N/A	N/A
Flesh 2	Base	Base	Base
Flesh 3	0.55189	0.46	0.6471
Muscle 1	-4.51716***	-3.73	0.0003
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	2.23734*	1.92	0.0584
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-11.2864***	-12.78	<.0001
Sex 3	-7.41051***	-3.38	0.0011

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 96
Adjusted r-square – 0.9115

Table IV-37. Model (2) Tulsa 2003 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	119.08278***	11.11	<.0001
OQBN Certified	2.99183***	2.77	0.0067
Weight	-0.0005914	-0.02	0.9863
Weight squared	-0.00004086	-1.53	0.1298
Breed 1	Base	Base	Base
Breed 2	0.52756	0.36	0.7174
Breed 3	-3.19993	-1.24	0.2171
Breed 4	N/A	N/A	N/A
Flesh 1	2.1476	0.81	0.4183
Flesh 2	Base	Base	Base
Flesh 3	1.65492	1.28	0.2046
Muscle 1	-0.55456	-0.40	0.6921
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-0.87887	-0.65	0.5158
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-9.69008***	-8.45	<.0001
Sex 3	-12.60306***	-2.75	0.0071

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 104
Adjusted r-square – 0.7028

Table IV-38. Model (2) Welch 2003 Sale 1 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	148.63828***	11.72	<.0001
OQBN Certified	2.85278***	5.04	<.0001
Weight	-0.1064***	-3.00	0.0064
Weight squared	0.00003522	1.55	0.1338
Breed 1	Base	Base	Base
Breed 2	-0.47205	-0.22	0.8297
Breed 3	N/A	N/A	N/A
Breed 4	N/A	N/A	N/A
Flesh 1	2.69385	0.37	0.7178
Flesh 2	Base	Base	Base
Flesh 3	4.3056**	2.43	0.0231
Muscle 1	-0.29916	-0.24	0.8107
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-1.15725	-0.24	0.8098
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-8.84263***	-6.58	<.0001
Sex 3	1.43867	0.23	0.8224

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 33
Adjusted r-square – 0.9600

Table IV-39. Model (2) Welch 2003 Sale 2 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	184.74101***	16.27	<.0001
OQBN Certified	2.77302***	3.42	0.0013
Weight	-0.21406***	-5.24	<.0001
Weight squared	0.00013117***	3.72	0.0005
Breed 1	Base	Base	Base
Breed 2	-0.40907	-0.36	0.7228
Breed 3	-4.18245***	-4.18	0.0001
Breed 4	N/A	N/A	N/A
Flesh 1	-8.2905***	-3.90	0.0003
Flesh 2	Base	Base	Base
Flesh 3	-0.52493	-0.60	0.5486
Muscle 1	-0.38082	-0.31	0.7608
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-0.58346	-0.53	0.6021
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-10.06016***	-13.01	<.0001
Sex 3	2.29318	0.43	0.6718

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 57
Adjusted r-square – 0.8776

Table IV-40. Model (2) Woodward 2003 OQBN Parameter Estimates.

Independent Variable	Dependent Variable	T-Value	P-Value
Intercept	209.13781***	22.57	<.0001
OQBN Certified	9.1068***	4.64	<.0001
Weight	-0.30535***	-9.28	<.0001
Weight squared	0.00021232***	7.26	<.0001
Breed 1	Base	Base	Base
Breed 2	-1.01353	-0.88	0.3790
Breed 3	-4.87894***	-3.77	0.0002
Breed 4	-13.39032***	-2.81	0.0055
Flesh 1	0.98695	0.65	0.5145
Flesh 2	Base	Base	Base
Flesh 3	3.42636**	2.60	0.0100
Muscle 1	-2.66183	-1.24	0.2150
Muscle 2	Base	Base	Base
Muscle 3	N/A	N/A	N/A
Frame 1	-0.06023	-0.03	0.9768
Frame 2	Base	Base	Base
Frame 3	N/A	N/A	N/A
Sex 1	Base	Base	Base
Sex 2	-7.48355***	-8.82	<.0001
Sex 3	-6.77048***	-5.69	<.0001

Significance levels are *** = 0.01, ** = 0.05, and * = 0.10
Observations – 199
Adjusted r-square – 0.7325

Appendix

Table VII-1. Apache 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=[3ab]				
Head	11.917	12.688	3.000	46.000
Weight	356.250	29.751	299.000	395.000
Price	119.000	4.950	112.000	130.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	19.107	20.152	3.000	97.000
Weight	447.214	31.582	404.000	499.000
Price	108.311	6.768	91.500	119.500
Preconditioning =1, Sex=1, Weight=5[d]				
Head	19.341	15.508	3.000	66.000
Weight	542.477	31.188	500.000	599.000
Price	95.247	7.104	78.000	106.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	17.684	17.059	3.000	63.000
Weight	621.895	14.768	600.000	656.000
Price	88.266	4.311	81.000	101.000
Preconditioning =1, Sex=1, Weight=7[f]				
Head	20.667	24.664	4.000	49.000
Weight	718.000	25.981	703.000	748.000
Price	83.150	1.238	81.750	84.100
Preconditioning =1, Sex=2, Weight=3[g]				
Head	13.643	10.817	3.000	40.000
Weight	338.929	51.671	228.000	397.000
Price	107.964	9.090	95.000	126.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	18.949	16.908	3.000	67.000
Weight	451.923	30.485	400.000	495.000
Price	92.632	4.493	84.000	103.000
Preconditioning =1, Sex=2, Weight=5[i]				
Head	21.400	15.145	3.000	60.000
Weight	547.275	28.957	502.000	596.000
Price	87.075	5.187	78.000	105.750

Table VII-1. Apache 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=6[j]				
Head	19.444	15.216	3.000	42.000
Weight	637.444	24.986	604.000	672.000
Price	82.778	3.381	79.000	89.000
Preconditioning =1, Sex=2, Weight=7[k]				
Head	8.000	-	8.000	8.000
Weight	710.000	-	710.000	710.000
Price	79.700	-	79.700	79.700
Preconditioning =2, Sex=1, Weight=3[l]				
Head	8.000	0	8.000	8.000
Weight	340.500	14.849	330.000	351.000
Price	119.500	7.778	114.000	125.000
Preconditioning =2, Sex=1, Weight=4[m]				
Head	5.000	-	5.000	5.000
Weight	458.000	-	458.000	458.000
Price	108.000	-	108.000	108.000
Preconditioning =2, Sex=1, Weight=5[n]				
Head	15.667	3.512	12.000	19.000
Weight	538.000	23.388	511.000	552.000
Price	94.750	4.131	92.000	99.500
Preconditioning =2, Sex=1, Weight=6[o]				
Head	4.000	-	4.000	4.000
Weight	643.000	-	643.000	643.000
Price	84.000	-	84.000	84.000
Preconditioning =2, Sex=2, Weight=4[p]				
Head	15.000	-	15.000	15.000
Weight	414.000	-	414.000	414.000
Price	97.500	-	97.500	97.500
Preconditioning =2, Sex=2, Weight=5[q]				
Head	13.667	6.429	9.000	21.000
Weight	546.667	41.187	519.000	594.000
Price	84.567	3.156	81.000	87.000

Table VII-1. Apache 2001 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 12 observations
[c] 28 observations
[d] 44 observations
[e] 19 observations
[f] 3 observations
[g] 14 observations
[h] 39 observations
[i] 40 observations
[j] 9 observations
[k] 1 observation
[l] 2 observations
[m] 1 observation
[n] 3 observations
[o] 1 observation
[p] 1 observation
[q] 3 observations

Table VII-2. El Reno 2001 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =1, Weight =[3ab]				
Head	4.333	0.577	4.000	5.000
Weight	357.000	29.513	338.000	391.000
Price	104.333	14.189	89.000	117.000
Preconditioning =1, Sex =1, Weight =4[c]				
Head	5.000	1.309	3.000	7.000
Weight	444.250	26.634	406.000	472.000
Price	91.688	8.447	81.000	107.500
Preconditioning =1, Sex =1, Weight =5[d]				
Head	5.571	1.813	3.000	9.000
Weight	553.286	29.865	516.000	585.000
Price	85.643	8.528	73.000	99.000
Preconditioning =1, Sex =1, Weight =6[e]				
Head	21.400	34.443	5.000	83.000
Weight	611.800	11.987	601.000	628.000
Price	83.400	2.043	80.000	85.000
Preconditioning =1, Sex =1, Weight =7[f]				
Head	9.000	-	9.000	9.000
Weight	778.000	-	778.000	778.000
Price	80.500	-	80.500	80.500
Preconditioning =1, Sex =2, Weight =3[g]				
Head	4.250	0.957	3.000	5.000
Weight	348.250	35.985	316.000	386.000
Price	88.125	5.836	80.500	94.000
Preconditioning =1, Sex =2, Weight =4[h]				
Head	4.800	1.549	3.000	7.000
Weight	463.600	23.472	418.000	496.000
Price	80.650	4.655	71.000	85.500
Preconditioning =1, Sex =2, Weight =5[i]				
Head	6.636	4.456	3.000	17.000
Weight	546.091	35.115	504.000	594.000
Price	80.841	6.340	72.000	92.000

Table VII-2. El Reno 2001 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =2, Weight =6[j]				
Head	7.000	-	7.000	7.000
Weight	605.000	-	605.000	605.000
Price	78.000	-	78.000	78.000
Preconditioning =1, Sex =2, Weight =7[k]				
Head	6.000	-	6.000	6.000
Weight	713.000	-	713.000	713.000
Price	77.750	-	77.750	77.75
Preconditioning =1, Sex =3, Weight =4[l]				
Head	4.000	0.816	3.000	5.000
Weight	458.500	30.337	429.000	494.000
Price	90.000	11.690	81.000	107.000
Preconditioning =1, Sex =3, Weight =5[m]				
Head	6.000	-	6.000	6.000
Weight	511.000	-	511.000	511.000
Price	95.000	-	95.000	95.000
Preconditioning =1, Sex =3, Weight =6[n]				
Head	5.000	-	5.000	5.000
Weight	606.000	-	606.000	606.000
Price	81.500	-	81.500	81.500
Preconditioning =2, Sex =1, Weight =3[o]				
Head	6.000	-	6.000	6.000
Weight	312.000	-	312.000	312.000
Price	119.000	-	119.000	119.000
Preconditioning =2, Sex =1, Weight =4[p]				
Head	41.900	34.336	6.000	89.000
Weight	448.300	42.413	402.000	494.000
Price	102.550	12.121	82.500	117.000
Preconditioning =2, Sex =1, Weight =5[q]				
Head	54.444	37.098	7.000	97.000
Weight	557.667	21.960	500.000	571.000
Price	92.556	7.426	80.000	105.500

Table VII-2. El Reno 2001 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex =1, Weight =6[r]				
Head	42.500	32.924	6.000	80.000
Weight	637.000	6.969	625.000	647.000
Price	88.088	1.962	83.500	89.700
Preconditioning =2, Sex =1, Weight =7[s]				
Head	19.750	19.864	2.000	71.000
Weight	755.583	66.003	702.000	898.000
Price	83.021	3.779	78.000	89.500
Preconditioning =2, Sex =2, Weight =3[t]				
Head	9.000	2.828	7.000	11.000
Weight	352.000	55.154	313.000	391.000
Price	99.500	9.192	93.000	106.000
Preconditioning =2, Sex =2, Weight =4[u]				
Head	34.818	27.813	9.000	99.000
Weight	454.727	39.474	407.000	498.000
Price	88.523	6.664	80.500	101.500
Preconditioning =2, Sex =2, Weight =5[v]				
Head	41.500	32.581	6.000	88.000
Weight	569.667	10.231	563.000	590.000
Price	81.750	3.728	77.750	86.500
Preconditioning =2, Sex =2, Weight =6[w]				
Head	34.286	29.455	3.000	79.000
Weight	642.429	24.663	629.000	698.000
Price	80.029	3.044	75.000	83.200
Preconditioning =2, Sex =2, Weight =7[x]				
Head	13.833	15.510	3.000	43.000
Weight	753.333	60.182	703.000	852.000
Price	76.708	1.813	75.000	79.750

Table VII—2.El Reno 2001 Sale 1 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 3 observations
[c] 8 observations
[d] 7 observations
[e] 5 observations
[f] 1 observation
[g] 4 observations
[h] 10 observations
[i] 11observations
[j] 1 observation
[k] 1 observation
[l] 4 observations
[m] 1 observation
[n] 1 observation
[o] 1 observation
[p] 10 observations
[q] 9 observations
[r] 8 observations
[s] 12 observations
[t] 2 observations
[u] 11 observations
[v] 6 observations
[w] 7 observations
[x] 6 observations

Table VII-3. El Reno 2001 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =1, Weight =3[ab]				
Head	14.400	24.399	2.000	58.000
Weight	365.000	44.794	291.000	398.000
Price	111.000	6.114	104.000	117.500
Preconditioning =1, Sex =1, Weight =4[c]				
Head	38.857	39.002	3.000	89.000
Weight	450.857	28.661	406.000	485.000
Price	104.643	8.360	92.000	114.000
Preconditioning =1, Sex =1, Weight =5[d]				
Head	15.571	23.172	1.000	65.000
Weight	531.143	14.938	507.000	557.000
Price	96.214	4.545	92.000	104.000
Preconditioning =1, Sex =1, Weight =6[e]				
Head	8.000	4.243	5.000	11.000
Weight	648.000	4.243	645.000	651.000
Price	83.000	2.828	81.000	85.000
Preconditioning =1, Sex =2, Weight =3[f]				
Head	4.167	2.994	1.000	8.000
Weight	334.833	42.527	274.000	375.000
Price	84.500	41.544	0	106.000
Preconditioning =1, Sex =2, Weight =4[g]				
Head	4.444	4.275	1.000	13.000
Weight	439.444	26.240	408.000	490.000
Price	91.889	7.623	80.000	101.000
Preconditioning =1, Sex =2, Weight =5[h]				
Head	14.200	17.931	1.000	55.000
Weight	552.700	28.632	503.000	594.000
Price	75.500	26.965	0	93.500
Preconditioning =1, Sex =2, Weight =6[i]				
Head	5.200	2.490	1.000	7.000
Weight	670.800	39.619	601.000	698.000
Price	76.150	6.444	65.000	80.750

Table VII-3. El Reno 2001 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	8.200	5.630	1.000	16.000
Weight	763.000	55.417	720.000	852.000
Price	76.160	3.864	73.000	85.500
Preconditioning =1, Sex =2, Weight =6[k]				
Head	5.000	1.414	4.000	6.000
Weight	629.500	30.406	608.000	651.000
Price	80.000	1.414	79.000	81.000
Preconditioning =2, Sex =1, Weight =3[l]				
Head	6.000	5.657	2.000	10.000
Weight	315.500	13.435	306.000	325.000
Price	109.000	1.414	108.000	110.000
Preconditioning =2, Sex =1, Weight =4[m]				
Head	26.588	30.414	3.000	100.000
Weight	461.588	32.074	420.000	499.000
Price	94.971	10.083	75.000	111.000
Preconditioning =2, Sex =1, Weight =5[n]				
Head	48.273	33.918	6.000	91.000
Weight	550.636	23.405	500.000	575.000
Price	92.477	10.208	78.000	109.500
Preconditioning =2, Sex =1, Weight =6[o]				
Head	38.600	30.566	6.000	75.000
Weight	629.200	5.020	621.000	633.000
Price	86.550	6.043	78.500	92.000
Preconditioning =2, Sex =2, Weight =7[p]				
Head	8.600	8.961	3.000	24.000
Weight	778.000	63.655	715.000	860.000
Price	76.500	4.670	71.75	83.250
Preconditioning =2, Sex =1, Weight =5[q]				
Head	8.000	-	8.000	83000
Weight	708.000	-	708.000	708.000
Price	74.500	-	74.500	74.500

Table VII-3. El Reno 2001 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex =3, Weight =5[r]				
Head	94.000	-	94.000	94.000
Weight	561.000	-	561.000	561.000
Price	88.250	-	88.250	88.250
Preconditioning =2, Sex =3, Weight =7[s]				
Head	11.000	-	11.000	11.000
Weight	729.000	-	729.000	729.000
Price	76.000	-	76.000	76.000

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 5 observations
[c] 7 observations
[d] 7 observations
[e] 2 observations
[f] 6 observations
[g] 9 observations
[h] 10 observations
[i] 5 observations
[j] 5 observations
[k] 2 observations
[l] 2 observations
[m] 17 observations
[n] 11 observations
[o] 5 observations
[p] 5 observations
[q] 1 observation
[r] 1 observation
[s] 1 observation

Table VII-4. Enid 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =1, Weight =3[ab]				
Head	2.091	1.797	1.000	9.000
Weight	360.955	27.883	305.000	398.000
Price	101.773	17.334	63.000	121.000
Preconditioning =1, Sex =1, Weight =4[c]				
Head	4.294	6.593	1.000	26.000
Weight	446.294	24.794	407.000	497.000
Price	93.618	13.774	64.000	115.000
Preconditioning =1, Sex =1, Weight =5[d]				
Head	3.615	2.931	1.000	10.000
Weight	546.538	31.766	500.000	585.000
Price	88.654	8.279	74.000	101.000
Preconditioning =1, Sex =1, Weight =6[e]				
Head	4.222	5.495	1.000	16.000
Weight	632.222	25.009	600.000	680.000
Price	79.861	10.182	58.000	90.500
Preconditioning =1, Sex =1, Weight =7[f]				
Head	3.750	1.500	2.000	5.000
Weight	755.250	38.056	720.000	799.000
Price	77.688	1.796	75.000	78.750
Preconditioning =1, Sex =2, Weight =3[g]				
Head	1.833	1.850	1.000	7.000
Weight	355.917	27.862	310.000	397.000
Price	92.333	6.173	82.000	102.000
Preconditioning =1, Sex =2, Weight =4[h]				
Head	3.385	2.399	1.000	10.000
Weight	450.077	27.091	401.000	498.000
Price	92.115	7.255	79.000	107.000
Preconditioning =1, Sex =2, Weight =5[i]				
Head	4.100	4.789	1.000	20.000
Weight	539.950	30.258	505.000	598.000
Price	79.538	6.341	66.000	87.500

Table VII-4. Enid 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =2, Weight =6[j]				
Head	2.250	1.815	1.000	6.000
Weight	635.167	28.847	600.000	685.000
Price	74.542	6.693	61.000	84.000
Preconditioning =1, Sex =2, Weight =7[k]				
Head	2.500	2.380	1.000	6.000
Weight	760.000	43.012	710.000	805.000
Price	71.688	7.250	64.000	78.000
Preconditioning =1, Sex =3, Weight =3[l]				
Head	1.000	0	1.000	1.000
Weight	310.000	23.452	275.000	335.000
Price	109.400	10.334	98.000	120.000
Preconditioning =2, Sex =3, Weight =4[m]				
Head	2.300	2.058	1.000	7.000
Weight	455.300	35.346	400.000	495.000
Price	87.100	18.520	63.000	113.000
Preconditioning =1, Sex =3, Weight =5[n]				
Head	3.000	4.000	1.000	9.000
Weight	566.250	24.622	530.000	585.000
Price	84.250	12.939	66.000	96.500
Preconditioning =1, Sex =3, Weight =6[o]				
Head	11.000	9.899	4.000	18.000
Weight	679.000	19.799	665.000	693.000
Price	79.625	6.541	75.000	84.250
Preconditioning =2, Sex =1, Weight =3[p]				
Head	24.000	27.495	2.000	63.000
Weight	343.833	54.657	250.000	390.000
Price	124.500	10.877	112.000	140.000
Preconditioning =2, Sex =1, Weight =4[q]				
Head	18.400	9.099	10.000	34.000
Weight	445.200	19.383	424.000	466.000
Price	114.600	10.784	101.000	124.00

Table VII-4. Enid 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex =1, Weight =5[r]				
Head	18.800	16.247	1.000	57.000
Weight	552.500	26.260	504.000	590.000
Price	97.025	7.462	86.000	106.250
Preconditioning =2, Sex =1, Weight =6[s]				
Head	15.667	13.307	2.000	37.000
Weight	651.833	35.628	617.000	696.000
Price	86.542	5.921	79.500	94.000
Preconditioning =2, Sex =1, Weight =7[t]				
Head	4.667	5.508	1.000	11.000
Weight	771.333	49.863	717.000	815.000
Price	78.667	2.754	76.000	81.500
Preconditioning =2, Sex =2, Weight =3[u]				
Head	23.500	41.733	1.000	86.000
Weight	309.250	62.803	230.000	383.000
Price	106.625	4.385	101.000	111.000
Preconditioning =2, Sex =2, Weight =4[v]				
Head	23.167	21.424	3.000	60.000
Weight	441.333	36.631	409.000	499.000
Price	98.833	5.845	88.000	105.000
Preconditioning =2, Sex =2, Weight =5[w]				
Head	11.143	6.336	2.000	19.000
Weight	541.571	22.516	501.000	572.000
Price	88.893	4.354	83.750	97.000
Preconditioning =2, Sex =2, Weight =6[x]				
Head	10.667	8.386	1.000	16.000
Weight	666.000	19.313	645.000	683.000
Price	77.750	1.887	76.000	79.760
Preconditioning =2, Sex =2, Weight =7[y]				
Head	1.250	0.500	1.000	2.000
Weight	790.000	82.361	710.000	905.000
Price	66.688	10.842	52.000	77.750

Table VII-4. Enid 2001 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 22 observations
[c] 17 observations
[d] 13 observations
[e] 9 observations
[f] 4 observations
[g] 12 observations
[h] 13 observations
[i] 20 observations
[j] 12 observations
[k] 4 observations
[l] 5 observations
[m] 10 observations
[n] 4 observations
[o] 2 observations
[p] 6 observations
[q] 5 observations
[r] 10 observations
[s] 6 observations
[t] 3 observations
[u] 4 observations
[v] 6 observations
[w] 7 observations
[x] 3 observations
[y] 4 observations

Table VII-5. Holdenville 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =1, Weight =3[ab]				
Head	5.917	13.688	1.000	49.000
Weight	364.750	20.706	325.000	395.000
Price	104.042	11.680	76.500	115.000
Preconditioning =1, Sex =1, Weight =4[c]				
Head	9.519	20.737	1.000	98.000
Weight	449.037	26.665	405.000	495.000
Price	96.833	12.150	67.500	109.000
Preconditioning =1, Sex =1, Weight =5[d]				
Head	4.864	12.380	1.000	59.000
Weight	535.045	23.308	500.000	577.000
Price	82.330	20.873	31.000	104.500
Preconditioning =1, Sex =1, Weight =6[e]				
Head	4.250	2.500	1.000	7.000
Weight	623.500	21.486	604.000	653.000
Price	76.625	10.812	61.000	85.000
Preconditioning =1, Sex =1, Weight =7[f]				
Head	3.000	-	3.000	3.000
Weight	735.000	-	735.000	735.000
Price	82.500	-	82.500	82.500
Preconditioning =1, Sex =2, Weight =3[g]				
Head	2.083	2.353	1.000	9.000
Weight	363.833	19.867	325.000	390.000
Price	94.542	7.533	84.000	110.500
Preconditioning =1, Sex =2, Weight =4[h]				
Head	2.667	2.468	1.000	11.000
Weight	447.200	26.537	404.000	498.000
Price	88.683	3.990	80.000	98.000
Preconditioning =1, Sex =2, Weight =5[i]				
Head	2.842	5.014	1.000	23.000
Weight	548.526	35.384	500.000	595.000
Price	79.263	7.007	59.000	86.000

Table VII-5. Holdenville 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =2, Weight =6[j]				
Head	3.000	2.828	1.000	5.000
Weight	690.500	6.364	686.000	695.000
Price	53.750	26.517	35.000	72.500
Preconditioning =1, Sex =2, Weight =7[k]				
Head	5.000	-	5.000	5.000
Weight	783.000	-	783.000	783.000
Price	66.000	-	66.000	66.000
Preconditioning =1, Sex =3, Weight =3[l]				
Head	1.250	0.707	1.000	3.000
Weight	370.000	20.000	340.000	395.000
Price	98.250	18.437	63.000	117.000
Preconditioning =2, Sex =3, Weight =4[m]				
Head	1.200	0.632	1.000	3.000
Weight	448.500	27.593	400.000	490.000
Price	91.400	20.185	36.000	104.500
Preconditioning =1, Sex =3, Weight =5[n]				
Head	2.800	4.467	1.000	15.000
Weight	555.100	30.607	510.000	596.000
Price	85.050	6.193	75.000	99.000
Preconditioning =1, Sex =3, Weight =6[o]				
Head	2.000	1.155	1.000	3.000
Weight	646.000	37.745	600.000	685.000
Price	73.875	2.898	70.000	77.000
Preconditioning =2, Sex =1, Weight =3[p]				
Head	2.500	2.121	1.000	4.000
Weight	381.500	4.950	378.000	385.000
Price	94.750	19.445	81.000	108.500
Preconditioning =2, Sex =1, Weight =4[q]				
Head	8.833	8.353	2.000	24.000
Weight	448.167	21.424	419.000	479.000
Price	106.000	4.658	100.500	113.000

Table VII-5. Holdenville 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex =1, Weight =5[r]				
Head	8.583	6.543	1.000	22.000
Weight	548.667	30.374	501.000	597.000
Price	87.146	10.087	71.000	100.000
Preconditioning =2, Sex =1, Weight =6[s]				
Head	12.333	14.024	1.000	36.000
Weight	658.833	27.593	617.000	680.000
Price	80.433	7.806	66.000	86.750
Preconditioning =2, Sex =1, Weight =7[t]				
Head	13.667	15.795	1.000	39.000
Weight	774.000	53.006	709.000	867.000
Price	71.600	9.457	60.500	83.750
Preconditioning =2, Sex =2, Weight =4[u]				
Head	12.667	10.053	5.000	30.000
Weight	455.000	25.534	414.000	480.000
Price	94.833	4.644	90.500	101.500
Preconditioning =2, Sex =2, Weight =5[v]				
Head	22.000	18.248	10.000	43.000
Weight	540.000	33.407	504.000	570.000
Price	87.500	6.144	80.500	92.000
Preconditioning =2, Sex =2, Weight =6[w]				
Head	24.429	32.928	2.000	85.000
Weight	640.143	21.667	612.000	666.000
Price	78.571	2.849	73.500	81.500
Preconditioning =2, Sex =2, Weight =7[x]				
Head	30.500	19.092	17.000	44.000
Weight	758.500	33.234	735.000	782.000
Price	77.625	7.955	72.000	83.250

Table VII—5. Holdenville 2001 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 12 observations
[c] 27 observations
[d] 22 observations
[e] 4 observations
[f] 1 observations
[g] 12 observations
[h] 30 observations
[i] 19 observations
[j] 2 observations
[k] 1 observation
[l] 8 observations
[m] 10 observations
[n] 10 observations
[o] 4 observations
[p] 2 observations
[q] 6 observations
[r] 12 observations
[s] 6 observations
[t] 6 observations
[u] 6 observations
[v] 3 observations
[w] 7 observations
[x] 2 observations

Table VII-6. Idabel 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =1, Weight =3[ab]				
Head	1.000	0	1.000	1.000
Weight	365.500	33.204	300.000	395.000
Price	105.250	12.713	80.000	120.000
Preconditioning =1, Sex =1, Weight =4[c]				
Head	1.103	0.557	1.000	4.000
Weight	441.586	30.591	400.000	495.000
Price	98.741	7.829	76.000	109.000
Preconditioning =1, Sex =1, Weight =5[d]				
Head	1.000	0	1.000	1.000
Weight	543.269	31.111	500.000	590.000
Price	89.269	6.774	78.500	101.000
Preconditioning =1, Sex =1, Weight =6[e]				
Head	1.000	0	1.000	1.000
Weight	620.455	26.968	600.000	695.000
Price	80.273	3.085	75.000	85.000
Preconditioning =1, Sex =2, Weight =3[f]				
Head	1.000	0	1.000	1.000
Weight	355.000	20.000	335.000	375.000
Price	86.333	5.859	82.000	93.000
Preconditioning =1, Sex =2, Weight =4[g]				
Head	1.000	0	1.000	1.000
Weight	450.000	25.364	410.000	490.000
Price	85.594	5.931	75.000	98.000
Preconditioning =1, Sex =2, Weight =5[h]				
Head	1.000	0	1.000	1.000
Weight	538.000	28.442	510.000	595.000
Price	81.375	4.189	72.000	88.000
Preconditioning =1, Sex =2, Weight =6[i]				
Head	1.000	0	1.000	1.000
Weight	621.250	22.127	600.000	645.000
Price	78.875	0.629	78.000	79.500

Table VII-6. Idabel 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	1.000	0	1.000	1.000
Weight	370.625	12.939	350.000	390.000
Price	106.375	8.684	95.000	118.000
Preconditioning =1, Sex =3, Weight =4[k]				
Head	1.000	0	1.000	1.000
Weight	435.357	26.995	400.000	490.000
Price	101.179	7.162	90.000	114.000
Preconditioning =1, Sex =3, Weight =5[l]				
Head	1.000	0	1.000	1.000
Weight	532.500	25.249	500.000	575.000
Price	86.321	6.721	74.000	98.000
Preconditioning =2, Sex =3, Weight =6[m]				
Head	1.000	0	1.000	1.000
Weight	631.667	32.660	600.000	680.000
Price	76.583	3.308	73.500	82.500
Preconditioning =2, Sex =1, Weight =3[n]				
Head	3.200	4.638	1.000	12.000
Weight	336.200	45.301	265.000	390.000
Price	95.600	13.689	70.000	115.000
Preconditioning =2, Sex =1, Weight =4[o]				
Head	7.176	12.208	1.000	47.000
Weight	444.941	17.789	410.000	471.000
Price	91.176	11.435	67.000	109.000
Preconditioning =2, Sex =1, Weight =5[p]				
Head	26.545	25.928	1.000	87.000
Weight	540.455	32.306	505.000	599.000
Price	88.414	8.193	71.000	97.000
Preconditioning =2, Sex =1, Weight =6q				
Head	31.400	24.550	1.000	74.000
Weight	637.400	31.192	610.000	699.000
Price	82.550	5.778	73.000	87.750

Table VII-6. Idabel 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex =1, Weight =7[r]				
Head	36.167	22.480	8.000	69.000
Weight	739.667	45.143	706.000	822.000
Price	83.142	2.772	80.000	86.000
Preconditioning =2, Sex =2, Weight =3[s]				
Head	4.167	8.993	1.000	32.000
Weight	341.000	36.819	270.000	397.000
Price	97.167	6.379	87.000	106.000
Preconditioning =2, Sex =2, Weight =4[t]				
Head	8.750	12.927	1.000	35.000
Weight	446.833	25.048	400.000	476.000
Price	90.313	8.446	75.000	102.000
Preconditioning =2, Sex =2, Weight =5[u]				
Head	17.600	20.603	1.000	65.000
Weight	543.300	25.678	510.000	595.000
Price	77.740	13.150	41.000	84.300
Preconditioning =2, Sex =2, Weight =6[v]				
Head	12.900	9.480	1.000	32.000
Weight	653.100	33.696	624.000	696.000
Price	79.280	3.465	73.000	82.850
Preconditioning =2, Sex =2, Weight =7[w]				
Head	21.500	6.364	17.000	26.000
Weight	714.000	15.556	703.000	725.000
Price	78.775	0.035	78.750	78.800

Table VII—6.Idabel 2001 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 10 observations
[c] 29 observations
[d] 26 observations
[e] 11 observations
[f] 3 observations
[g] 16 observations
[h] 20 observations
[i] 4 observations
[j] 8 observations
[k] 14 observations
[l] 14 observations
[m] 6 observations
[n] 10 observations
[o] 17 observations
[p] 11observations
[q] 10 observations
[r] 6 observations
[s] 12 observations
[t] 12 observations
[u] 10 observations
[v] 10 observations
[w] 2 observations

Table VII-7. Woodward 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =1, Weight =3[ab]				
Head	10.125	6.357	4.000	23.000
Weight	350.500	37.887	311.000	396.000
Price	123.375	8.331	112.000	133.000
Preconditioning =1, Sex =1, Weight =4[c]				
Head	14.182	13.906	4.000	53.000
Weight	463.545	30.536	403.000	498.000
Price	100.545	6.521	84.500	112.000
Preconditioning =1, Sex =1, Weight =5[d]				
Head	19.167	15.225	1.000	57.000
Weight	556.417	25.468	515.000	588.000
Price	87.458	5.765	78.000	94.250
Preconditioning =1, Sex =1, Weight =6[e]				
Head	24.100	19.011	4.000	71.000
Weight	645.900	27.674	609.000	690.000
Price	83.310	5.357	73.000	89.000
Preconditioning =1, Sex =2, Weight =3[f]				
Head	24.100	19.011	4.000	71.000
Weight	645.900	27.674	609.000	690.000
Price	83.310	5.357	73.000	89.000
Preconditioning =1, Sex =2, Weight =4[g]				
Head	11.769	8.167	3.000	28.000
Weight	448.154	34.336	401.000	496.000
Price	87.423	8.284	69.000	100.000
Preconditioning =1, Sex =2, Weight =5[h]				
Head	13.444	7.418	4.000	28.000
Weight	555.889	29.578	500.000	585.000
Price	80.944	3.703	76.500	87.000
Preconditioning =1, Sex =2, Weight =6[i]				
Head	9.143	9.263	1.000	28.000
Weight	649.286	26.967	619.000	686.000
Price	74.500	1.848	72.000	77.000

Table VII-7. Woodward 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex =2, Weight =7[j]				
Head	7.000	-	7.000	7.000
Weight	720.000	-	720.000	720.000
Price	80.000	-	80.000	80.000
Preconditioning =1, Sex =3, Weight =3[k]				
Head	3.000	-	3.000	3.000
Weight	363.000	-	363.000	363.000
Price	122.000	-	122.000	122.000
Preconditioning =1, Sex =3, Weight =4[l]				
Head	11.000	10.424	2.000	26.000
Weight	443.500	29.894	405.000	478.000
Price	102.250	5.315	98.000	110.000
Preconditioning =2, Sex =3, Weight =5[m]				
Head	1.500	0.707	1.000	2.000
Weight	552.500	10.607	545.000	560.000
Price	74.500	2.121	73.000	76.000
Preconditioning =2, Sex =1, Weight =3[n]				
Head	4.000	3.162	1.000	9.000
Weight	318.800	46.013	255.000	375.000
Price	114.400	3.647	111.000	120.000
Preconditioning =2, Sex =1, Weight =4[o]				
Head	10.733	8.345	1.000	29.000
Weight	462.333	24.201	407.000	491.000
Price	103.000	9.411	75.000	110.000
Preconditioning =2, Sex =1, Weight =5[p]				
Head	14.483	13.048	1.000	51.000
Weight	550.690	25.153	509.000	588.000
Price	91.603	8.100	78.000	105.000
Preconditioning =2, Sex =1, Weight =6[q]				
Head	18.308	22.895	2.000	85.000
Weight	633.308	21.441	601.000	673.000
Price	84.615	3.005	79.500	88.750

Table VII-7. Woodward 2001 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex =1, Weight =7[r]				
Head	1.000	-	1.000	1.000
Weight	760.000	-	760.000	760.000
Price	65.000	-	65.000	65.000
Preconditioning =2, Sex =2, Weight =3[s]				
Head	6.333	5.502	1.000	15.000
Weight	349.333	56.613	253.000	395.000
Price	95.667	11.057	79.000	107.000
Preconditioning =2, Sex =2, Weight =4[t]				
Head	8.824	7.485	1.000	26.000
Weight	454.176	28.300	401.000	493.000
Price	87.147	6.317	74.000	97.000
Preconditioning =2, Sex =2, Weight =5[u]				
Head	13.500	8.569	1.000	33.000
Weight	538.500	25.708	504.000	595.000
Price	81.600	3.527	74.000	86.000
Preconditioning =2, Sex =2, Weight =6[v]				
Head	12.333	11.694	1.000	37.000
Weight	634.778	18.774	602.000	663.000
Price	78.206	4.801	67.000	83.000
Preconditioning =2, Sex =2, Weight =7[w]				
Head	1.000	-	1.000	1.000
Weight	725.000	-	725.000	725.000
Price	72.000	-	72.000	72.000
Preconditioning =2, Sex =3, Weight =6[x]				
Head	1.000	-	1.000	1.000
Weight	610.000	-	610.000	610.000
Price	66.000	-	66.000	66.000

Table VII—7. Woodward 2001 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 8 observations
[c] 11 observations
[d] 12 observations
[e] 10 observations
[f] 6 observations
[g] 13 observations
[h] 9 observations
[i] 7 observations
[j] 1 observation
[k] 1 observation
[l] 4 observations
[m] 2 observations
[n] 5 observations
[o] 15 observations
[p] 29observations
[q] 13 observations
[r] 1 observation
[s] 6 observations
[t] 17 observations
[u] 20 observations
[v] 9 observations
[w] 1 observation
[x] 1 observation

Table VII-8. El Reno 2002 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	7.000	1.414	6.000	8.000
Weight	394.000	0	394.000	394.000
Price	96.500	7.778	91.000	102.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	11.857	8.552	4.000	26.000
Weight	462.857	30.776	428.000	495.000
Price	94.643	4.018	90.000	100.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	23.188	23.752	3.000	88.000
Weight	551.000	35.336	500.000	592.000
Price	83.719	8.352	59.000	94.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	15.692	15.887	4.000	53.000
Weight	632.154	20.936	602.000	686.000
Price	79.481	5.089	69.000	87.000
Preconditioning =1, Sex=1, Weight=7[f]				
Head	20.333	10.693	11.000	32.000
Weight	721.333	27.970	700.000	753.000
Price	81.083	4.418	76.000	84.000
Preconditioning =1, Sex=2, Weight=3[g]				
Head	3.500	0.707	3.000	4.000
Weight	378.000	2.828	376.000	380.000
Price	87.000	2.828	85.000	89.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	5.571	4.183	2.000	19.000
Weight	430.071	25.515	408.000	498.000
Price	85.500	3.051	80.000	90.000
Preconditioning =1, Sex=2, Weight=5[i]				
Head	15.000	16.903	3.000	56.000
Weight	542.667	18.980	520.000	574.000
Price	79.567	4.354	72.500	88.000

Table VII-8. El Reno 2002 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	12.000	15.699	3.000	52.000
Weight	647.200	25.905	623.000	692.000
Price	74.900	3.540	70.500	82.750
Preconditioning =1, Sex=2, Weight=7[k]				
Head	24.000	-	24.000	24.000
Weight	766.000	-	766.000	766.000
Price	79.000	-	79.000	79.000
Preconditioning =1, Sex=3, Weight=3[l]				
Head	6.000	-	6.000	6.000
Weight	359.000	-	359.000	359.000
Price	112.000	-	112.000	112.000
Preconditioning =2, Sex=3, Weight=4[m]				
Head	4.500	1.773	3.000	8.000
Weight	449.500	26.598	410.000	491.000
Price	88.063	5.852	80.000	99.500
Preconditioning =1, Sex=3, Weight=5[n]				
Head	6.667	3.983	3.000	14.000
Weight	551.667	31.078	516.000	589.000
Price	79.667	7.474	70.000	91.000
Preconditioning =1, Sex=3, Weight=6[o]				
Head	7.000	2.530	4.000	10.000
Weight	634.167	18.904	609.000	655.000
Price	73.833	5.279	68.500	83.000
Preconditioning = 1, Sex = 3, Weight = 7[p]				
Head	3.500	0.707	3.000	4.000
Weight	709.000	12.728	700.000	718.000
Price	69.000	2.828	67.000	71.000
Preconditioning =2, Sex=1, Weight=3[q]				
Head	36.500	3.536	34.000	39.000
Weight	358.500	40.305	330.000	387.000
Price	118.000	0.707	117.500	118.500

Table VII-8. El Reno 2002 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=1, Weight=4[r]				
Head	78.111	40.956	27.000	152.000
Weight	460.444	41.434	409.000	499.000
Price	104.389	9.529	89.000	117.000
Preconditioning =2, Sex=1, Weight=5[s]				
Head	59.000	46.407	16.000	131.000
Weight	558.500	29.016	502.000	581.000
Price	89.667	4.480	83.500	97.000
Preconditioning =2, Sex =1, Weight =6[t]				
Head	34.167	29.369	9.000	84.000
Weight	646.500	27.311	621.000	694.000
Price	84.208	2.998	79.000	87.250
Preconditioning =2, Sex=1, Weight=7[u]				
Head	17.667	15.122	4.000	42.000
Weight	760.500	70.421	704.000	878.000
Price	81.667	2.523	79.000	85.000
Preconditioning =2, Sex=2, Weight=3[v]				
Head	18.000	1.414	17.000	19.000
Weight	356.000	59.397	314.000	698.000
Price	91.000	11.314	83.000	99.000
Preconditioning =2, Sex=2, Weight=4[w]				
Head	45.000	33.992	9.000	112.000
Weight	453.125	40.410	409.000	492.000
Price	89.750	10.078	72.000	102.500
Preconditioning =2, Sex=2, Weight=5[x]				
Head	31.143	38.727	5.000	113.000
Weight	555.143	21.287	513.000	577.000
Price	79.464	4.930	73.000	86.000
Preconditioning =2, Sex=2, Weight=6[y]				
Head	28.750	20.646	6.000	52.000
Weight	641.500	38.588	614.000	698.000
Price	80.400	1.870	78.500	82.600

Table VII-8. El Reno 2002 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex =2, Weight =7[z]				
Head	7.167	7.859	2.000	23.000
Weight	779.333	72.712	705.000	868.000
Price	72.875	3.216	70.000	77.750

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 2 observations
[c] 7 observations
[d] 16 observations
[e] 13 observations
[f] 3 observations
[g] 2 observations
[h] 14 observations
[i] 15 observations
[j] 10 observations
[k] 1 observation
[l] 1 observation
[m] 8 observations
[n] 6 observations
[o] 6 observations
[p] 2 observations
[q] 2 observations
[r] 9 observations
[s] 6 observations
[t] 6 observations
[u] 6 observations
[v] 2 observations
[w] 8 observations
[x] 7 observations
[y] 4 observations
[z] 6 observations

Table VII-9. El Reno 2002 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	10.800	8.198	3.000	24.000
Weight	361.800	18.130	335.000	377.000
Price	106.300	6.037	101.000	115.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	18.444	18.796	3.000	63.000
Weight	454.111	31.884	402.000	490.000
Price	93.389	10.024	80.000	110.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	8.917	5.195	4.000	21.000
Weight	554.417	36.100	508.000	598.000
Price	82.833	5.594	73.000	94.500
Preconditioning =1, Sex=1, Weight=6[e]				
Head	5.333	1.155	4.000	6.000
Weight	622.333	19.009	603.000	641.000
Price	81.500	3.041	79.500	85.000
Preconditioning =1, Sex=2, Weight=3[f]				
Head	12.125	10.439	3.000	27.000
Weight	356.750	40.847	266.000	399.000
Price	90.938	4.075	86.000	96.000
Preconditioning =1, Sex=2, Weight=4[g]				
Head	16.917	21.794	4.000	83.000
Weight	445.500	33.964	401.000	491.000
Price	83.917	3.579	75.000	88.000
Preconditioning =1, Sex=2, Weight=5[h]				
Head	13.667	7.146	4.000	23.000
Weight	539.667	33.756	504.000	591.000
Price	84.000	8.408	78.000	100.500
Preconditioning =1, Sex=2, Weight=6[i]				
Head	6.500	2.121	5.000	8.000
Weight	657.000	38.184	360.000	684.000
Price	77.500	0	77.500	77.500

Table VII-9. El Reno 2002 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	11.000	8.485	5.000	17.000
Weight	393.500	3.536	391.000	396.000
Price	94.450	1.344	93.500	95.400
Preconditioning =1, Sex=3, Weight=4[k]				
Head	19.500	3.536	17.000	22.000
Weight	484.000	2.828	482.000	486.000
Price	90.750	5.303	87.000	94.500
Preconditioning =1, Sex=3, Weight=5[l]				
Head	16.000	-	16.000	16.000
Weight	578.000	-	578.000	578.000
Price	84.750	-	84.750	84.750
Preconditioning =2, Sex=1, Weight=3[m]				
Head	17.000	-	17.000	17.000
Weight	330.000	-	330.000	330.000
Price	112.000	-	112.000	112.000
Preconditioning =2, Sex=1, Weight=4[n]				
Head	31.500	17.137	13.000	54.000
Weight	453.500	46.780	412.000	495.000
Price	104.125	12.539	87.000	113.500
Preconditioning =2, Sex=1, Weight=5[o]				
Head	28.500	16.299	16.000	51.000
Weight	566.000	39.030	508.000	592.000
Price	91.563	6.286	85.750	100.500
Preconditioning =2, Sex =1, Weight =6[p]				
Head	12.667	15.214	3.000	43.000
Weight	647.667	35.058	600.000	684.000
Price	80.250	4.204	75.000	87.500
Preconditioning =2, Sex=1, Weight=7[q]				
Head	21.000	-	21.000	21.000
Weight	705.000	-	705.000	705.000
Price	88.500	-	88.500	88.500

Table VII-9. El Reno 2002 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	23.000	-	23.000	23.000
Weight	324.000	-	324.000	324.000
Price	99.000	-	99.000	99.000
Preconditioning =2, Sex=2, Weight=4[s]				
Head	26.500	19.092	13.000	40.000
Weight	431.500	21.920	416.000	447.000
Price	89.250	1.061	88.500	90.000
Preconditioning =2, Sex =2, Weight =5[t]				
Head	23.333	19.806	3.000	52.000
Weight	546.000	34.205	512.000	587.000
Price	81.250	6.810	70.000	89.000
Preconditioning =2, Sex=1, Weight=6[u]				
Head	20.000	24.042	3.000	37.000
Weight	657.500	0.707	657.000	658.000
Price	77.750	7.425	72.500	83.000
Preconditioning =2, Sex=2, Weight=7[v]				
Head	6.500	2.121	5.000	8.000
Weight	763.000	22.627	747.000	779.000
Price	77.500	3.536	75.000	80.000

Table VII-9. El Reno 2002 Sale 2 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 5 observations
[c] 9 observations
[d] 12 observations
[e] 3 observations
[f] 8 observations
[g] 12 observations
[h] 6 observations
[i] 2 observations
[j] 2 observations
[k] 2 observations
[l] 1 observation
[m] 1 observation
[n] 4 observations
[o] 4 observations
[p] 6 observations
[q] 1 observation
[r] 1 observation
[s] 2 observations
[t] 6 observations
[u] 2 observations
[v] 2 observations

Table VII-10. Enid 2002 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	4.111	7.639	1.000	24.000
Weight	328.444	46.846	235.000	390.000
Price	99.056	22.218	51.000	118.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	8.105	7.534	1.000	20.000
Weight	442.789	34.751	400.000	497.000
Price	96.132	7.461	78.000	107.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	11.700	8.883	3.000	34.000
Weight	563.000	26.562	522.000	597.000
Price	90.850	4.150	85.000	98.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	2.667	1.371	1.000	5.000
Weight	657.250	26.007	620.000	692.000
Price	75.000	5.000	66.000	83.000
Preconditioning =1, Sex=1, Weight=7[f]				
Head	2.750	1.708	1.000	5.000
Weight	718.250	7.890	713.000	730.000
Price	75.250	4.735	68.500	79.000
Preconditioning =1, Sex=2, Weight=3[g]				
Head	8.538	7.344	1.000	21.000
Weight	361.692	32.646	311.000	395.000
Price	85.577	7.029	73.000	95.500
Preconditioning =1, Sex=2, Weight=4[h]				
Head	12.000	9.055	1.000	31.000
Weight	459.188	23.282	421.000	490.000
Price	80.344	3.673	76.000	91.500
Preconditioning =1, Sex=2, Weight=5[i]				
Head	9.154	12.233	1.000	47.000
Weight	550.154	32.769	500.000	597.000
Price	74.615	5.591	60.000	84.000

Table VII-10. Enid 2002 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	4.167	3.189	1.000	10.000
Weight	661.167	23.831	636.000	697.000
Price	71.833	2.338	70.000	75.500
Preconditioning =1, Sex=2, Weight=7[k]				
Head	1.000	-	1.000	1.000
Weight	705.000	-	705.000	705.000
Price	75.500	-	75.500	75.500
Preconditioning =1, Sex=3, Weight=4[l]				
Head	2.000	-	2.000	2.000
Weight	455.000	-	455.000	455.000
Price	86.000	-	86.000	86.000
Preconditioning =1, Sex=3, Weight=5[m]				
Head	4.667	4.803	1.000	14.000
Weight	541.167	34.695	502.000	592.000
Price	79.750	8.425	67.000	92.000
Preconditioning =1, Sex=3, Weight=6[n]				
Head	5.000	2.646	2.000	7.000
Weight	640.667	34.005	607.000	675.000
Price	76.333	4.368	71.500	80.000
Preconditioning =1, Sex=3, Weight=7[o]				
Head	1.000	0	1.000	1.000
Weight	745.000	22.913	725.000	770.000
Price	67.167	5.508	61.500	72.500
Preconditioning = 2, Sex = 1, Weight = 3[p]				
Head	4.083	9.756	1.000	35.000
Weight	282.250	60.976	195.000	380.000
Price	107.042	21.083	56.000	131.000
Preconditioning =2, Sex=1, Weight=4[q]				
Head	16.818	14.797	1.000	38.000
Weight	444.182	24.240	400.000	485.000
Price	99.364	11.910	76.000	113.000

Table VII-10. Enid 2002 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	12.250	9.765	3.000	29.000
Weight	549.500	33.590	500.000	599.000
Price	91.000	5.732	82.000	97.000
Preconditioning =2, Sex=1, Weight=6[s]				
Head	6.250	5.500	1.000	14.000
Weight	646.750	21.639	615.000	661.000
Price	78.125	5.344	71.000	83.500
Preconditioning =2, Sex =1, Weight =7[t]				
Head	7.500	6.364	3.000	12.000
Weight	766.500	9.192	760.000	773.000
Price	78.250	0.354	78.000	78.500
Preconditioning =2, Sex=2, Weight=3[u]				
Head	7.308	13.468	1.000	46.000
Weight	311.846	54.001	240.000	390.000
Price	97.000	14.539	71.000	212.500
Preconditioning =2, Sex=2, Weight=4[v]				
Head	22.909	16.040	1.000	38.000
Weight	436.545	23.981	407.000	482.000
Price	90.727	13.404	66.000	104.000
Preconditioning = 2, Sex = 2, Weight = 5[w]				
Head	19.000	12.590	3.000	38.000
Weight	544.600	23.191	520.000	575.000
Price	80.600	2.408	76.500	82.500
Preconditioning = 2, Sex = 2, Weight = 6[x]				
Head	5.000	-	5.000	5.000
Weight	622.000	-	622.000	622.000
Price	75.000	-	75.000	75.000
Preconditioning = 2, Sex = 2, Weight = 7[y]				
Head	5.000	1.414	4.000	6.000
Weight	712.500	10.607	705.000	720.000
Price	75.250	1.061	74.500	76.000

Table VII-10. Enid 2002 Sale 1 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 9 observations
[c] 19 observations
[d] 10 observations
[e] 12 observations
[f] 4 observations
[g] 13 observations
[h] 16 observations
[i] 13 observations
[j] 6 observations
[k] 1 observation
[l] 1 observation
[m] 6 observations
[n] 3 observations
[o] 3 observations
[p] 12observations
[q] 11 observations
[r] 8 observations
[s] 4 observations
[t] 2 observations
[u] 13 observations
[v] 11 observations
[w] 5 observations
[x] 1 observation
[y] 2 observations

Table VII-11. Enid 2002 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	3.500	3.536	1.000	6.000
Weight	360.500	27.577	341.000	380.000
Price	95.500	0.707	94.000	95.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	10.200	12.677	1.000	26.000
Weight	440.800	24.304	410.000	460.000
Price	90.100	3.681	85.000	94.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	4.555	7.108	1.000	23.000
Weight	561.222	23.889	520.000	590.000
Price	81.167	5.624	73.000	92.500
Preconditioning =1, Sex=1, Weight=6[e]				
Head	3.667	4.619	1.000	9.000
Weight	645.333	9.504	636.000	655.000
Price	75.833	8.036	70.000	85.000
Preconditioning =1, Sex=1, Weight=7[f]				
Head	3.200	2.168	1.000	6.000
Weight	741.000	50.641	703.000	830.000
Price	78.500	4.426	73.500	84.750
Preconditioning =1, Sex=2, Weight=3[g]				
Head	2.333	1.033	1.000	3.000
Weight	364.667	24.574	328.000	395.000
Price	83.667	7.312	75.000	91.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	5.600	4.452	1.000	13.000
Weight	441.500	28.072	410.000	486.000
Price	81.150	5.094	74.000	92.000
Preconditioning =1, Sex=2, Weight=5[i]				
Head	4.545	6.154	1.000	22.000
Weight	540.909	33.759	500.000	590.000
Price	76.977	4.357	69.000	85.500
Preconditioning =1, Sex=2, Weight=6[j]				
Head	1.000	0	1.000	1.000
Weight	626.667	37.528	605.000	670.000
Price	69.500	5.766	64.000	75.500

Table VII-11. Enid 2002 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=7[k]				
Head	1.000	-	1.000	1.000
Weight	805.000	-	805.000	805.000
Price	70.500	-	70.500	70.500
Preconditioning =1, Sex=3, Weight=4[l]				
Head	2.500	0.707	2.000	3.000
Weight	436.000	1.414	435.000	437.000
Price	79.000	9.899	72.000	86.000
Preconditioning =1, Sex=3, Weight=5[m]				
Head	4.500	4.950	1.000	8.000
Weight	527.500	3.536	525.000	530.000
Price	81.750	1.061	81.000	82.500
Preconditioning =1, Sex=3, Weight=6[n]				
Head	1.000	-	1.000	1.000
Weight	685.000	-	685.000	685.000
Price	71.500	-	71.500	71.500
Preconditioning =2, Sex=1, Weight=5[o]				
Head	25.000	-	25.000	25.000
Weight	575.000	-	575.000	575.000
Price	93.000	-	93.000	93.000
Preconditioning =2, Sex=1, Weight=6[p]				
Head	21.000	-	21.000	21.000
Weight	631.000	-	631.000	631.000
Price	84.000	-	84.000	84.000
Preconditioning =2, Sex=1, Weight=7[q]				
Head	11.000	-	11.000	11.000
Weight	726.000	-	726.000	726.000
Price	82.100	-	82.100	82.100
Preconditioning =2, Sex=2, Weight=5[r]				
Head	20.000	-	20.000	20.000
Weight	547.000	-	547.000	547.000
Price	83.000	-	83.000	83.000
Preconditioning =2, Sex =2, Weight =6[s]				
Head	29.000	-	29.000	29.000
Weight	620.000	-	620.000	620.000
Price	79.750	-	79.750	79.750

Table VII-11. Enid 2002 Sale 2 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 2 observations
[c] 5 observations
[d] 9 observations
[e] 3 observations
[f] 5 observations
[g] 6 observations
[h] 10 observations
[i] 11 observations
[j] 3 observations
[k] 1 observation
[l] 2 observations
[m] 2 observations
[n] 1 observation
[o] 1 observation
[p] 1 observation
[q] 1 observation
[r] 1 observation
[s] 1 observation

Table VII-12. Holdenville 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	2.429	1.902	1.000	6.000
Weight	362.857	21.683	328.000	390.000
Price	101.929	9.057	83.000	110.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	1.615	1.098	1.000	5.000
Weight	444.423	27.464	403.000	498.000
Price	83.904	12.883	57.000	105.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	1.389	0.916	1.000	4.000
Weight	543.111	29.645	500.000	590.000
Price	74.028	11.509	40.000	89.000
Preconditioning =1, Sex=1, Weight=7[e]				
Head	2.000	-	2.000	2.000
Weight	705.000	-	705.000	705.000
Price	70.500	-	70.500	70.500
Preconditioning =1, Sex=2, Weight=3[f]				
Head	2.000	1.826	1.000	8.000
Weight	365.000	17.941	325.000	390.000
Price	83.344	10.329	62.000	107.500
Preconditioning =1, Sex=2, Weight=4[g]				
Head	1.649	1.379	1.000	6.000
Weight	451.027	28.444	400.000	495.000
Price	74.568	10.400	37.000	98.500
Preconditioning =1, Sex=2, Weight=5[h]				
Head	2.167	2.595	1.000	11.000
Weight	537.389	29.720	500.000	595.000
Price	72.528	9.177	51.000	81.000
Preconditioning =1, Sex=2, Weight=6[i]				
Head	1.000	0	1.000	1.000
Weight	652.143	36.269	605.000	695.000
Price	71.214	4.636	65.000	78.000
Preconditioning =1, Sex=2, Weight=7[j]				
Head	2.000	-	2.000	2.000
Weight	710.000	-	710.000	710.000
Price	70.000	-	70.000	70.000

Table VII-12. Holdenville 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=3, Weight=3[k]				
Head	1.000	0	1.000	1.000
Weight	377.000	9.747	365.000	390.000
Price	89.400	18.474	58.000	105.000
Preconditioning =1, Sex=3, Weight=4[l]				
Head	1.500	0.972	1.000	4.000
Weight	457.600	25.074	420.000	495.000
Price	86.650	5.411	79.000	98.000
Preconditioning =2, Sex=3, Weight=5[m]				
Head	1.833	1.403	1.000	5.000
Weight	554.500	28.956	512.000	590.000
Price	77.083	5.035	69.500	88.000
Preconditioning =1, Sex=3, Weight=6[n]				
Head	3.000	-	3.000	3.000
Weight	670.000	-	670.000	670.000
Price	71.000	-	71.000	71.000
Preconditioning =2, Sex=1, Weight=3[o]				
Head	2.500	1.975	1.000	6.000
Weight	372.167	16.964	350.000	388.000
Price	87.583	16.023	69.000	108.500
Preconditioning =2, Sex=1, Weight=4[p]				
Head	2.200	1.476	1.000	5.000
Weight	443.100	29.524	405.000	493.000
Price	84.500	9.156	70.000	95.500
Preconditioning =2, Sex=1, Weight=5[q]				
Head	3.800	2.974	1.000	10.000
Weight	537.700	28.578	507.000	589.000
Price	81.150	5.667	73.000	88.500
Preconditioning =2, Sex=1, Weight=6[r]				
Head	2.000	1.414	1.000	3.000
Weight	681.000	1.414	680.000	682.000
Price	76.500	0.707	76.000	77.000
Preconditioning =2, Sex =1, Weight =7[s]				
Head	4.000	-	4.000	4.000
Weight	719.000	-	719.000	719.000
Price	75.000	-	75.000	75.000

Table VII-12. Holdenville 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=2, Weight=3[t]				
Head	9.091	14.460	1.000	50.000
Weight	350.909	38.430	275.000	390.000
Price	85.750	8.498	66.000	97.500
Preconditioning =2, Sex=2, Weight=4[u]				
Head	10.400	11.012	1.000	34.000
Weight	438.333	25.900	400.000	476.000
Price	79.117	8.432	60.000	92.000
Preconditioning =2, Sex=2, Weight=5[v]				
Head	4.600	2.702	1.000	8.000
Weight	530.400	26.092	505.000	573.000
Price	78.000	8.811	63.000	86.000
Preconditioning =2, Sex=2, Weight=6[w]				
Head	6.000	8.660	1.000	16.000
Weight	652.667	10.786	645.000	665.000
Price	71.917	3.987	67.500	75.250

Table VII-12. Holdenville 2002 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 7 observations
[c] 26 observations
[d] 18 observations
[e] 1 observation
[f] 16 observations
[g] 37 observations
[h] 18 observations
[i] 7 observations
[j] 1 observation
[k] 5 observations
[l] 10 observations
[m] 12 observations
[n] 1 observation
[o] 6 observations
[p] 10observations
[q] 10 observations
[r] 2 observations
[s] 1 observation
[t] 11 observations
[u] 15 observations
[v] 5 observations
[w] 3 observations

Table VII-13. Idabel 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	1.000	0	1.000	1.000
Weight	371.250	9.543	355.000	385.000
Price	92.938	11.233	77.000	107.500
Preconditioning =1, Sex=1, Weight=4[c]				
Head	1.000	0	1.000	1.000
Weight	455.417	28.745	400.000	495.000
Price	85.056	7.457	65.000	100.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	1.000	0	1.000	1.000
Weight	550.762	32.337	500.000	585.000
Price	80.786	5.898	69.000	91.500
Preconditioning =1, Sex=1, Weight=6[e]				
Head	1.000	0	1.000	1.000
Weight	607.000	7.583	600.000	620.000
Price	72.800	4.087	69.000	78.000
Preconditioning =1, Sex=2, Weight=3[f]				
Head	1.000	0	1.000	1.000
Weight	370.455	16.652	350.000	395.000
Price	76.000	12.017	57.000	91.000
Preconditioning =1, Sex=2, Weight=4[g]				
Head	1.000	0	1.000	1.000
Weight	452.647	27.106	405.000	495.000
Price	70.559	8.602	54.000	83.000
Preconditioning =1, Sex=2, Weight=5[h]				
Head	1.000	0	1.000	1.000
Weight	545.000	32.016	505.000	595.000
Price	70.278	4.829	65.000	81.000
Preconditioning =1, Sex=2, Weight=6[i]				
Head	1.000	0	1.000	1.000
Weight	628.333	36.171	605.000	670.000
Price	72.000	3.000	69.000	75.000

Table VII-13. Idabel 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	1.000	0	1.000	1.000
Weight	332.500	10.607	325.000	340.000
Price	113.500	4.950	110.000	117.000
Preconditioning =2, Sex=1, Weight=4[k]				
Head	4.000	3.808	1.000	10.000
Weight	442.667	25.817	408.000	495.000
Price	92.844	7.808	75.000	102.250
Preconditioning =2, Sex=1, Weight=5[l]				
Head	8.133	6.093	1.000	19.000
Weight	553.600	31.259	506.000	597.000
Price	81.680	7.106	62.000	89.200
Preconditioning =2, Sex=1, Weight=6[m]				
Head	20.667	12.832	8.000	43.000
Weight	648.500	35.036	616.000	689.000
Price	78.950	4.026	71.000	82.000
Preconditioning =2, Sex=1, Weight=7[n]				
Head	7.833	10.852	1.000	29.000
Weight	782.500	58.579	709.000	868.000
Price	75.417	3.689	70.500	79.100
Preconditioning 2 =, Sex=2, Weight=3[o]				
Head	7.333	5.610	2.000	17.000
Weight	374.000	20.572	347.000	397.000
Price	86.600	9.906	75.000	105.000
Preconditioning = 2, Sex = 2, Weight = 4[p]				
Head	4.000	4.285	1.000	14.000
Weight	443.917	27.862	400.000	495.000
Price	77.850	8.907	64.000	95.500
Preconditioning =2, Sex=2, Weight=5[q]				
Head	10.000	8.496	1.000	23.000
Weight	538.500	29.632	500.000	587.000
Price	76.400	3.876	70.000	81.750

Table VII-13. Idabel 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Head	17.500	15.155	1.000	37.000
Weight	639.000	30.177	604.000	668.000
Price	73.300	5.227	65.500	76.500
Preconditioning =2, Sex=2, Weight=7[s]				
Head	11.500	11.387	1.000	26.000
Weight	737.250	48.328	703.000	808.000
Price	71.413	5.869	65.000	77.400

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 8 observations
[c] 36 observations
[d] 21 observations
[e] 5 observations
[f] 11 observations
[g] 17 observations
[h] 9 observations
[i] 3 observations
[j] 2 observations
[k] 9 observations
[l] 15 observations
[m] 6 observations
[n] 6 observations
[o] 6 observations
[p] 12observations
[q] 10 observations
[r] 4 observations

Table VII-14. Woodward 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	6.875	5.890	1.000	18.000
Weight	349.250	52.679	242.000	394.000
Price	103.000	16.484	70.000	120.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	9.000	10.755	1.000	46.000
Weight	455.895	32.149	402.000	496.000
Price	101.592	10.077	76.000	118.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	18.667	14.660	4.000	56.000
Weight	545.000	26.253	501.000	596.000
Price	94.723	5.692	84.000	105.500
Preconditioning =1, Sex=1, Weight=6[e]				
Head	17.576	16.132	1.000	81.000
Weight	645.212	27.513	600.000	695.000
Price	84.639	8.516	71.000	91.000
Preconditioning =1, Sex=1, Weight=7[f]				
Head	8.800	6.613	1.000	23.000
Weight	746.900	35.719	703.000	805.000
Price	77.100	12.595	47.000	84.000
Preconditioning =1, Sex=2, Weight=3[g]				
Head	7.500	10.565	1.000	34.000
Weight	327.100	59.566	234.000	397.000
Price	99.825	13.525	71.000	115.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	11.294	9.930	1.000	35.000
Weight	453.647	30.315	401.000	496.000
Price	89.662	6.341	79.000	107.000
Preconditioning =1, Sex=2, Weight=5[i]				
Head	4.500	2.380	3.000	8.000
Weight	730.000	20.445	705.000	753.000
Price	78.375	0.946	77.000	79.000

Table VII-14. Woodward 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=6[j]				
Head	14.619	8.703	1.000	36.000
Weight	634.095	27.944	600.000	697.000
Price	78.462	8.825	41.000	83.500
Preconditioning =1, Sex=2, Weight=7[k]				
Head	4.500	2.380	3.000	8.000
Weight	730.000	20.445	705.000	753.000
Price	78.375	0.946	77.000	79.000
Preconditioning =1, Sex=3, Weight=3[l]				
Head	2.000	1.414	1.000	3.000
Weight	368.500	16.263	357.000	380.000
Price	106.500	7.778	101.000	112.000
Preconditioning =2, Sex=3, Weight=4[m]				
Head	3.000	0	3.000	3.000
Weight	455.000	59.397	413.000	497.000
Price	97.500	9.192	91.000	104.000
Preconditioning =1, Sex=3, Weight=5[n]				
Head	7.000	5.657	3.000	11.000
Weight	524.000	9.899	517.000	531.000
Price	87.500	12.021	79.000	96.000
Preconditioning =1, Sex=3, Weight=6[o]				
Head	2.000	0	2.000	2.000
Weight	639.333	31.005	608.000	670.000
Price	88.667	7.638	74.000	89.000
Preconditioning =2, Sex=1, Weight=3[p]				
Head	5.000	-	5.000	5.000
Weight	237.000	-	237.000	237.000
Price	84.750	-	84.750	84.750
Preconditioning =2, Sex=1, Weight=4[q]				
Head	3.000	-	3.000	3.000
Weight	460.000	-	460.000	460.000
Price	102.000	-	102.000	102.000

Table VII-14. Woodward 2002 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=1, Weight=5[r]				
Head	4.500	0.707	4.000	5.000
Weight	577.500	9.192	571.000	584.000
Price	87.500	4.950	84.000	91.000
Preconditioning =2, Sex =1, Weight =6[s]				
Head	11.800	10.891	1.000	38.000
Weight	650.900	25.278	600.000	688.000
Price	83.875	7.406	65.000	91.500
Preconditioning =2, Sex=1, Weight=7[t]				
Head	16.400	15.469	6.000	43.000
Weight	741.400	29.938	713.000	786.000
Price	82.820	2.042	80.500	85.350
Preconditioning =2, Sex=2, Weight=4[u]				
Head	1.667	1.155	1.000	3.000
Weight	451.000	38.510	413.000	490.000
Price	81.667	18.771	60.000	93.000
Preconditioning =2, Sex=2, Weight=5[v]				
Head	14.000	12.193	1.000	29.000
Weight	563.000	30.277	525.000	599.000
Price	80.453	2.697	77.000	83.100
Preconditioning =2, Sex=2, Weight=6[w]				
Head	24.500	12.557	12.000	40.000
Weight	639.500	30.903	601.000	670.000
Price	81.050	0.858	80.000	82.100
Preconditioning =2, Sex=2, Weight=7[x]				
Head	22.000	-	22.000	22.000
Weight	724.000	-	724.000	724.000
Price	86.000	-	86.000	86.000

Table VII-14. Woodward 2002 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 8 observations
[c] 19 observations
[d] 24 observations
[e] 33 observations
[f] 10 observations
[g] 10 observations
[h] 17 observations
[i] 25 observations
[j] 21 observations
[k] 4 observations
[l] 2 observations
[m] 2 observations
[n] 2 observations
[o] 3 observations
[p] 1 observation
[q] 1 observation
[r] 2 observations
[s] 10 observations
[t] 5 observations
[u] 3 observations
[v] 4 observations
[w] 4 observations
[x] 1 observation

Table VII-15. El Reno 2003 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	5.000	1.414	4.000	6.000
Weight	371.000	18.375	358.000	384.000
Price	121.000	9.900	114.000	128.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	12.077	15.772	4.000	63.000
Weight	460.923	26.513	416.000	496.000
Price	114.808	7.631	102.000	127.500
Preconditioning =1, Sex=1, Weight=5[d]				
Head	19.444	24.815	3.000	120.000
Weight	549.370	28.304	509.000	597.000
Price	104.333	7.980	88.000	116.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	31.714	28.029	3.000	96.000
Weight	641.286	29.037	605.000	688.000
Price	97.750	7.575	85.000	107.500
Preconditioning =1, Sex=1, Weight=7[f]				
Head	16.750	15.586	5.000	39.000
Weight	749.000	10.198	739.000	763.000
Price	96.750	6.021	89.000	102.000
Preconditioning =1, Sex=2, Weight=3[g]				
Head	5.500	2.121	4.000	7.000
Weight	394.000	1.414	393.000	395.000
Price	113.000	1.414	112.000	114.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	14.143	11.838	3.000	50.000
Weight	449.143	27.857	403.000	495.000
Price	103.905	4.392	96.000	110.000
Preconditioning =1, Sex=2, Weight=5[i]				
Head	21.667	19.986	3.000	85.000
Weight	548.625	27.211	500.000	597.000
Price	94.542	5.227	86.000	106.500

Table VII-15. El Reno 2003 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=6[j]				
Head	32.571	34.847	4.000	99.000
Weight	641.714	15.141	629.000	673.000
Price	94.714	4.101	87.500	101.000
Preconditioning =1, Sex=2, Weight=7[k]				
Head	7.500	4.950	4.000	11.000
Weight	754.000	55.154	715.000	793.000
Price	90.500	0.707	90.000	91.000
Preconditioning =1, Sex=3, Weight=4[l]				
Head	11.333	6.658	4.000	17.000
Weight	483.000	15.000	468.000	498.000
Price	110.333	2.517	108.000	113.000
Preconditioning =1, Sex=3, Weight=5[m]				
Head	9.286	6.211	3.000	20.000
Weight	533.000	19.253	505.000	555.000
Price	98.286	2.812	95.000	103.000
Preconditioning =1, Sex=3, Weight=6[n]				
Head	7.000	-	7.000	7.000
Weight	669.000	-	669.000	669.000
Price	96.000	-	93.000	93.000
Preconditioning =1, Sex=3, Weight=7[o]				
Head	7.000	-	7.000	7.000
Weight	718.000	-	718.000	718.000
Price	85.000	-	85.000	85.000
Preconditioning =2, Sex=1, Weight=3[p]				
Head	33.000	-	33.000	33.000
Weight	317.000	-	317.000	317.000
Price	146.000	-	146.000	146.000
Preconditioning =2, Sex=1, Weight=4[q]				
Head	42.667	31.513	3.000	93.000
Weight	442.000	37.678	410.000	491.000
Price	122.417	13.987	98.000	135.500

Table VII-15. El Reno 2003 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=1, Weight=5[r]				
Head	43.333	31.500	4.000	79.000
Weight	534.167	30.235	500.000	566.000
Price	109.750	8.612	96.000	119.000
Preconditioning =2, Sex=1, Weight=6[s]				
Head	30.250	24.905	4.000	53.000
Weight	638.000	22.642	611.000	666.000
Price	100.000	7.394	89.000	105.000
Preconditioning =2, Sex =1, Weight =7[t]				
Head	20.500	8.963	12.000	32.000
Weight	741.500	40.698	714.000	802.000
Price	101.625	3.750	97.500	105.500
Preconditioning =2, Sex=2, Weight=3[u]				
Head	37.500	14.849	27.000	48.000
Weight	361.000	48.083	327.000	395.000
Price	120.500	6.364	116.000	125.000
Preconditioning =2, Sex=2, Weight=4[v]				
Head	18.800	19.499	1.000	49.000
Weight	448.400	34.392	415.000	487.000
Price	101.000	13.192	88.000	120.000
Preconditioning =2, Sex=2, Weight=5[w]				
Head	36.714	23.880	2.000	59.000
Weight	535.143	39.057	502.000	587.000
Price	99.929	9.480	86.000	113.000
Preconditioning =2, Sex=2, Weight=6[x]				
Head	14.750	14.546	3.000	34.000
Weight	654.250	28.088	631.000	695.000
Price	91.625	8.097	81.000	99.500
Preconditioning =2, Sex=2, Weight=7[y]				
Head	9.000	1.732	8.000	11.000
Weight	739.000	38.314	713.000	783.000
Price	90.667	1.155	90.000	92.000

TableVII-15. El Reno 2003 Sale 1 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 2 observations
[c] 13 observations
[d] 27 observations
[e] 14 observations
[f] 4 observations
[g] 2 observations
[h] 21 observations
[i] 24 observations
[j] 7 observations
[k] 2 observations
[l] 3 observations
[m] 7 observations
[n] 1 observation
[o] 1 observation
[p] 1 observation
[q] 6 observations
[r] 6 observations
[s] 4 observations
[t] 4 observations
[u] 2 observations
[v] 5 observations
[w] 7 observations
[x] 4 observation
[y] 3 observations

Table VII-16. El Reno 2003 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	8.000	7.053	3.000	25.000
Weight	354.111	36.081	268.000	382.000
Price	136.778	6.534	130.000	150.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	8.611	8.479	3.000	39.000
Weight	444.389	31.296	400.000	495.000
Price	122.139	12.093	96.000	141.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	15.200	11.015	3.000	37.000
Weight	540.700	25.742	502.000	592.000
Price	112.700	7.340	90.000	122.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	17.611	19.728	3.000	74.000
Weight	650.722	25.646	601.000	690.000
Price	102.972	5.234	90.000	110.000
Preconditioning =1, Sex=1, Weight=7[f]				
Head	13.000	6.557	6.000	19.000
Weight	738.333	13.796	728.000	754.000
Price	99.833	4.368	95.000	103.500
Preconditioning =1, Sex=2, Weight=3[g]				
Head	7.545	5.410	3.000	20.000
Weight	356.636	33.803	289.000	394.000
Price	118.273	6.246	104.000	125.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	9.875	10.620	3.000	41.000
Weight	446.750	30.482	403.000	495.000
Price	113.813	9.361	91.000	125.000
Preconditioning =1, Sex=2, Weight=5[i]				
Head	11.348	8.348	3.000	27.000
Weight	545.609	29.353	500.000	595.000
Price	100.174	6.591	89.000	114.000

Table VII-16. El Reno 2003 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=6[j]				
Head	9.571	14.397	3.000	42.000
Weight	637.857	31.185	603.000	678.000
Price	96.071	2.745	91.000	99.500
Preconditioning =1, Sex=2, Weight=7[k]				
Head	9.667	10.693	3.000	22.000
Weight	718.667	19.140	703.000	740.000
Price	95.000	3.279	92.000	98.500
Preconditioning =1, Sex=3, Weight=3[l]				
Head	4.667	2.309	2.000	6.000
Weight	373.000	31.225	338.000	398.000
Price	126.000	8.888	116.000	133.000
Preconditioning =1, Sex=3, Weight=4[m]				
Head	5.000	0	5.000	5.000
Weight	459.500	21.920	444.000	475.000
Price	110.500	0.707	110.000	111.000
Preconditioning =1, Sex=3, Weight=5[n]				
Head	5.400	2.702	3.000	10.000
Weight	525.800	9.094	515.000	534.000
Price	107.600	2.408	105.000	111.000
Preconditioning =1, Sex=3, Weight=6[o]				
Head	3.000	-	3.000	3.000
Weight	612.000	-	612.000	612.000
Price	99.000	-	99.000	99.000
Preconditioning =2, Sex=1, Weight=3[p]				
Head	4.333	5.774	1.000	11.000
Weight	358.000	13.115	344.000	370.000
Price	134.667	14.572	123.000	151.000
Preconditioning =2, Sex=1, Weight=4[q]				
Head	11.167	11.179	1.000	27.000
Weight	434.000	25.361	410.000	479.000
Price	124.667	12.307	108.000	139.000

Table VII-16. El Reno 2003 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=1, Weight=5[r]				
Head	43.875	36.600	1.000	86.000
Weight	549.375	35.605	508.000	585.000
Price	111.938	10.044	96.000	125.000
Preconditioning =2, Sex =1, Weight =6[s]				
Head	55.667	28.572	26.000	83.000
Weight	661.000	11.000	650.000	672.000
Price	106.667	3.547	103.500	110.500
Preconditioning =2, Sex=1, Weight=7[t]				
Head	13.000	12.917	1.000	42.000
Weight	750.000	50.026	700.000	830.000
Price	100.625	3.998	96.000	108.000
Preconditioning =2, Sex=2, Weight=3[u]				
Head	15.000	-	15.000	15.000
Weight	356.000	-	356.000	356.000
Price	115.000	-	115.000	115.000
Preconditioning =2, Sex=2, Weight=4[v]				
Head	18.333	10.693	6.000	25.000
Weight	427.333	13.868	412.000	439.000
Price	118.667	4.509	114.000	123.000
Preconditioning =2, Sex=2, Weight=5[w]				
Head	34.444	28.632	1.000	66.000
Weight	544.556	30.088	507.000	590.000
Price	103.889	7.781	95.000	118.000
Preconditioning =2, Sex=2, Weight=6[x]				
Head	33.333	27.006	6.000	60.000
Weight	646.667	16.289	628.000	658.000
Price	98.333	3.512	95.000	102.000
Preconditioning =2, Sex=2, Weight=7[y]				
Head	14.500	6.364	10.000	19.000
Weight	729.000	9.899	722.000	736.000
Price	97.950	3.465	95.500	100.400

TableVII-16. El Reno 2003 Sale 2 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 9 observations
[c] 18 observations
[d] 20 observations
[e] 18 observations
[f] 3 observations
[g] 11 observations
[h] 16 observations
[i] 23 observations
[j] 7 observations
[k] 3 observations
[l] 3 observations
[m] 2 observations
[n] 5 observations
[o] 1 observation
[p] 3 observation
[q] 6 observations
[r] 8 observations
[s] 3 observations
[t] 8 observations
[u] 1 observation
[v] 3 observations
[w] 9 observations
[x] 3 observations
[y] 2 observations

Table VII-17. Enid 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	2.500	2.258	1.000	7.000
Weight	352.333	39.231	295.000	392.000
Price	123.5	7.120	114.000	131.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	13.500	16.299	1.000	36.000
Weight	449.000	33.277	420.000	495.000
Price	122.250	1.848	120.500	124.500
Preconditioning =1, Sex=1, Weight=5[d]				
Head	7.000	8.544	2.000	22.000
Weight	566.600	19.113	541.000	592.000
Price	103.150	8.849	93.500	115.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	16.500	16.263	5.000	28.000
Weight	652.000	38.184	625.000	679.000
Price	99.250	5.303	95.500	103.000
Preconditioning =1, Sex=2, Weight=3[f]				
Head	7.400	6.950	2.000	19.000
Weight	356.400	38.214	306.000	395.000
Price	108.000	11.710	89.500	120.000
Preconditioning =1, Sex=2, Weight=4[g]				
Head	17.667	9.852	5.000	32.000
Weight	459.500	32.316	403.000	492.000
Price	105.167	4.622	97.000	110.000
Preconditioning =1, Sex=2, Weight=5[h]				
Head	9.727	6.857	2.000	20.000
Weight	548.000	32.812	513.000	597.000
Price	94.591	5.856	82.500	102.500
Preconditioning =1, Sex=2, Weight=6[i]				
Head	5.500	6.364	1.000	10.000
Weight	643.000	18.385	630.000	656.000
Price	91.000	0	91.000	91.000

Table VII-17. Enid 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=3, Weight=4[j]				
Head	16.750	8.421	7.000	26.000
Weight	450.750	22.500	418.000	469.000
Price	106.750	8.150	97.500	115.000
Preconditioning =1, Sex=3, Weight=5[k]				
Head	5.000	1.000	4.000	6.000
Weight	533.667	12.702	419.000	541.000
Price	96.167	4.481	91.000	99.000
Preconditioning =1, Sex=3, Weight=6[l]				
Head	7.500	2.121	6.000	9.000
Weight	634.500	40.305	606.000	663.000
Price	92.000	5.657	88.000	96.000
Preconditioning =2, Sex=1, Weight=3[m]				
Head	12.800	11.606	1.000	29.000
Weight	329.600	49.948	275.000	381.000
Price	129.600	11.437	110.000	137.000
Preconditioning =2, Sex=1, Weight=4[n]				
Head	23.000	27.459	2.000	63.000
Weight	460.750	29.398	425.000	497.000
Price	116.750	10.404	102.000	125.000
Preconditioning =2, Sex=1, Weight=5[o]				
Head	23.857	13.570	10.000	49.000
Weight	549.714	32.536	509.000	595.000
Price	107.214	6.370	97.000	113.500
Preconditioning = 2, Sex = 1, Weight = 6[p]				
Head	14.333	1.155	13.000	15.000
Weight	657.000	36.510	621.000	694.000
Price	96.500	9.987	85.500	105.000
Preconditioning =2, Sex=1, Weight=7[q]				
Head	4.000	-	4.000	4.000
Weight	702.000	-	702.000	702.000
Price	94.000	-	94.000	94.000

Table VII-17. Enid 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=2, Weight=3[r]				
Head	27.167	22.058	1.000	67.000
Weight	345.167	33.985	296.000	393.000
Price	121.333	10.629	108.000	139.000
Preconditioning =2, Sex=2, Weight=4[s]				
Head	24.250	19.898	1.000	57.000
Weight	449.500	31.305	402.000	496.000
Price	109.500	8.194	93.000	120.000
Preconditioning =2, Sex =2, Weight =5[t]				
Head	19.889	11.385	2.000	40.000
Weight	538.889	38.722	503.000	593.000
Price	99.000	4.366	91.500	103.000
Preconditioning =2, Sex=2, Weight=6[u]				
Head	13.667	6.028	8.000	20.000
Weight	614.000	16.462	604.000	633.000
Price	93.333	1.528	92.000	95.000
Preconditioning =2, Sex=2, Weight=7[v]				
Head	1.000	-	1.000	1.000
Weight	805.000	-	805.000	805.000
Price	80.000	-	80.000	80.000

Table VII-17. Enid 2003 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 6 observations
[c] 4 observations
[d] 5 observations
[e] 2 observations
[f] 5 observations
[g] 6 observations
[h] 11 observations
[i] 2 observations
[j] 4 observations
[k] 3 observations
[l] 2 observations
[m] 5 observations
[n] 4 observations
[o] 7 observations
[p] 3 observations
[q] 1 observation
[r] 6 observations
[s] 8 observations
[t] 9 observations
[u] 3 observations
[v] 1 observation

Table VII-18. Tulsa 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	2.429	1.512	1.000	5.000
Weight	314.000	64.304	238.000	393.000
Price	105.929	16.100	70.000	117.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	3.000	3.098	1.000	9.000
Weight	441.000	20.552	405.000	458.000
Price	104.583	16.329	76.000	119.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	9.200	21.123	1.000	69.000
Weight	560.200	18.826	525.000	596.000
Price	98.750	8.407	82.000	106.500
Preconditioning =1, Sex=1, Weight=6[e]				
Head	21.429	29.619	1.000	77.000
Weight	636.714	29.222	609.000	674.000
Price	101.364	1.634	99.000	103.500
Preconditioning =1, Sex=1, Weight=7[f]				
Head	6.500	6.364	2.000	11.000
Weight	772.500	74.246	720.000	825.000
Price	95.750	8.839	89.500	102.000
Preconditioning =1, Sex=2, Weight=3[g]				
Head	1.400	0.548	1.000	2.000
Weight	374.600	14.775	360.000	395.000
Price	105.600	5.079	99.000	112.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	6.222	13.084	1.000	41.000
Weight	471.000	18.289	440.000	495.000
Price	93.583	3.558	89.000	98.500
Preconditioning =1, Sex=2, Weight=5[i]				
Head	16.000	31.882	1.000	106.000
Weight	556.700	22.711	500.000	580.000
Price	94.795	2.175	92.000	98.000

Table VII-18. Tulsa 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=6[j]				
Head	18.500	24.474	4.000	55.000
Weight	634.750	16.460	620.000	657.000
Price	92.425	1.150	91.000	93.500
Preconditioning =1, Sex=3, Weight=3[k]				
Head	1.500	0.707	1.000	2.000
Weight	357.500	38.891	330.000	385.000
Price	116.500	12.021	108.000	125.000
Preconditioning =1, Sex=3, Weight=4[l]				
Head	1.000	-	1.000	1.000
Weight	435.000	-	435.000	435.000
Price	110.000	-	110.000	110.000
Preconditioning =1, Sex=3, Weight=5[m]				
Head	1.000	0	1.000	1.000
Weight	582.500	17.678	570.000	595.000
Price	88.000	2.828	86.000	90.000
Preconditioning =1, Sex=3, Weight=6[n]				
Head	1.000	-	1.000	1.000
Weight	625.000	-	625.000	625.000
Price	90.000	-	90.000	90.000
Preconditioning =2, Sex=1, Weight=3[o]				
Head	3.000	1.581	1.000	5.000
Weight	349.600	17.213	338.000	379.000
Price	124.800	4.658	120.000	131.000
Preconditioning = 2, Sex = 1, Weight = 4[p]				
Head	3.250	3.105	1.000	8.000
Weight	445.125	30.216	400.000	495.000
Price	118.500	5.451	111.000	126.000
Preconditioning =2, Sex=1, Weight=5[q]				
Head	10.500	5.802	3.000	16.000
Weight	460.750	43.362	503.000	597.000
Price	109.063	6.672	102.000	116.250

Table VII-18. Tulsa 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=1, Weight=6[r]				
Head	7.500	4.041	2.000	11.000
Weight	649.750	36.491	609.000	683.000
Price	102.375	2.750	98.500	105.000
Preconditioning =2, Sex=2, Weight=3[s]				
Head	2.333	1.528	1.000	4.000
Weight	332.000	69.477	255.000	390.000
Price	116.667	6.028	111.000	123.000
Preconditioning =2, Sex =2, Weight =4[t]				
Head	4.429	3.047	1.000	9.000
Weight	453.143	30.754	403.000	490.000
Price	102.786	9.953	85.000	114.000
Preconditioning =2, Sex=2, Weight=5[u]				
Head	6.333	5.125	1.000	14.000
Weight	567.500	34.904	503.000	599.000
Price	97.333	4.622	92.000	104.000
Preconditioning =2, Sex=2, Weight=6[v]				
Head	2.000	-	2.000	2.000
Weight	643.000	-	643.000	643.000
Price	102.000	-	102.000	102.000
Preconditioning = 2, Sex = 2, Weight = 7[w]				
Head	1.000	-	1.000	1.000
Weight	705.000	-	705.000	705.000
Price	89.000	-	89.000	89.000

Table VII-18. Tulsa 2003 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 7 observations
[c] 6 observations
[d] 10 observations
[e] 7 observations
[f] 2 observations
[g] 5 observations
[h] 9 observations
[i] 10 observations
[j] 4 observations
[k] 2 observations
[l] 1 observation
[m] 2 observations
[n] 1 observation
[o] 5 observations
[p] 8 observation
[q] 4 observation
[r] 4 observations
[s] 3 observations
[t] 7 observations
[u] 6 observations
[v] 1 observation
[w] 1 observation

Table VII-19. Welch 2003 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=4[ab]				
Head	6.000	1.414	5.000	7.000
Weight	464.500	0.707	464.000	465.000
Price	104.000	7.071	99.000	109.000
Preconditioning =1, Sex=1, Weight=5[c]				
Head	6.400	3.362	2.000	11.000
Weight	552.000	34.921	513.000	588.000
Price	101.300	3.218	98.250	105.000
Preconditioning =1, Sex=1, Weight=6[d]				
Head	4.333	1.528	3.000	6.000
Weight	645.667	45.181	603.000	693.000
Price	92.583	5.364	89.000	98.750
Preconditioning =1, Sex=1, Weight=7[e]				
Head	3.333	2.517	1.000	6.000
Weight	896.667	154.733	798.000	1075.000
Price	85.917	7.108	78.000	91.750
Preconditioning =1, Sex=2, Weight=3[f]				
Head	4.000	-	4.000	4.000
Weight	363.000	-	363.000	363.000
Price	115.500	-	115.500	115.500
Preconditioning =1, Sex=2, Weight=4[g]				
Head	6.000	3.000	3.000	9.000
Weight	476.000	28.160	444.000	497.000
Price	93.000	3.000	90.000	96.000
Preconditioning =1, Sex=2, Weight=5[h]				
Head	9.500	9.000	5.000	23.000
Weight	538.500	33.161	502.000	582.000
Price	92.125	1.750	90.000	94.000
Preconditioning =1, Sex=2, Weight=6[i]				
Head	1.500	0.707	1.000	2.000
Weight	659.000	43.841	628.000	690.000
Price	88.250	3.182	86.000	90.500

Table VII-19. Welch 2003 Sale 1 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=7[j]				
Head	3.000	-	3.000	3.000
Weight	745.000	-	745.000	745.000
Price	85.500	-	85.500	85.500
Preconditioning =1, Sex=3, Weight=3[k]				
Head	8.000	5.657	4.000	12.000
Weight	376.000	7.071	371.000	381.000
Price	112.250	11.667	104.000	120.500
Preconditioning =1, Sex=3, Weight=4[l]				
Head	11.000	6.928	3.000	15.000
Weight	448.000	10.392	442.000	460.000
Price	112.333	1.756	110.500	114.000
Preconditioning =1, Sex=3, Weight=5[m]				
Head	2.000	-	2.000	2.000
Weight	570.000	-	570.000	570.000
Price	87.000	-	87.000	87.000
Preconditioning =2, Sex=1, Weight=5[n]				
Head	12.000	-	12.000	12.000
Weight	590.000	-	590.000	590.000
Price	99.750	-	99.750	99.750
Preconditioning =2, Sex=1, Weight=7[o]				
Head	50.000	-	50.000	50.000
Weight	738.000	-	738.000	738.000
Price	95.000	-	95.000	95.000
Preconditioning =2, Sex=2, Weight=4[p]				
Head	3.000	-	3.000	3.000
Weight	485.000	-	485.000	485.000
Price	92.0000	-	92.0000	92.0000
Preconditioning =2, Sex=2, Weight=5[q]				
Head	6.000	-	6.000	6.000
Weight	551.000	-	551.000	551.000
Price	92.500	-	92.500	92.500

Table VII-19. Welch 2003 Sale 1 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 2 observations
[c] 5 observations
[d] 3 observations
[e] 3 observations
[f] 1 observation
[g] 3 observations
[h] 4 observations
[i] 2 observations
[j] 1 observation
[k] 2 observations
[l] 3 observations
[m] 1 observation
[n] 1 observation
[o] 1 observation
[p] 1 observation
[q] 1 observation

Table VII-20. Welch 2003 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	3.667	1.528	2.000	5.000
Weight	351.000	25.239	324.000	374.000
Price	123.167	7.751	117.500	132.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	7.000	4.243	3.000	12.000
Weight	482.000	19.218	457.000	499.000
Price	109.125	1.797	107.500	111.500
Preconditioning =1, Sex=1, Weight=5[d]				
Head	5.333	3.386	3.000	12.000
Weight	561.667	14.949	546.000	586.000
Price	102.792	4.611	97.000	107.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	4.000	2.000	2.000	7.000
Weight	634.200	21.017	610.000	653.000
Price	97.170	3.312	92.500	101.850
Preconditioning =1, Sex=2, Weight=3[f]				
Head	4.000	-	4.000	4.000
Weight	395.000	-	395.000	395.000
Price	109.000	-	109.000	109.000
Preconditioning =1, Sex=2, Weight=4[g]				
Head	3.750	1.500	2.000	5.000
Weight	452.750	11.026	438.000	463.000
Price	101.750	2.901	99.000	104.500
Preconditioning =1, Sex=2, Weight=5[h]				
Head	5.000	4.195	1.000	12.000
Weight	546.833	25.616	514.000	590.000
Price	96.042	3.484	91.000	100.750
Preconditioning =1, Sex=2, Weight=6[i]				
Head	2.000	-	2.000	2.000
Weight	645.000	-	645.000	645.000
Price	89.000	-	89.000	89.000

Table VII-20. Welch 2003 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=7[j]				
Head	4.000	-	4.000	4.000
Weight	708.000	-	708.000	708.000
Price	95.000	-	95.000	95.000
Preconditioning =1, Sex=3, Weight=5[k]				
Head	4.000	-	4.000	4.000
Weight	543.000	-	543.000	543.000
Price	107.000	-	107.000	107.000
Preconditioning =1, Sex=3, Weight=6[l]				
Head	4.000	-	4.000	4.000
Weight	690.000	-	690.000	690.000
Price	90.000	-	90.000	90.000
Preconditioning =2, Sex=1, Weight=3[m]				
Head	1.000	-	1.000	1.000
Weight	395.000	-	395.000	395.000
Price	126.000	-	126.000	126.000
Preconditioning =2, Sex=1, Weight=5[n]				
Head	7.000	3.674	4.000	13.000
Weight	545.200	26.640	518.000	583.000
Price	106.800	3.402	103.000	111.500
Preconditioning =2, Sex=1, Weight=6[o]				
Head	14.143	18.533	1.000	55.000
Weight	657.571	31.347	607.000	693.000
Price	101.350	3.390	95.500	107.000
Preconditioning =2, Sex=1, Weight=7[p]				
Head	3.000	-	3.000	3.000
Weight	797.000	-	797.000	797.000
Price	92.500	-	92.500	92.500
Preconditioning =2, Sex=2, Weight=4[q]				
Head	2.667	2.887	1.000	6.000
Weight	427.667	2.517	425.000	430.000
Price	108.667	6.028	103.000	115.000

Table VII-20. Welch 2003 Sale 2 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=2, Weight=5[r]				
Head	6.800	3.962	3.000	12.000
Weight	544.400	19.655	524.000	574.000
Price	97.050	2.335	93.000	99.000
Preconditioning =2, Sex=2, Weight=6[s]				
Head	5.333	3.512	2.000	9.000
Weight	664.333	47.184	610.000	695.000
Price	91.500	4.093	88.000	96.000

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 3 observations
[c] 4 observations
[d] 6 observations
[e] 5 observations
[f] 1 observation
[g] 4 observations
[h] 6 observations
[i] 1 observation
[j] 1 observation
[k] 1 observation
[l] 1 observation
[m] 1 observation
[n] 5 observations
[o] 7 observations
[p] 1 observation
[q] 3 observations
[r] 5 observations
[s] 3 observations

Table VII-21. Welch 2003 Sale 3 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	3.000	-	3.000	3.000
Weight	350.000	-	350.000	350.000
Price	114.000	-	114.000	114.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	6.000	1.414	5.000	7.000
Weight	445.000	53.740	407.000	483.000
Price	105.000	8.485	99.000	111.000
Preconditioning =1, Sex=1, Weight=5[d]				
Head	3.000	1.000	2.000	4.000
Weight	536.200	29.962	513.000	570.000
Price	99.700	7.934	90.000	109.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	4.500	2.082	2.000	7.000
Weight	644.500	23.573	613.000	669.000
Price	89.750	1.936	87.000	91.500
Preconditioning =1, Sex=1, Weight=7[f]				
Head	10.000	0	10.000	10.000
Weight	721.000	4.243	718.000	724.000
Price	85.500	1.414	84.500	86.500
Preconditioning =1, Sex=2, Weight=3[g]				
Head	3.000	-	3.000	3.000
Weight	382.000	-	382.000	382.000
Price	94.000	-	94.000	94.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	5.500	3.317	2.000	10.000
Weight	425.750	21.046	405.000	454.000
Price	101.625	4.750	98.000	108.500
Preconditioning =1, Sex=2, Weight=5[i]				
Head	5.400	2.074	2.000	7.000
Weight	558.000	36.180	518.000	595.000
Price	91.250	1.199	90.000	92.500

Table VII-21. Welch 2003 Sale 3 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=6[j]				
Head	3.000	0	3.000	3.000
Weight	635.000	33.151	608.000	672.000
Price	87.500	0.500	87.000	88.000
Preconditioning =1, Sex=2, Weight=7[k]				
Head	2.667	0.577	2.000	3.000
Weight	734.333	33.486	715.000	773.000
Price	85.000	3.382	81.500	88.250
Preconditioning =1, Sex=3, Weight=5[l]				
Head	3.000	1.414	2.000	4.000
Weight	550.500	6.364	546.000	555.000
Price	101.000	7.071	96.000	106.000
Preconditioning =2, Sex=1, Weight=4[m]				
Head	4.000	-	4.000	4.000
Weight	491.000	-	491.000	491.000
Price	108.500	-	108.500	108.500
Preconditioning =2, Sex=1, Weight=6[n]				
Head	3.000	0	3.000	3.000
Weight	642.500	13.435	633.000	652.000
Price	91.250	1.768	90.000	92.500
Preconditioning =2, Sex=2, Weight=5[o]				
Head	2.500	2.121	1.000	4.000
Weight	556.500	16.263	545.000	568.000
Price	86.500	9.192	80.000	93.000
Preconditioning =2, Sex=1, Weight=6[p]				
Head	4.500	3.536	2.000	7.000
Weight	650.500	14.849	640.000	661.000
Price	87.750	0.354	87.500	88.000

Table VII-21. Welch 2003 Sale 3 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 1 observations
[c] 2 observations
[d] 5 observations
[e] 4 observations
[f] 2 observations
[g] 1 observation
[h] 4 observations
[i] 5 observations
[j] 3 observations
[k] 3 observations
[l] 2 observations
[m] 1 observation
[n] 2 observations
[o] 2 observations
[p] 2 observations

Table VII-22. Woodward 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=1, Weight=3[ab]				
Head	7.000	2.160	4.000	9.000
Weight	353.571	26.689	312.000	384.000
Price	132.214	10.115	122.000	150.000
Preconditioning =1, Sex=1, Weight=4[c]				
Head	9.857	8.619	2.000	31.000
Weight	449.571	25.065	406.000	491.000
Price	114.750	6.563	107.000	125.500
Preconditioning =1, Sex=1, Weight=5[d]				
Head	13.400	9.104	3.000	31.000
Weight	551.850	31.317	508.000	599.000
Price	106.325	5.897	97.000	118.000
Preconditioning =1, Sex=1, Weight=6[e]				
Head	11.429	10.385	1.000	43.000
Weight	635.571	29.449	600.000	696.000
Price	99.833	7.524	87.000	111.000
Preconditioning =1, Sex=1, Weight=7[f]				
Head	11.385	12.094	1.000	37.000
Weight	747.231	26.678	700.000	778.000
Price	97.308	4.342	91.000	105.000
Preconditioning =1, Sex=2, Weight=3[g]				
Head	7.000	3.954	2.000	14.000
Weight	362.583	30.384	306.000	398.000
Price	109.833	8.569	100.000	129.000
Preconditioning =1, Sex=2, Weight=4[h]				
Head	7.577	5.839	1.000	23.000
Weight	452.038	29.197	403.000	493.000
Price	103.192	5.797	92.000	114.000
Preconditioning =1, Sex=2, Weight=5[i]				
Head	7.565	5.487	1.000	26.000
Weight	552.031	29.852	503.000	594.000
Price	97.156	7.014	85.000	110.500

Table VII-22. Woodward 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =1, Sex=2, Weight=6[j]				
Head	14.909	13.509	2.000	41.000
Weight	642.182	28.680	608.000	681.000
Price	95.727	4.501	87.000	102.500
Preconditioning =1, Sex=2, Weight=7[k]				
Head	15.125	11.154	4.000	33.000
Weight	733.625	16.230	718.000	765.000
Price	95.156	1.316	94.000	97.500
Preconditioning =1, Sex=3, Weight=3[l]				
Head	4.000	1.633	2.000	6.000
Weight	352.000	10.646	341.000	363.000
Price	122.750	3.948	117.000	126.000
Preconditioning =2, Sex=3, Weight=4[m]				
Head	3.750	2.363	2.000	7.000
Weight	447.250	50.249	400.000	496.000
Price	109.500	11.091	99.000	124.000
Preconditioning =1, Sex=3, Weight=5[n]				
Head	5.500	3.109	2.000	9.000
Weight	553.000	37.443	514.000	599.000
Price	95.125	2.780	92.500	98.000
Preconditioning =1, Sex=3, Weight=6[o]				
Head	4.833	1.941	3.000	8.000
Weight	647.167	28.673	612.000	695.000
Price	88.917	1.497	86.000	90.000
Preconditioning =2, Sex=1, Weight=3[p]				
Head	4.000	-	4.000	4.000
Weight	394.000	-	394.000	394.000
Price	116.000	-	116.000	116.000
Preconditioning =2, Sex=1, Weight=4[q]				
Head	19.500	9.192	13.000	26.000
Weight	489.500	12.021	481.000	498.000
Price	120.750	3.182	118.500	123.000

Table VII-22. Woodward 2003 Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Preconditioning =2, Sex=1, Weight=5[r]				
Head	40.500	3.536	38.000	43.000
Weight	549.500	41.719	520.000	579.000
Price	113.000	2.828	111.000	115.000
Preconditioning =2, Sex =1, Weight =6[s]				
Head	11.750	6.449	6.000	21.000
Weight	653.000	24.399	618.000	672.000
Price	108.688	1.248	107.000	109.750
Preconditioning =2, Sex=1, Weight=7[t]				
Head	16.500	13.435	7.000	26.000
Weight	730.500	36.062	705.000	756.000
Price	104.625	2.298	103.000	106.250
Preconditioning =2, Sex=2, Weight=3[u]				
Head	2.000	-	2.000	2.000
Weight	390.000	-	390.000	390.000
Price	117.000	-	117.000	117.000
Preconditioning =2, Sex=2, Weight=4[v]				
Head	14.000	-	14.000	14.000
Weight	496.000	-	496.000	496.000
Price	112.000	-	112.000	112.000
Preconditioning =2, Sex=2, Weight=5[w]				
Head	12.500	8.544	3.000	23.000
Weight	571.750	38.222	515.000	595.000
Price	103.750	4.787	97.000	108.000
Preconditioning =2, Sex=2, Weight=6[x]				
Head	17.000	-	17.000	17.000
Weight	687.000	-	687.000	687.000
Price	101.000	-	101.000	101.000

Table VII-22. Woodward 2003 Summary Statistics

[a] Preconditioning =1= Management 1, 2, 3, 4, or 6; Preconditioning =2=Management 5 (OQBN Certified)
Sex =1= Steers, Sex =2= Heifers, Sex =3= Mixed;
Weight =3= 300-399 lbs., Weight =4= 400-499 lbs, Weight =5= 500-599 lbs., Weight =6= 600-699 lbs., Weight =7= 700-799 lbs.

[b] 7 observations
[c] 14 observations
[d] 20 observations
[e] 21 observations
[f] 13 observations
[g] 12 observations
[h] 26 observations
[i] 32 observations
[j] 11 observations
[k] 8 observations
[l] 4 observations
[m] 4 observations
[n] 4 observations
[o] 6 observations
[p] 1 observation
[q] 2 observations
[r] 2 observations
[s] 4 observations
[t] 1 observation
[u] 1 observation
4 observations
1 observation

Table VII-23. Models (1) and (2) Apache 2001 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	2	0.91
Not Certified	218	99.09
Breed		
1	71	32.27
2	132	60.00
3	17	7.73
4	0	0.00
5	0	0.00
Flesh		
1	17	7.73
2	166	75.45
3	37	16.82
Muscle		
1	108	49.09
2	112	50.91
3	0	0.00
Frame		
1	68	30.91
2	0	0.00
3	0	0.00
MedSm	152	69.09
Sex		
1	113	51.36
2	107	48.64
3	0	0.00
Uniformity		
1	181	82.27
2	39	17.73
Health		
1	217	98.64
2	3	1.36
Horns		
1	157	71.36
2	63	28.64

Table VII-24. Models (1) and (2) El Reno 2001 Sale 1 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	43	33.33
Not Certified	86	66.67
Breed		
1	55	42.64
2	59	45.74
3	8	6.20
4	7	5.43
5	0	0.00
Flesh		
1	3	2.33
2	77	59.69
3	49	37.98
Muscle		
1	7	5.43
2	81	62.79
3	41	31.78
Frame		
1	54	41.86
2	61	47.29
3	14	10.85
MedSm	0	0.00
Sex		
1	64	49.61
2	59	45.74
3	6	4.65
Uniformity		
1	112	86.82
2	17	13.18
Health		
1	128	99.22
2	1	0.78
Horns		
1	102	79.07
2	27	20.93

Table VII-25. Models (1) and (2) Enid 2001 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	29	14.43
Not Certified	172	85.57
Breed		
1	61	30.35
2	104	51.74
3	23	11.44
4	13	6.47
5	0	0.00
Flesh		
1	23	11.44
2	150	74.63
3	28	13.93
Muscle		
1	110	54.73
2	85	42.29
3	6	2.99
Frame		
1	93	46.27
2	101	50.25
3	7	3.48
MedSm	0	0.00
Sex		
1	95	47.26
2	85	42.29
3	21	10.45
Uniformity		
1	194	96.52
2	7	3.48
Health		
1	159	79.10
2	42	20.90
Horns		
1	197	98.01
2	4	1.99

Table VII-26. Models (1) and (2) Idabel 2001 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	27	10.34
Not Certified	234	89.66
Breed		
1	34	13.03
2	154	59.00
3	66	25.29
4	0	0.00
5	7	2.68
Flesh		
1	78	29.89
2	177	67.82
3	6	2.30
Muscle		
1	57	21.84
2	178	68.20
3	26	9.96
Frame		
1	104	39.85
2	154	59.00
3	3	1.15
MedSm	0	0.00
Sex		
1	130	49.81
2	89	34.10
3	42	16.09
Uniformity		
1	249	95.40
2	12	4.60
Health		
1	250	95.79
2	11	4.21
Horns		
1	210	80.46
2	51	19.54

Table VII-27. Models (1) and (2) Holdenville 2001 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	16	7.55
Not Certified	196	92.45
Breed		
1	59	27.83
2	109	51.42
3	36	16.98
4	0	0.00
5	8	3.77
Flesh		
1	17	8.02
2	131	61.79
3	64	30.19
Muscle		
1	138	65.09
2	66	31.13
3	8	3.77
Frame		
1	111	52.36
2	94	44.34
3	7	3.30
MedSm	0	0.00
Sex		
1	98	46.23
2	82	38.68
3	32	15.09
Uniformity		
1	205	96.70
2	7	3.30
Health		
1	207	97.64
2	5	2.36
Horns		
1	156	73.58
2	56	26.42

Table VII-28. Models (1) and (2) Woodward 2001 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	52	25.87
Not Certified	149	74.13
Breed		
1	123	61.19
2	36	17.91
3	34	16.92
4	8	3.98
5	0	0.00
Flesh		
1	28	13.93
2	127	63.18
3	46	22.89
Muscle		
1	168	83.58
2	21	10.45
3	12	5.97
Frame		
1	13	6.47
2	185	92.04
3	3	1.49
MedSm	0	0.00
Sex		
1	104	51.74
2	89	44.28
3	8	3.98
Uniformity		
1	161	80.10
2	40	19.90
Health		
1	196	97.51
2	5	2.49
Horns		
1	162	80.60
2	39	19.40

Table VII-29. Models (1) and (2) El Reno 2002 Sale 1 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	23	14.20
Not Certified	139	85.80
Breed		
1	63	38.89
2	77	47.53
3	15	9.26
4	7	4.32
BraHer	0	0.00
Flesh		
1	10	6.17
2	127	78.40
3	25	15.43
Muscle		
1	87	53.70
2	70	43.21
3	5	3.09
ModTh	0	0.00
Frame		
1	109	67.28
2	53	32.72
3	0	0.00
MedSm	0	0.00
Sex		
1	70	43.21
2	69	42.59
3	23	14.20
Uniformity		
1	78	48.15
2	84	51.85
Health		
1	160	98.77
2	2	1.23
Horns		
1	122	75.31
2	40	24.69

Table VII-30. Models (1) and (2) El Reno 2002 Sale 2 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	18	19.78
Not Certified	73	80.22
Breed		
1	29	31.87
2	47	51.65
3	10	10.99
4	5	5.49
BraHer	0	0.00
Flesh		
1	6	6.59
2	60	65.93
3	25	27.47
Muscle		
1	0	0.00
2	87	95.60
3	4	4.40
ModTh	0	0.00
Frame		
1	33	36.26
2	0	0.00
3	0	0.00
MedSm	58	63.74
Sex		
1	45	49.45
2	41	45.05
3	5	5.49
Uniformity		
1	45	49.45
2	46	50.55
Health		
1	88	96.70
2	3	3.30
Horns		
1	66	72.53
2	25	27.47

Table VII-31. Models (1) and (2) Enid 2002 Sale 1 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	27	14.59
Not Certified	158	85.41
Breed		
1	74	40.00
2	62	33.51
3	42	22.70
4	7	3.78
BraHer	0	0.00
Flesh		
1	102	55.14
2	77	41.62
3	6	3.24
Muscle		
1	6	3.24
2	165	89.19
3	14	7.57
ModTh	0	0.00
Frame		
1	32	17.30
2	144	77.84
3	9	4.86
MedSm	0	0.00
Sex		
1	91	49.19
2	81	43.78
3	13	7.03
Uniformity		
1	171	92.43
2	14	7.57
Health		
1	178	96.22
2	7	3.78
Horns		
1	162	87.57
2	23	12.43

Table VII-32. Models (1) and (2) Enid 2002 Sale 2 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	5	7.69
Not Certified	60	92.31
Breed		
1	24	36.92
2	33	50.77
3	0	0.00
4	0	0.00
BraHer	8	12.31
Flesh		
1	8	12.31
2	46	70.77
3	11	16.92
Muscle		
1	21	32.31
2	38	58.46
3	6	9.23
ModTh	0	0.00
Frame		
1	24	32.92
2	41	63.08
3	0	0.00
MedSm	0	0.00
Sex		
1	27	41.54
2	33	50.77
3	5	7.69
Uniformity		
1	65	100.00
2	0	0.00
Health		
1	64	98.46
2	1	1.54
Horns		
1	49	75.38
2	16	24.62

Table VII-33. Models (1) and (2) Holdenville 2002 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	7	3.15
Not Certified	215	96.85
Breed		
1	40	18.02
2	88	39.64
3	0	0.00
4	0	0.00
BraHer	94	42.34
Flesh		
1	31	13.96
2	191	86.04
3	0	0.00
Muscle		
1	214	96.40
2	0	0.00
3	0	0.00
ModTh	8	3.60
Frame		
1	214	96.40
2	8	3.60
3	0	0.00
MedSm	0	0.00
Sex		
1	81	36.49
2	113	50.90
3	28	12.61
Uniformity		
1	219	98.65
2	3	1.35
Health		
1	205	92.34
2	17	7.66
Horns		
1	186	83.78
2	36	16.22

Table VII-34. Models (1) and (2) Idabel 2002 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	14	7.61
Not Certified	170	92.39
Breed		
1	22	11.96
2	97	52.72
3	0	0.00
4	0	0.00
BraHer	65	35.33
Flesh		
1	64	34.78
2	120	65.22
3	0	0.00
Muscle		
1	158	85.87
2	26	14.13
3	0	0.00
ModTh	0	0.00
Frame		
1	157	85.33
2	27	14.67
3	0	0.00
MedSm	0	0.00
Sex		
1	108	58.70
2	76	41.30
3	0	0.00
Uniformity		
1	176	95.65
2	8	4.35
Health		
1	184	100.00
2	0	0.00
Horns		
1	124	67.39
2	60	32.61

Table VII-35. Models(1) and (2) Woodward 2002 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	15	7.11
Not Certified	196	92.89
Breed		
1	178	84.36
2	22	10.43
3	0	0.00
4	0	0.00
BraHer	11	5.21
Flesh		
1	14	6.64
2	149	70.62
3	48	22.75
Muscle		
1	8	3.79
2	203	96.21
3	0	0.00
ModTh	0	0.00
Frame		
1	8	3.79
2	0	0.00
3	0	0.00
MedSm	203	96.21
Sex		
1	113	53.55
2	89	42.18
3	9	4.27
Uniformity		
1	210	99.53
2	1	0.47
Health		
1	202	95.73
2	9	4.27
Horns		
1	185	87.68
2	26	12.32

Table VII-36. Models (1) and (2) El Reno 2003 Sale 1 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	4	2.35
Not Certified	166	97.65
Breed		
1	57	33.53
2	96	56.47
3	17	10.00
4	0	0.00
Flesh		
1	9	5.29
2	138	81.18
3	23	13.53
Muscle		
1	94	55.29
2	76	44.71
3	0	0.00
Frame		
1	100	58.82
2	70	41.18
3	0	0.00
Sex		
1	81	47.65
2	77	45.29
3	12	7.06
Uniformity Breed		
1	58	34.12
2	112	65.88
Uniformity Fleshiness		
1	104	61.18
2	66	38.82
Uniformity Muscling		
1	60	35.29
2	110	64.71
Health		
1	169	99.41
2	1	0.59
Horns		
1	126	74.12
2	44	25.88

Table VII-37. Models (1) and (2) El Reno 2003 Sale 2 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	7	3.78
Not Certified	178	96.22
Breed		
1	100	54.05
2	68	36.76
3	3	1.62
4	14	7.57
Flesh		
1	32	17.30
2	151	81.62
3	2	1.08
Muscle		
1	20	10.81
2	165	89.19
3	0	0.00
Frame		
1	37	20.00
2	98	52.97
3	50	27.03
Sex		
1	96	51.89
2	78	42.16
3	11	5.95
Uniformity Breed		
1	87	47.03
2	98	52.97
Uniformity Fleshiness		
1	145	78.38
2	40	21.62
Uniformity Muscling		
1	89	48.11
2	96	51.89
Health		
1	183	98.92
2	2	1.08
Horns		
1	145	78.38
2	40	21.62

Table VII-38. Models (1) and (2) Enid 2003 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	15	15.46
Not Certified	82	84.54
Breed		
1	28	28.87
2	55	56.70
3	14	14.43
4	0	0.00
Flesh		
1	7	7.22
2	78	80.41
3	12	12.37
Muscle		
1	65	67.01
2	31	31.96
3	1	1.03
Frame		
1	60	61.86
2	35	36.08
3	2	2.06
Sex		
1	37	38.14
2	51	52.58
3	9	9.28
Uniformity Breed		
1	71	73.20
2	26	26.80
Uniformity Fleshiness		
1	93	95.88
2	4	4.12
Uniformity Muscling		
1	69	71.13
2	28	28.87
Health		
1	97	100.00
2	0	0.00
Horns		
1	89	91.75
2	8	8.25

Table VII-39. Models (1) and (2) Tulsa 2003 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	6	5.71
Not Certified	99	94.29
Breed		
1	66	62.86
2	35	33.33
3	3	2.86
4	1	0.95
Flesh		
1	10	9.52
2	84	80.00
3	11	10.48
Muscle		
1	24	22.86
2	74	70.48
3	7	6.67
Frame		
1	46	43.81
2	47	44.76
3	12	11.43
Sex		
1	53	50.48
2	46	43.81
3	6	5.71
Uniformity Breed		
1	84	80.00
2	21	20.00
Uniformity Fleshiness		
1	104	99.05
2	1	0.95
Uniformity Muscling		
1	103	98.10
2	2	1.90
Health		
1	105	100.00
2	0	0.00
Horns		
1	105	100.00
2	0	0.00

Table VII-40. Models (1) and (2) Welch 2003 Sale 1 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	2	5.88
Not Certified	32	94.12
Breed		
1	22	64.71
2	11	32.35
3	1	2.94
4	0	0.00
Flesh		
1	3	8.82
2	22	64.71
3	9	26.47
Muscle		
1	13	38.24
2	11	61.76
3	0	0.00
Frame		
1	31	91.18
2	3	8.82
3	0	0.00
Sex		
1	15	44.12
2	13	38.24
3	6	17.65
Uniformity Breed		
1	22	64.71
2	12	35.29
Uniformity Fleshiness		
1	28	82.35
2	6	17.65
Uniformity Muscling		
1	33	97.06
2	1	2.94
Health		
1	34	100.00
2	0	0.00
Horns		
1	34	100.00
2	0	0.00

Table VII-41. Models (1) and (2) Welch 2003 Sale 2 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	6	10.34
Not Certified	52	89.66
Breed		
1	34	58.62
2	18	31.03
3	6	10.34
4	0	0.00
Flesh		
1	2	3.45
2	37	63.79
3	19	32.76
Muscle		
1	17	29.31
2	41	70.69
3	0	0.00
Frame		
1	44	75.86
2	14	24.14
3	0	0.00
Sex		
1	32	55.17
2	24	41.38
3	2	3.45
Uniformity Breed		
1	41	70.69
2	17	29.31
Uniformity Fleshiness		
1	51	87.93
2	7	12.07
Uniformity Muscling		
1	54	93.10
2	4	6.90
Health		
1	58	100.00
2	0	0.00
Horns		
1	46	79.31
2	12	20.69

Table VII-42. Models (1) and (2) Woodward 2003 Frequency Distribution.

Variable	Frequency	Percent
Management Type		
OQBN	2	1.00
Not Certified	198	99.00
Breed		
1	31	15.50
2	151	75.50
3	16	8.00
4	2	1.00
Flesh		
1	29	14.50
2	125	62.50
3	46	23.00
Muscle		
1	5	2.50
2	195	97.50
3	0	0.00
Frame		
1	15	7.50
2	185	92.50
3	0	0.00
Sex		
1	86	43.00
2	96	48.00
3	18	9.00
Uniformity Breed		
1	49	24.50
2	151	75.50
Uniformity Fleshiness		
1	199	99.50
2	1	0.50
Uniformity Muscling		
1	197	98.50
2	3	1.50
Health		
1	198	99.00
2	2	1.00
Horns		
1	176	88.00
2	24	12.00

Figure VII-1 2002 Average Prices

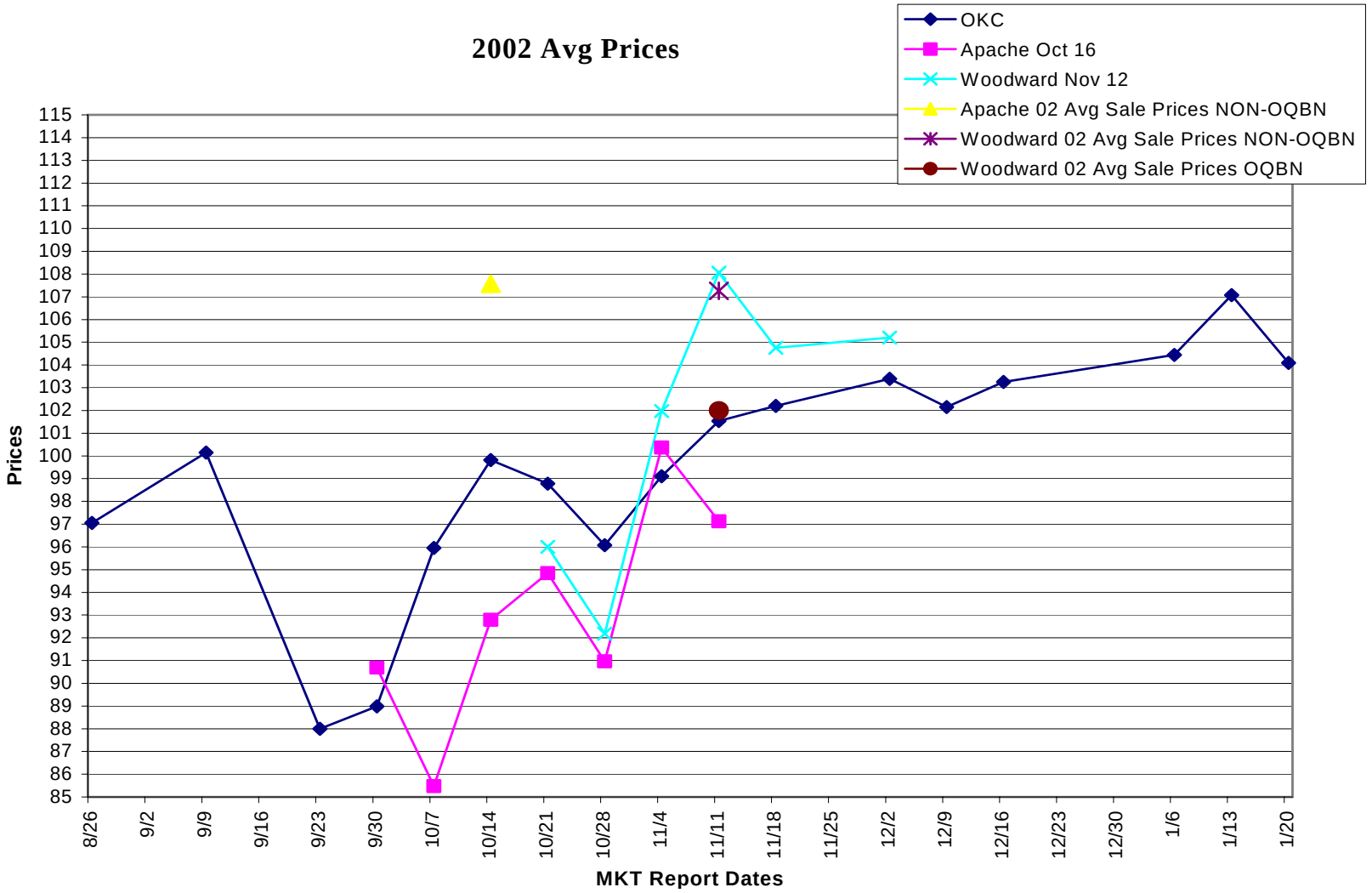


Figure VII-2. 2002 Sale Prices

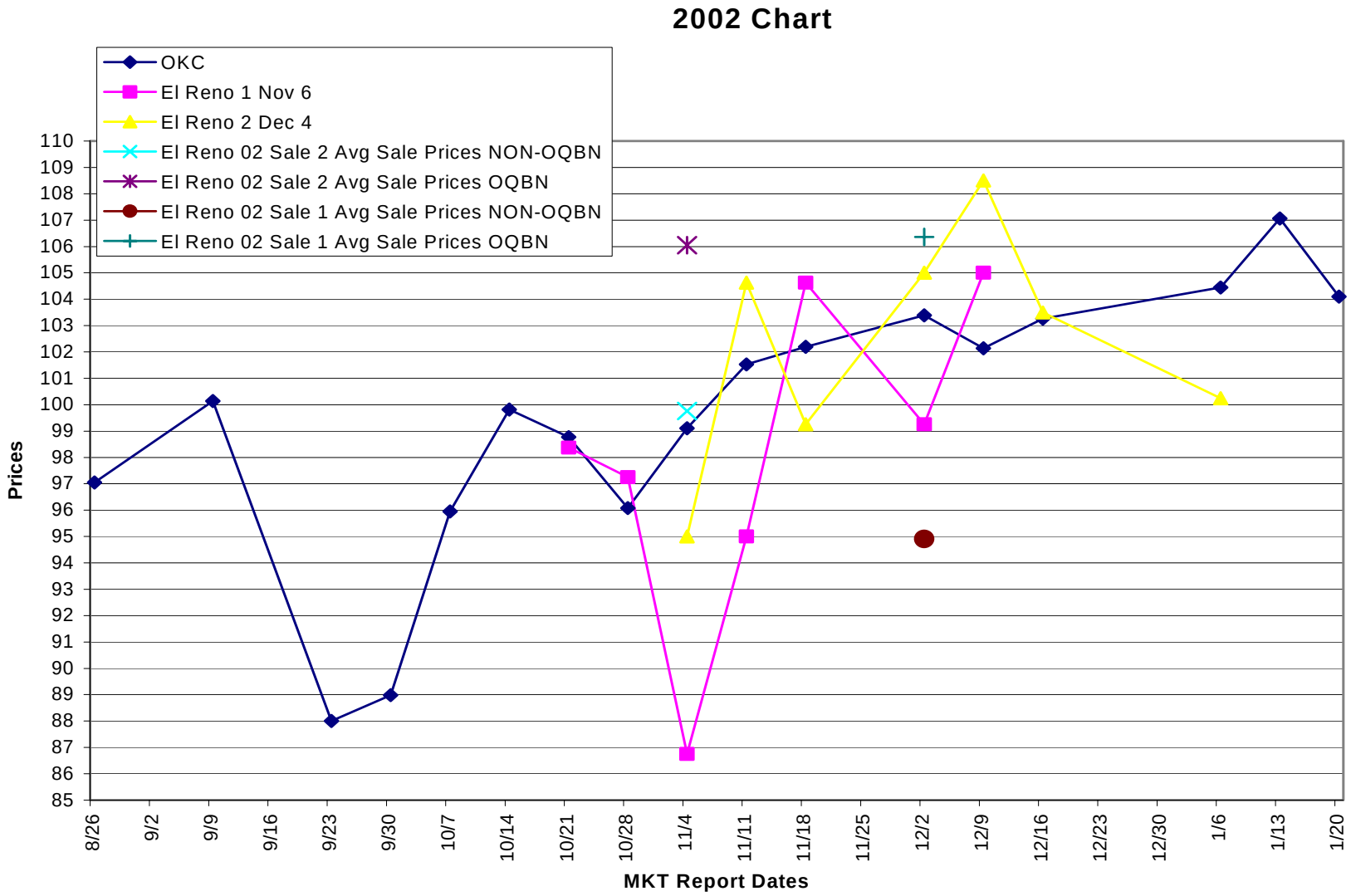


Figure VII-3. 2001 Average Prices

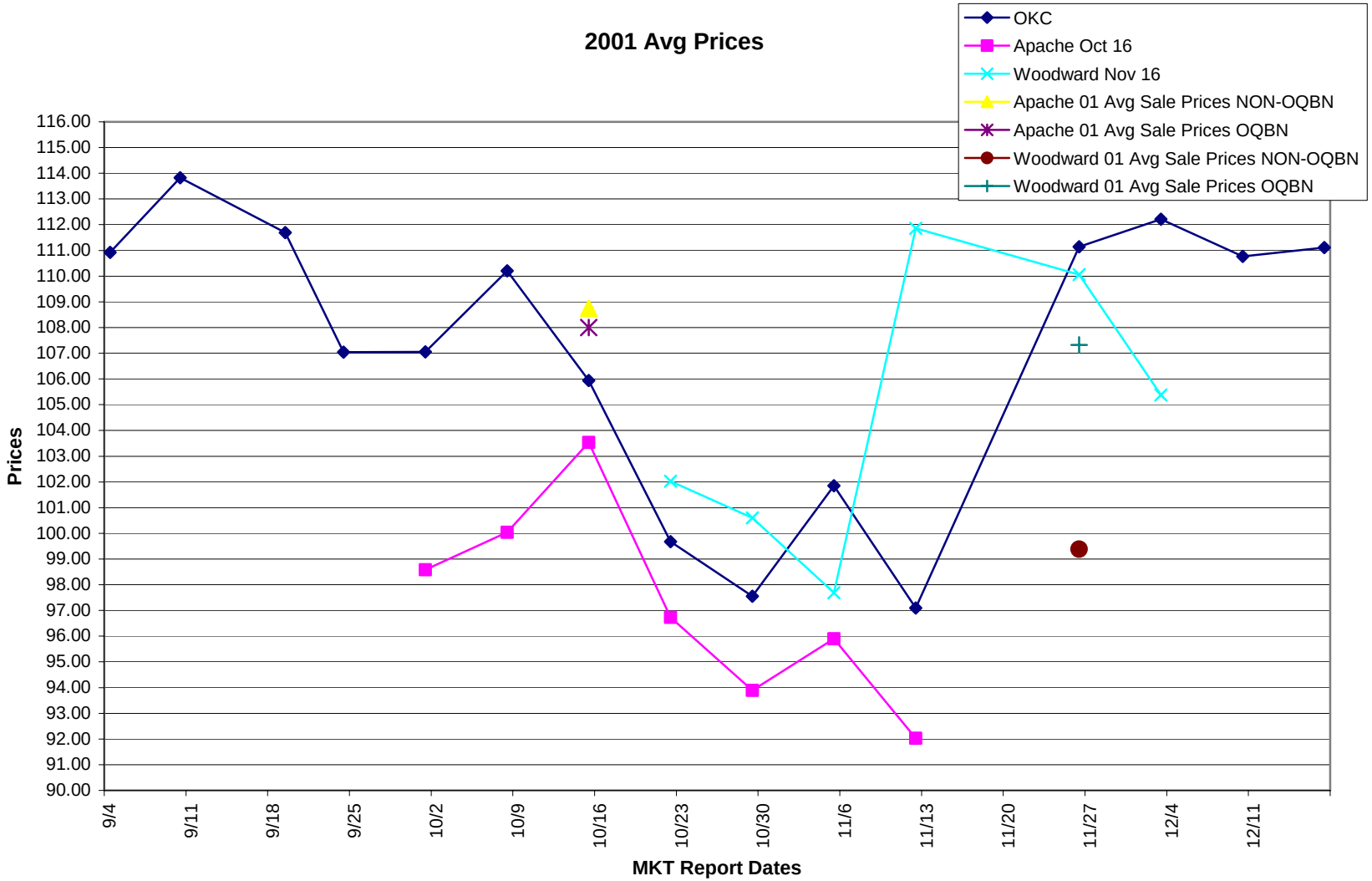
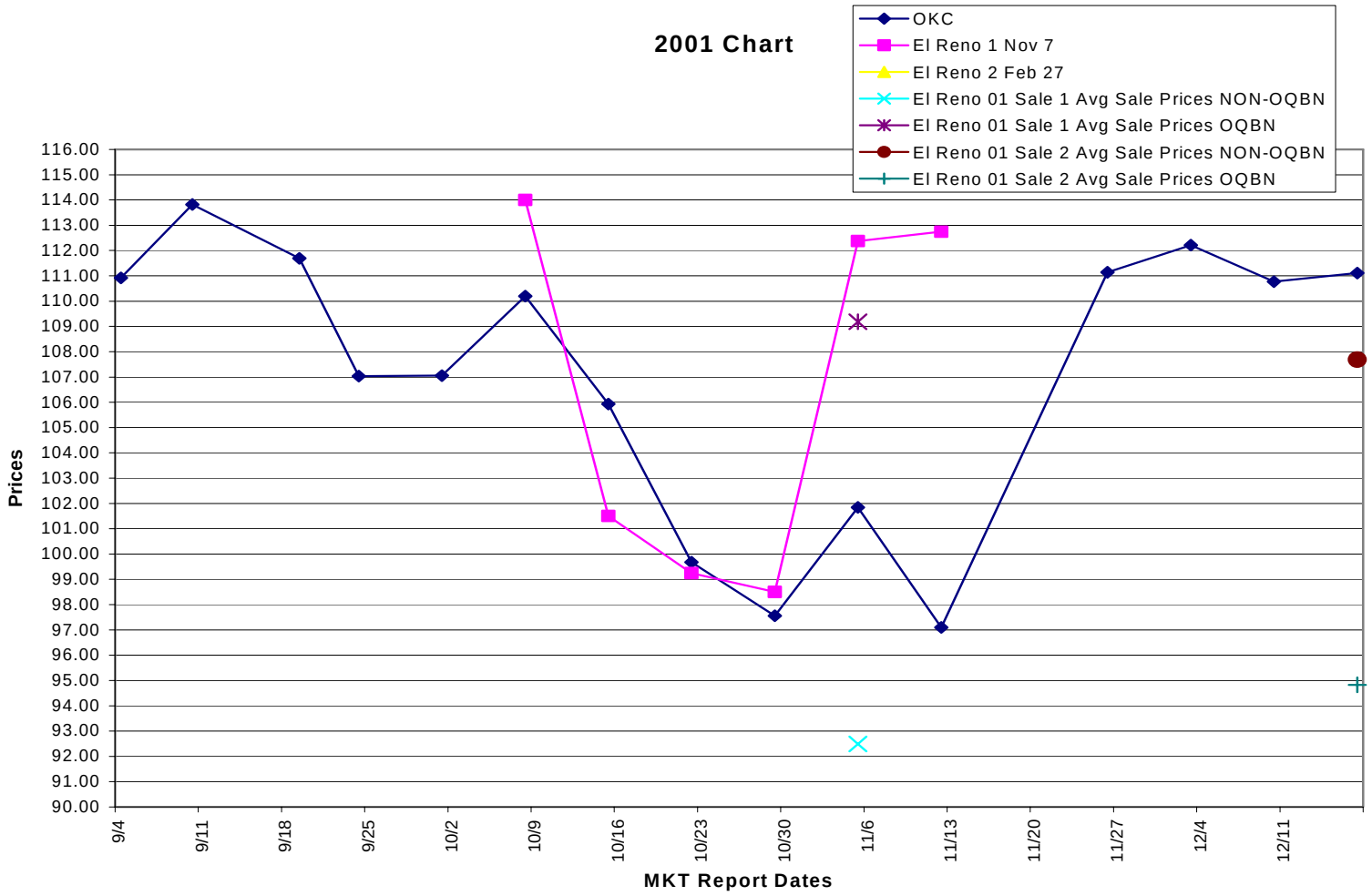


Figure VII-4. 2001 Sale Prices



VITA

Chandra Dawn Ratcliff

Candidate for the Degree of

Master of Science

Thesis: OKLAHOMA QUALITY BEEF NETWORK: PRICE PREMIUMS FROM A PRECONDITIONING PROGRAM

Major Field: Agricultural Economics

Biographical:

Personal Data: Born in Talihina, Oklahoma, On June 12, 1980, the daughter of James and Barbara Haywood.

Education: Graduated from Dickson High School, Ardmore, Oklahoma in May 1998; received Bachelor of Science degree in Economics from Oklahoma State University, Stillwater, Oklahoma in May 2002. Completed the requirements for the Master of Science degree with a major in Agricultural Economics at Oklahoma State University in July 2004.

Experience: Agricultural Economics Intern, The Samuel Noble Roberts Foundation, May 2001 to August 2001 and May 2002 to August 2002; Employed by Oklahoma State University, Department of Agricultural Economics as an undergraduate teaching and research assistant and as A Graduate research assistant, Oklahoma State University, August 2002 to July 2004.

Name: Chandra Dawn Ratcliff Date of Degree: July, 2004

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: OKLAHOMA QUALITY BEEF NETWORK: PRICE PREMIUMS FROM A PRECONDITIONING PROGRAM

Pages in Study: 207 Candidate for the Degree of Master of Science

Major Field: Agricultural Economics

Scope and Method of Study: The proposed study determined if an extra value existed in the preconditioned calves involved in this particular program. It is going to estimate the price differences between cattle sold through the OQBN program and traditional livestock auction markets.

Findings and Conclusions: It was found by this study that most of the sales that participated in the Oklahoma Quality Beef Network sales generated some sort of a premium for the cattle producers that participated in the program

ADVISER'S APPROVAL: Dr. Clem Ward