

## **Factors Affecting Meat Goat Prices in San Angelo, Texas<sup>1</sup>**

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### **Summary**

The objective of this study was to estimate factors affecting auction prices of kid goats at San Angelo, Texas from 2010 to 2015. Transaction records of 395,009 goat kids sold in 38,862 lots were analyzed with a hedonic-price model that included fixed effects for year and month of sale, weight class, and the size of the lot, and random effects for week of sale, nested within year, and residual. From 2010 to 2015 the Texas-goat population decreased, sales volume decreased, and prices increased. The least squares means price estimates per hundredweight were  $\$150.23 \pm \$2.41$  in 2010 and  $\$251.50 \pm \$2.38$  in 2015. Prices were highest in the first three months of the year,  $\$207.82 \pm \$1.99$  per hundredweight and  $\$38.96 \pm \$2.78$  per hundredweight greater ( $P < 0.01$ ) than prices in the months of

July, August, and September, which had the lowest prices of the year,  $\$168.86 \pm \$1.94$  per hundredweight. The highest unit price received occurred in the 50 to 59 pound weight class ( $\$197.95 \pm \$1.00$  per hundredweight) and was significantly greater than prices for all other weight classes ( $P < 0.01$ ). Lots that included 35 or more kids, received a  $\$9.96 \pm \$0.47$  per hundredweight greater price ( $P < 0.01$ ) than lots that sold in lots of 1 or 2 kids ( $\$191.76 \pm \$1.00$  vs  $\$181.79 \pm \$1.08$ ) Significant differences in prices can be captured by producers who market kids early in the year and within the highest priced weight range and in larger lots.

**Key Words:** Meat Goats, Auction Prices, Texas, Seasonality, Non-Traditional Markets, Hedonics

## Introduction

The sheer size of Texas (268,580 square miles) allows for a very large diversity of ecoregions from east to west, as well as north to south. The ability of goats to adapt to this diversity has allowed Texas to be the largest meat-goat producing state in the United States, eclipsing the production of the next ten states combined (NASS, 2016). This adaptability also allows goats to be found in measurable quantities in nearly every state because they are potentially economically viable in many environments.

As a multi-purpose animal, goats are one of the oldest domesticated species, providing meat, milk, fiber and leather for centuries. Goat production in Texas also has a long history, likely introduced to North America and present day Texas by Spanish explorers in the 16th century (Shelton, 1978). Today, in addition to being a primary economic engine in the form of meat and fiber production on many Texas ranches, goats have been used in concert with other ruminants for a variety of ground cover/brush control strategies. Goats are often used to utilize lower quality forage/browse that cattle will not consume, increasing the production efficiency of a ranch. Goats can also be used to improve pasture/rangelands by consuming encroaching woody species and various noxious weeds, making more sunlight, nutrients and water available to the desired grasses.

Goats are increasingly being employed in non-ranch settings for prescribed/targeted ground cover/brush control projects, which can include traditional brush management or may include fire suppression (fuel reduction), right of way clearing or noxious weed control. Ranchers, managers and land owners of all sizes are on a continual quest for a production system ideally suited for their individual mix of resources (land, labor and capital). Both large- and small-acreage operations may look at meat goats as the primary revenue generator or to complement or supplement other livestock or wildlife operations. Goats can utilize a wide variety of forage and can negotiate terrain that would limit other livestock species. Meat-goat production generally requires less physical infrastructure on a ranch, and not having to gather for

shearing reduces required labor relative to wool/lamb production. Meat goats also have relatively high reproduction rates.

Texas is by far the largest meat-goat producing state in the United States, with 37 percent of the nation's meat-goat inventory (Figure 1). Texas meat-goat production exceeds \$100 million in annual sales (Figure 2) (Salinas and Robinson, 2015, 2016) providing an important source of revenue for an estimated 25,000 operators (NASS, 2012). As the largest goat auction in the United States, the San Angelo, Texas market is of great interest to goat producers across

the entire United States. Many goat producers sell their animals at livestock auctions and derive much of their market information from auction market summaries. If producers are more aware of what factors affect the prices paid for goats, then it will enable them to make more profitable marketing decisions.

## Slaughter/Kid Goat Market

By all accounts, U.S. meat-goat production is driven by ethnic consumer demand (Glimp, 1995; APHIS, 2004; Spencer, 2008; Ajuzie, 2009; Gillespie et al., 2014). While it is widely accepted

Figure 1. U.S. and Texas Meat and Other Goat Inventory; 2007-2016.

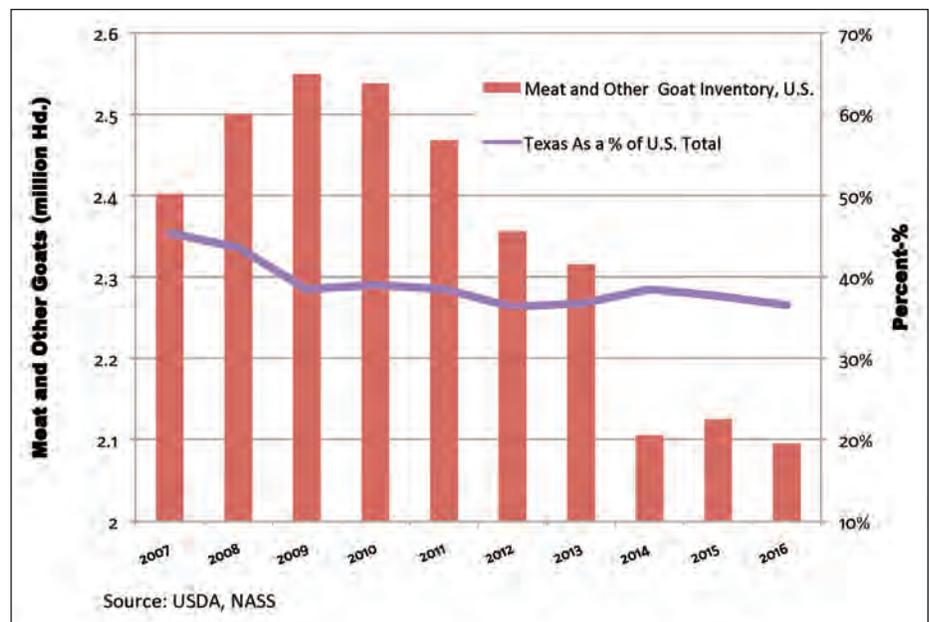
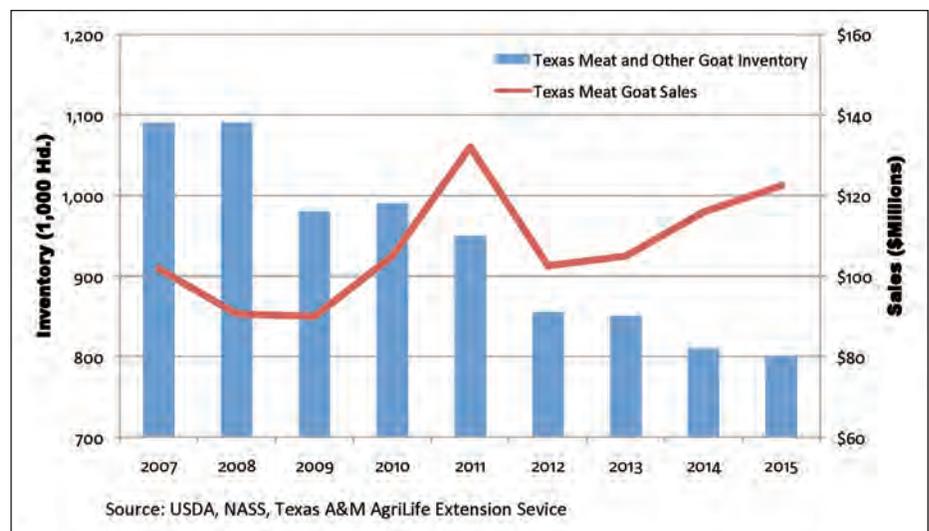


Figure 2. Texas Meat Goat Inventory and Estimated Annual Sales; 2007-2015.



that total goat inventory estimates are low, the reported Meat and Other Goat inventory for both the United States and within Texas are on the decline. Drought and other environmental conditions may be responsible for some of the decrease, though some of the reduction in goat numbers may be attributed to increased interest in several breeds of hair sheep.

The market channels for Texas meat goats are very similar to the market channels for hair sheep, as described by Waldron et al. (2016). The final slaughter weight of marketed kids is largely determined by the initial producer. The kids are either sold at or within a week or two after weaning, or are allowed to continue to gain a limited amount of weight after weaning on pasture and may receive some supplemental feeding. Kid goats are not typically purchased with the intent of being placed into confined animal feeding operations (feedlots or finishing facilities).

The goat market also resembles what is referred to as the “non-traditional” lamb market that 1. typically does not send animals to a feedlot (finishing facility), 2. does not have large, centralized slaughter facilities but rather depends on large numbers of meat markets, small processors and other resellers located near population centers and larger ethnic communities, and 3. does not receive some of the formal USDA market reporting. Though various forms of “direct to consumer” market channels exist, a large majority of kids move through the livestock auctions, where buyers at these auctions are able to source a variety of goats of different size (weight), age and sex as demanded by non-traditional consumers (Gillespie et al., 2014). These non-traditional markets typically demand whole carcasses or portions of carcasses rather than individual cuts. Texas goat producers are fortunate to have multiple livestock auctions across the state that have weekly goat sales.

Little formal price analysis has been directed towards the U.S. meat-goat market. Seasonal variation in kid-goat prices at auction was described by Pinkerton (2010), who used reported ranges from USDA market news reports from 2004 through 2007. Gillespie et al. (2015), estimated price differentials for meat-goat-selection class based on

weight, weekly market volume, state where market was located and week of the sale. The present study differs from previous work in that raw auction data is being analyzed before extraneous and possibly subjective classification or aggregation of sales data takes place.

The objective of this study is to estimate factors affecting prices paid for meat-goat kids at the San Angelo auction from 2010 to 2015.

## Materials & Methods

Attempting to estimate the factors affecting prices paid for kid goats in San Angelo implies that differences in the observed characteristics of these kid goats are responsible for any price differences (Lancaster, 1966; Rosen, 1974). Goat transaction records from the weekly sales at San Angelo, Texas from 2010 through 2015 were obtained from Producers’ Livestock Auction. The transaction records included number of head sold in the lot, price, total weight of the lot, and codes to describe the lot. A lot is defined as an animal or a group of animals sold in a single transaction. The price was typically expressed as dollars per hundredweight (\$/cwt). Because prices are reported in dollars per hundredweight, this paper uses pounds as the weight unit instead of kilograms. Some lots were priced by the head. Codes were used to distinguish among different classes of goats. There were 115,133 lots coded as goats over the six-year period. There were 48,401 lots coded as kid goats. Approximately 1 percent of the kid lots were coded as Angora goats, which were excluded from further analysis. Angora was the only breed code used in the data file. Nearly all other goats in this auction were Boer, Spanish, or crosses of those breeds. No other differ-

entiation was available from these livestock auction records.

Sellers bring their animals to the sale facility and the auction staff will typically sort a seller’s animals into uniform groups or lots. Order buyers like to buy groups of animals that are mostly similar to each other, as that makes meeting the preferences of their intended market easier. Similarly, auction staff want to showcase livestock to potential buyers in the best light possible to generate maximum bid prices for their livestock selling customers. Auction personnel adhere to the premise that an entire lot of animals will be valued based on the least valuable animal in the group. If a seller delivers a group of 50 animals, they may sell as one lot, or be sorted into several lots based on weight, conformation, color or numerous other subjective criteria. Some of these lots (approximately 10 percent) were priced by the head instead of dollars per hundredweight. Lots that were priced by the head typically included those where the animals were atypically small or young. The mean weight of goat kid lots sold by the head was 32 pounds compared to the mean weight of 56 pounds for kids sold by dollars per hundredweight. A dollar per hundredweight price was calculated for the lots that were sold by the head. The calculated dollars per hundredweight mean for lots sold by the head was \$108 compared to the mean of other kid lots of \$170. A small number of lots were sold by the head because of their value as potential breeding stock. All lots that were priced by the head were excluded from further analysis.

After these initial exclusions, 43,001 lots of kids remained that were sold by dollars per hundredweight. The distribution across years is shown in Table 1. Table 2 shows the distribution

**Table 1. Lots sold, kids sold, number of head per lot, average weight by year for kid goats in San Angelo, TX; 2010-2015.**

Year	Lots	Kids	Head/lot	Wt, lbs
2010	7,271	81,259	11.2	56.2
2011	8,148	86,446	10.6	52.6
2012	6,408	59,871	9.3	56.8
2013	6,632	64,178	9.7	56.2
2014	7,438	63,912	8.6	58.0
2015	7,104	61,682	8.7	55.5
Total	43,001	417,348	9.7	55.8

**Table 2. Distribution of lots and kids by weight class for kid goats in San Angelo, TX; 2010-2015.**

Wt Class, lbs	Number of lots	% of lots	Number of kids	% of kids
< 20	11	0.03	99	0.02
20 - < 30	790	1.84	7,099	1.70
30 - < 40	4,844	11.26	46,461	11.13
40 - < 50	9,957	23.16	103,312	24.75
50 - < 60	11,225	26.10	127,882	30.64
60 - < 70	8,323	19.36	84,556	20.26
70 - < 80	4,513	10.50	32,798	7.86
80 - < 90	2,024	4.71	10,871	2.60
90 < 100	834	1.94	3,023	0.72
100 - < 110	310	0.72	876	0.21
110 - < 120	106	0.25	243	0.06
120 - < 130	37	0.09	86	0.02
130 - < 140	15	0.03	27	0.01
140 - < 150	7	0.02	10	< 0.01
> 150	5	0.01	5	< 0.01
	43,001	100.00	417,348	100.00

across weight classes.

The wide range of kid goat weights in the data set represents different segments of the kid goat market. Kids with

low weights may be those that were early weaned, or orphaned, or were small for some other reason. Kids with high weights have likely been on feed after

being weaned. In order to have a data set that is representative of the target for this study (goat producers who sell kids within fourteen days of weaning), all lots with an average weight less than 30 pounds or greater than 80 pounds were excluded. Kid goats weighing less than 30 pounds or greater than 80 pounds are atypical for the type of production system used by the target goat producers. Lots with an average weight less than 30 pounds included less than 2 percent of the kid lots and less than 2 percent of the kids. Lots with an average weight of more than 80 pounds included less than 8 percent of the kid lots and less than 4 percent of the kids.

After the weight restriction was applied, 38,862 lots with a total of 395,009 kids remained in the data set. The distribution of goats across 10-pound weight classes in this edited data set is shown in Table 3. The weight class that included kids from 30 pounds to less than 40 pounds was designated as weight class 3, from 40 pounds to less than 50 pounds, was designated as weight class 4, and so on, up through 70 pounds to less than 80 pounds designated as weight class 7.

There are substantial differences in numbers of goats coming to market in different months of the year (Table 4). The months with the lowest number of kids sold within the 30 to 80 pound range were January, with an average of 3,134 kids sold per year, and February, with 2,526 kids sold per year. All other months had average sales from 4,229 to 7,478 kids per month.

The number of head sold in each lot varied from 1 to 607. The mean number of head per lot was 9.7 head for all kid lots and 10.2 head in the weight restricted data set (Table 1 and Table 4). The median of the distribution of kid lots was 5 head. Number of head in each lot was assigned to lot size categories as follows: A) 1 to 2 head, B) 3 to 5 head, C) 6 to 12 head, D) 13 to 34 head, and E) 35 or more head. Table 5 provides information about the distribution of number of head per lot sold. The lot size categories were established to allocate approximately equal percentages of lots to each of the first three categories. The lots that contained 13 or more goats were arbitrarily split at 13 to 34 and 35 and above. While a relatively small per-

**Table 3. Distribution of kid goat sales by weight class in San Angelo, TX; 2010-2015.**

Class	lbs	Lots	Lots, %	Kids	Kids, %	Kids/lot
3	30 - < 40	4,844	12.5	46,461	11.8	9.6
4	40 - < 50	9,957	25.6	103,312	26.2	10.4
5	50 - < 60	11,225	28.9	127,882	32.4	11.4
6	60 - < 70	8,323	21.4	84,556	21.4	10.2
7	70 - < 80	4,513	11.6	32,798	8.3	7.3
Total		38,862	100.0	395,009	100.0	10.4

**Table 4. Distribution of kid goat sales by month in San Angelo, TX; 2010-2015.**

Month	Lots	% of lots	Kids	% of kids	Kids/lot	Weight
1	2,110	5.43	18,802	4.76	8.9	55.3
2	1,505	3.87	15,154	3.84	10.1	54.1
3	2,828	7.28	27,105	6.86	9.6	52.0
4	2,749	7.07	30,193	7.64	11.0	52.3
5	3,690	9.50	41,338	10.47	11.2	52.7
6	4,429	11.40	44,864	11.36	10.1	53.3
7	3,863	9.94	38,091	9.64	9.9	53.8
8	4,399	11.32	42,843	10.85	9.7	53.1
9	4,396	11.31	42,078	10.65	9.6	53.9
10	3,634	9.35	40,485	10.25	11.1	54.2
11	2,706	6.96	28,684	7.26	10.6	54.8
12	2,553	6.57	25,372	6.42	9.9	54.2
All months	38,862	100.0	395,009	100.0	10.2	53.5

**Table 5. Distribution of kid goat sales by lot size in San Angelo, TX; 2010-2015.**

Head in Lot	Lots	Lots, %	Kids	Kids, %
1 - 2	11,626	29.9	16,699	4.2
3 - 5	10,279	26.5	39,951	10.1
6 - 12	9,072	23.3	74,846	19.0
13 - 34	5,518	14.2	110,784	28.1
35 +	2,367	6.1	152,729	38.7
Total	38,862	100.0	395,009	100.0

centage of lots (6.1 percent) fall into the 35+ head category, this represents a significant percentage of the kids (38.7 percent).

### Statistical Analysis

Kid prices, in dollars per hundredweight, were analyzed with SAS PROC MIXED using a mixed linear model or hedonic price model (SAS, 2011; Cary, N.C.). The model used for analysis included fixed effects for year (2010 to 2015), month, weight class (five 10-pound classes), lot size (A: 1 to 2 head, B: 3 to 5 head, C: 6 to 12 head, D: 13 to 34 head, and E: 35+ head), and random effects for sale day nested within month, and residual. The weight statement of PROC MIXED was used to weight observations by number of head in a lot. The LSMEANS statement of PROC MIXED was used to produce estimates and standard errors of least squares means of fixed effects. The ESTIMATE statement of PROC MIXED was used to produce estimates and standard errors of differences between least squares means.

### Results and Discussion

From January of 2011 to January of 2012, Texas meat and other goat population decreased by 12 percent (NASS, 2012), primarily because of drought in 2011 over much of the goat producing regions of Texas. The lower weight of kids sold (Table 1) in 2011 was another indicator of the severity of the 2011 drought. The number of kids sold through this auction in 2012 decreased by 29 percent from the 2011 level (Table 1). The total number of kids sold the following year increased, but not to the levels of 2010 and 2011.

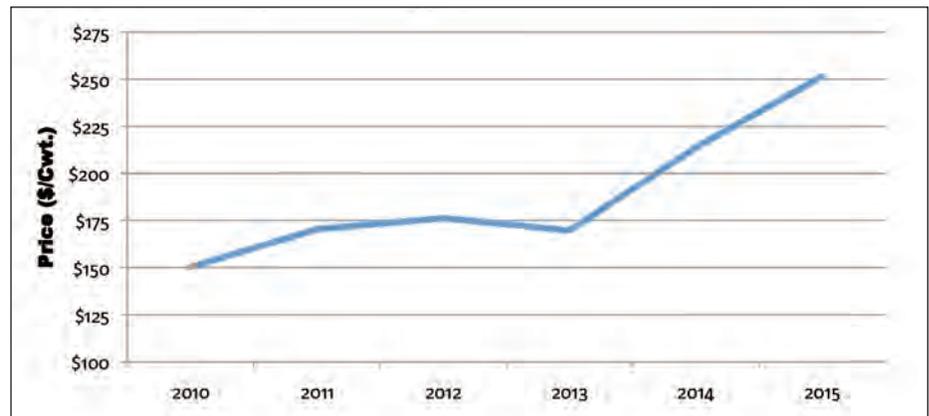
The trend from 2010 to 2015 has been that of unevenly increasing prices

(Figure 3 and Figure 4). Prices in 2010 were  $20.13 \pm 3.38$  dollars per hundredweight lower than 2011 ( $P < 0.01$ ). There were no significant differences among the least squares means estimate for 2011, 2012, and 2013 ( $P > 0.05$ ).

Prices paid in 2014 were  $41.65 \pm 2.82$  dollars per hundredweight greater than the average of the estimates for 2011, 2012, and 2013 ( $P < 0.01$ ). Prices paid in 2015 were  $37.76 \pm 3.42$  dollars per hundredweight greater than in 2014 ( $P < 0.01$ ). Figure 4 shows within year variation in the monthly weighted average of selection 1 kids at the San Angelo auction as reported by USDA-AMS (AMS, 2016).

Month was a significant source of variation for price. Kid prices displayed traditional, seasonal-price movement (Figure 5). Producers in the area served by this auction generally avoid kidding in the months of June, July, August, and September because of the seasonality of goat reproduction and because of low

**Figure 3. Kid Goat Prices by Year in San Angelo, TX; 2010-2015.**



**Figure 4. Monthly Weighted Average of Selection 1 Kids in San Angelo, TX; 2010-2015.**

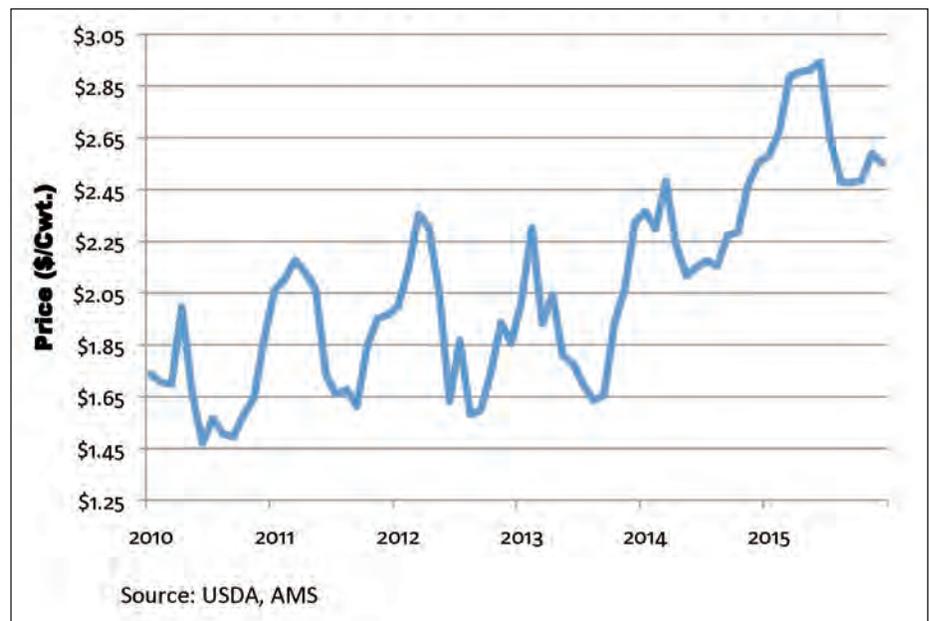


Figure 5. San Angelo Kid Goat Prices and Marketings by Month; 2010-2015.



milk production and low kid growth rates that are a result of high temperatures and decreasing pasture quality. Kids in the 30 to 80 pound weight range are typically 4 to 5 months old. Therefore, there are relatively few kids available to sell from December through March (Table 4). The highest prices were also observed in December through March. Kids sold from December through March received  $26.27 \pm 2.14$  dollars per hundredweight higher prices ( $P < 0.01$ ) than those sold in the remainder of the year. Prices were  $38.96 \pm 2.78$  dollars per hundredweight greater ( $P < 0.01$ ) in the first three months of the year than the three months (July-September) with the lowest prices, ( $207.82 \pm 1.99$  vs.  $168.86 \pm 1.94$  dollars per hundredweight). The months with the highest number of kids sold were May through October. May through October were also the months with the lowest prices. Figure 5 concisely illustrates the inverse relationship between the average number of head sold in a month and the price received for kid goats that month. Similar patterns were evident in 2004 through 2007, but at lower price levels (Pinkerton, 2010).

There are opportunities to sell kids at higher prices during the months with fewer kids sold. However, changing the kidding season to take advantage of selling at a different time of year may increase feeding costs if does are expected to produce adequate milk to sustain normal kid growth during a period of low forage quality and/or availability. Kids could conceivably be held over to sell in the November to March period. The costs of maintaining the animals (feed, pasture, death loss, interest, etc.) will need to be evaluated and compared to the expected difference in price. There also exists the risk that the entire market decreases or the older kids are discounted by buyers. Such a cost-benefit analysis is beyond the scope of this study.

Thirty-three percent of the kids were sold in lots of 12 or fewer head (Table 5). As lot size increased, prices increased (Table 6 and Figure 6). The positive relationship between lot size and price has been well documented for feeder cattle (Faminow and Gum, 1986; Schroeder et al., 1988) and Menzie et al.'s (1972) explanation of minimizing transaction costs remains both plausible

Table 6. Least Squares Means and standard errors for Model Effects on Goat Price in San Angelo, TX; 2010-2015.

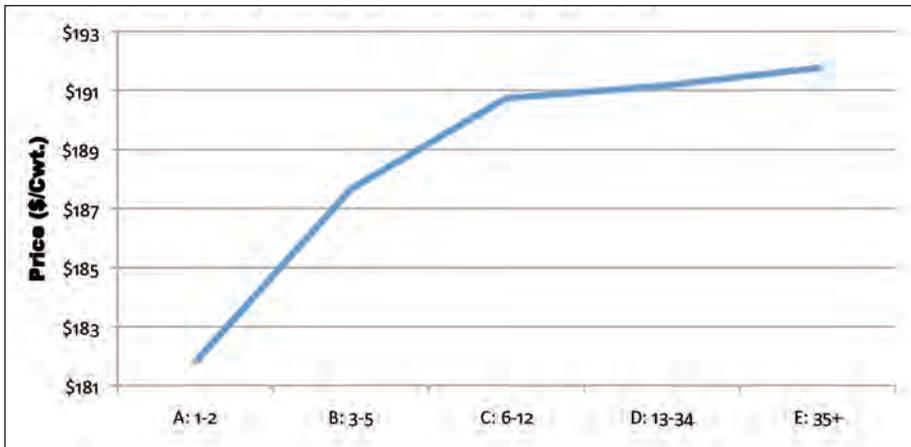
Effect	Estimate
<b>Year</b>	<b>\$/cwt</b>
2010	150.23 ± 2.41
2011	170.36 ± 2.38
2012	176.20 ± 2.41
2013	169.69 ± 2.48
2014	213.74 ± 2.46
2015	251.50 ± 2.38
<b>Month</b>	
January	203.12 ± 3.48
February	213.67 ± 3.65
March	206.67 ± 3.21
April	198.38 ± 3.33
May	188.33 ± 3.26
June	175.20 ± 3.32
July	171.16 ± 3.54
August	166.17 ± 3.26
September	169.25 ± 3.26
October	176.75 ± 3.32
November	193.66 ± 3.72
December	201.09 ± 3.82
<b>Lot Size, Head</b>	
1 - 2	181.79 ± 1.08
3 - 5	187.66 ± 1.03
6 - 12	190.74 ± 1.01
13 - 34	191.15 ± 1.00
35 +	191.76 ± 1.00
<b>Weight Class, lbs</b>	
30s	184.00 ± 1.03
40s	193.41 ± 1.01
50s	197.95 ± 1.00
60s	190.94 ± 1.01
70s	176.80 ± 1.04

and applicable to goat markets. The price differences among the three largest lot sizes were smaller than those between the smaller lot sizes. The difference in price between having 6-12 head per lot versus having 13-34 head per lot was not significant ( $P > 0.05$ ). Kids are sold in small lots when a producer delivers a small number of animals or when a producer delivers a non-uniform group of kids and the auction staff sort them into lots of more uniform kids. The decreasing premium for larger lots reflects the heterogeneous nature of the non-traditional goat market. Buyers responsible for supplying goats for these non-tradi-

Table 5. Distribution of kid goat sales by lot size in San Angelo, TX; 2010-2015.

Head in Lot	Lots	Lots, %	Kids	Kids, %
1 - 2	11,626	29.9	16,699	4.2
3 - 5	10,279	26.5	39,951	10.1
6 - 12	9,072	23.3	74,846	19.0
13 - 34	5,518	14.2	110,784	28.1
35 +	2,367	6.1	152,729	38.7
Total	38,862	100.0	395,009	100.0

Figure 6. Kid Goat Prices by Lot Size in San Angelo, TX; 2010-2015.



tional markets are required to buy a variety of goats. This may require kids of different ages, weights or specific gender. Any given load of goats leaving San Angelo is very likely to have goats destined to several buyers or markets. This may have the effect of discouraging buyers from bidding on larger lots.

Estimated coefficients, standard errors and significance values from the mixed model are presented in Table 7. All effects were significant sources of variation for price ( $P < .01$ ).

Prices per hundredweight generally increased to the 50 to 60 pound weight class and then decreased in successively higher weight classes (Table 6 and Figure 7). The market appears to prefer goats in the 50-60 pound class. Several production and consumer factors are likely responsible for this price pattern. The non-traditional market typically uses whole carcasses or portions of carcasses. A larger goat may yield more meat than a consumer wants, or cost more than a consumer wants to pay. The per head price still increases as weight increases, even though the per hundredweight price starts to decrease at weights above 60 pounds. Larger kids may have little potential to be profitable in a feedlot or other weight gain regimens while lighter weight kids may receive bids from buyers looking for animals to slaughter immediately as well as from buyers looking for animals that can be turned back out to pasture, or fed, for a period for additional weight gain. These animals bought for resale may be resold in Texas or may be headed to livestock auctions closer to the final consumer outside of Texas. One factor negatively affecting prices of kids

in the two lower weight classes is that those animals are more likely to incur death loss than are the animals in the heavier weight classes. Buyers will factor

the higher death loss into their bids.

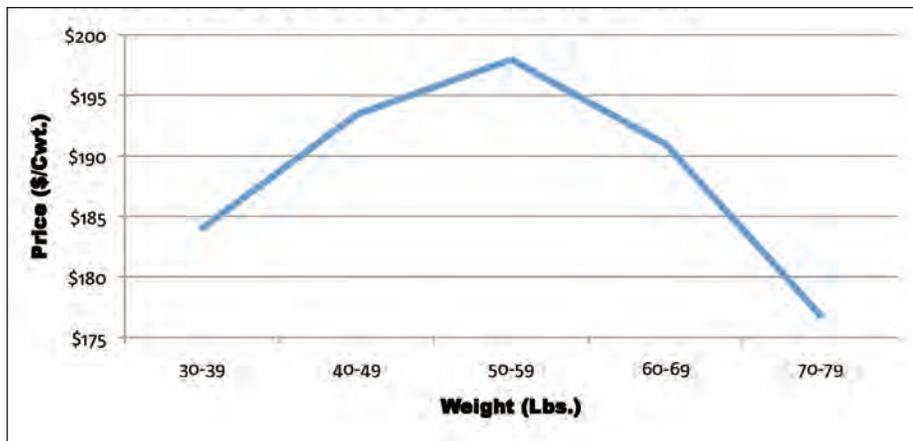
Demand for kids in the various weight classes may vary with different segments of the goat market. Pinkerton (2010) reported higher prices (\$/cwt) for kids less than 40 pounds in the New Holland, PA auction, but not in the San Angelo auction in 2005. It is important for producers to know their cost of gain of their kids to evaluate the expected consequences of selling kids at different weights.

The random effect of sale day accounted for 8 percent of the variation after the model was fitted. The variance component estimate for sale week was 273 and the residual variance was 3316. Sale week effects can be from differences in short term supply or demand. Short term supply changes can be due to weather events such as rain in the days

Table 7. Estimates for Goat Price Model.

Variable	Coefficient	Standard Error	t-Value	p-Value
<b>Intercept</b>	255.30	4.3523	58.66	<0.0001
<b>Saleyear</b>				
2010	-101.27	3.3819	-29.95	<.0001
2011	-81.1414	3.3623	-24.13	<.0001
2012	-75.3060	3.3839	-22.25	<.0001
2013	-81.8068	3.4373	-23.80	<.0001
2014	-37.7637	3.4168	-11.05	<.0001
<b>Month</b>				
January	2.0216	5.1649	0.39	0.6958
February	12.5724	5.2801	2.38	0.0180
March	5.5750	4.9842	1.12	0.2643
April	-2.7139	5.0646	-0.54	0.5925
May	-12.7664	5.0195	-2.54	0.0115
June	-25.8923	5.0590	-5.12	<.0001
July	-29.9338	5.2052	-5.75	<.0001
August	-34.9286	5.0184	-6.96	<.0001
September	-31.8467	5.0168	-6.35	<.0001
October	-24.3460	5.0609	-4.81	<.0001
November	-7.4331	5.3290	-1.39	0.1642
<b>Lotsize</b>				
A	-9.9648	0.4746	-21.00	<.0001
B	-4.0990	0.3305	-12.40	<.0001
C	-1.0134	0.2633	-3.85	0.0001
D	-0.6020	0.2334	-2.58	0.0099
<b>Wtclass</b>				
3	7.1947	0.4281	16.81	<.0001
4	16.6046	0.3742	44.37	<.0001
5	21.1445	0.3637	58.14	<.0001
6	14.1327	0.3808	37.11	<.0001

Figure 7. Kid Goat Prices by Weight Class in San Angelo, TX; 2010-2015.



prior to the sale, which can result in fewer kids brought to market. Short-term-demand changes may be due to holidays, which are associated with lamb consumption. An analysis of the sale-week effects is needed, but is beyond the scope of this paper.

## Conclusions

The analysis of kid-goat prices at the largest goat auction in the United States was initiated to provide goat producers more complete information on the factors affecting prices. The size of the Texas goat industry and the visibility of the San Angelo market to producers in Texas and the rest of the nation suggest that better market information could impact a large portion of the U.S. goat industry.

The highest prices paid were for goats in the 50- to 60-pound weight class. Up to that point, producers can increase the gross revenue per kid by increasing their weight and by receiving the greater price per hundredweight. Past sixty pounds producers can only increase their gross revenue per kid, through increased weight. Individual producers will need to incorporate a cost of production analysis to more closely identify optimal market weights.

The market is also making clear its preference for goats in the 50- to 60-pound weight class. Again, the non-traditional market for goats prefers whole carcasses or large portions of carcasses and goats above 60 pounds may not be as desirable for that market.

Increased lot size generally translates to higher realized bid prices at auc-

tion. Additional market channel research is necessary to identify the factors driving this response. Producer management will be key to increasing overall flock quality (sire and dam selection and breeding management) to limit sorting at the auction market. Small acreage producers may not have enough nannies to produce 6 to 12 uniform kids to market at one time, and as a result, will not be able to realize any large lot premium.

The San Angelo goat market displays a very strong seasonal pattern in both the sales volume and prices received for goats. Under proper management, smaller operations may be able to breed and kid a flock as to have marketable kids in periods of higher prices. This will be more difficult for larger commercially scaled operations that kid on the open range. Again, a careful and thorough evaluation should be conducted before any changes to a production system are made.

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