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Live Cattle Imports by Port of Entry from Mexico into the United States: Data and Models

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Live Cattle Imports by Port of Entry from Mexico into the United States: Data and Models¹

Christie Guinn, Graduate Research Assistant
Rhonda Skaggs, Professor

INTRODUCTION

In the late 1990s, the U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), commissioned a study of the factors that influence feeder cattle movements from Mexico into the United States. This commission was the basis of master's thesis research by Mitchell (2000). The goal of the study, using data from 1994 to 1998, was to provide the agency with information for each port of entry to aid them in addressing questions related to allocation of inspection services, budget concerns and personnel needs (Mitchell 2000). Simple regression models were formulated and provided previously unavailable insight into U.S.-Mexico cattle trade. More recently, Mitchell's work was revisited, additional data were obtained and the regression models were re-estimated using data for 1994 through 2003. The objective of re-estimating the models was to further examine the factors influencing feeder cattle movements from Mexico to the United States. This report presents the results of the model re-estimation, and also presents all data used in the analysis.

CATTLE TRADE AND NAFTA

Implementation of the North American Free Trade Agreement (NAFTA) in 1994 led to significant increases in agricultural trade between the United States and Mexico; total agricultural trade was \$13.74 billion in 2002, up from \$7.48 billion in 1994 (USDA-FAS 2003). Much of this increase is a result of economic growth in the United States and Mexico and reductions in trade barriers

¹ This report was prepared by Christie Guinn, B.S., in partial fulfillments of requirements for the Master of Agriculture–Agribusiness degree. The report was prepared under the direction of Dr. Rhonda Skaggs, Professor, Department of Agricultural Economics and Agricultural Business, New Mexico State University. This publication was prepared with financial support from a U.S. Department of Agriculture Economic Research Service cooperative agreement and the New Mexico Agricultural Experiment Station.

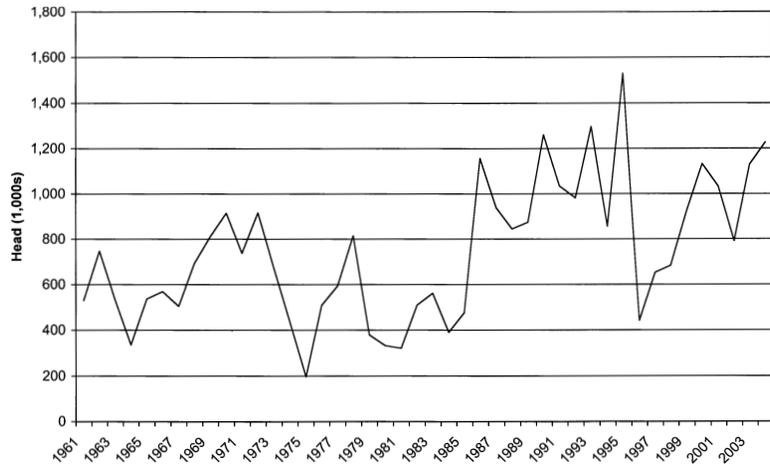


Fig. 1. Total Annual U.S. Live Cattle Imports from Mexico (1961-2003)

between the two countries since the passage of NAFTA. Beef and cattle trade between the United States and Mexico was well established for several decades prior to the implementation of NAFTA and saw dramatic increases in the pre-NAFTA period (Figure 1).

There are numerous factors contributing to changes in the flow of feeder cattle from Mexico to the United States over the years shown in Figure 1, including drought, changes in the Mexican economy and new export regulations in Mexico (Table 1 and Figure 2). These factors make it difficult to isolate the effects of NAFTA on the beef and cattle trade between the United States and Mexico (Mitchell et al. 2001).

Table 1. U.S. Live Cattle Import from Mexico (1994-2003)

Year	Head
1994	854,975
1995	1,529,749
1996	441,326
1997	651,005
1998	681,806
1999	921,752
2000	1,132,144
2001	1,031,908
2002	789,933
2003	1,128,734

Source: USDA, APHIS, Veterinary Services

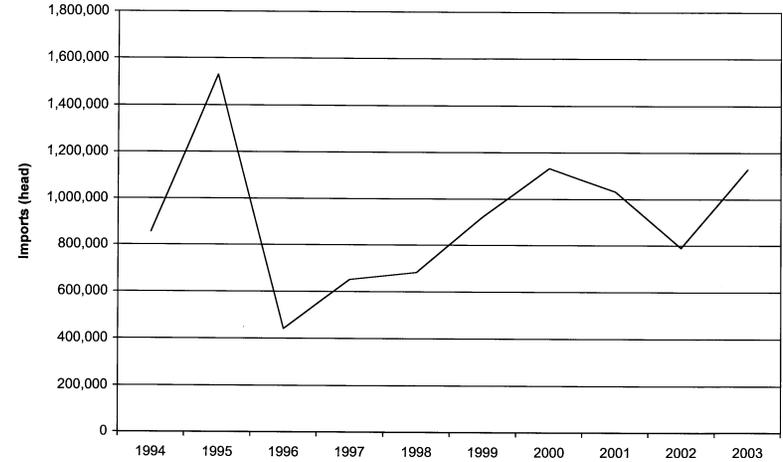


Fig. 2. Total U.S. Live Cattle Imports from Mexico (1994-2003)



Source: Recicladora Temarray de Mexico

Fig. 3. Map of U.S.-Mexico border region, showing ports of entry.

In 2002, feeder cattle imports into the United States from Mexico accounted for approximately 22.12% of all U.S.-Mexico beef-cattle trade. These feeder cattle imports were valued at \$300.5 million, while all beef-cattle trade between the United States and Mexico was valued at approximately \$1.36 billion (Guinn and Skaggs 2005).

DATA, PROCEDURES AND RESULTS

This updated study focused on the nine ports of entry with significant numbers of cattle imports. These ports are: Douglas, Nogales, and San Luis, Arizona; Columbus and Santa Teresa, New Mexico; Del Rio, Eagle Pass, Laredo, and Presidio, Texas. Figure 3 shows the location of these ports of entry.

As in the original study, data for live cattle imports were obtained from USDA-APHIS in the form of a monthly sum for each

Table 2. Percentage of Mexican Cattle Imports by U.S. Port of Entry (1994-2003)

Port of Entry	Head	% Total
Douglas	626,004	6.83%
Nogales	1,308,903	14.28%
San Luis	545,629	5.95%
Columbus	421,824	4.60%
Santa Teresa	2,441,366	26.64%
Del Rio	866,353	9.45%
Eagle Pass	488,383	5.33%
Laredo	804,546	8.78%
Presidio	1,660,324	18.12%
Total	9,163,332	100.00%

Source: USDA, APHIS, Veterinary Services

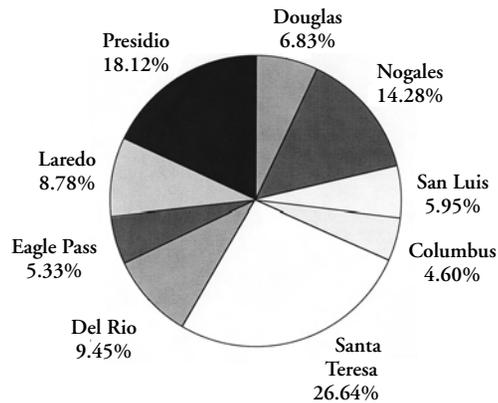


Fig. 4. Percentage of U.S. Cattle Imports from Mexico Among Nine Ports of Entry (1994-2003) (10 years total=9,163,332 head).

port of entry. The totals by port of entry for the period January 1994 through December 2003 are shown in Figure 4 and Table 2.

There is a marked seasonal pattern in U.S. cattle imports from Mexico. Generally, all nine ports of entry have higher numbers of cattle crossing into the United States between October and May and fewer imports from June to September. The seasonal pattern is visible in both Figure 5 (for the longer period of 1972-2003) and Figure 6 (January 1994-December 2003). Table 3 shows the

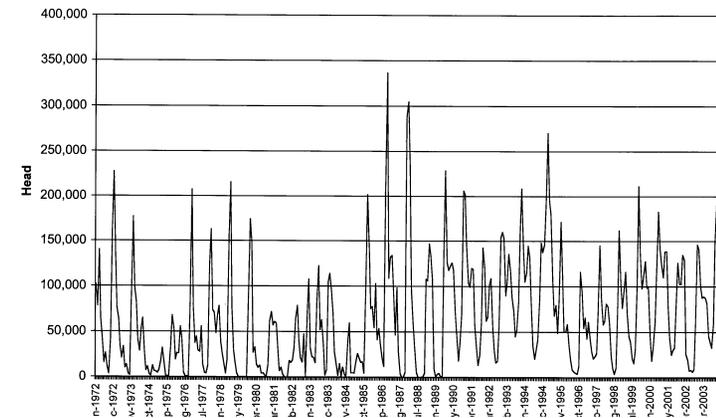


Fig. 5. Total U.S. Live Cattle Imports from Mexico (1972-2003)

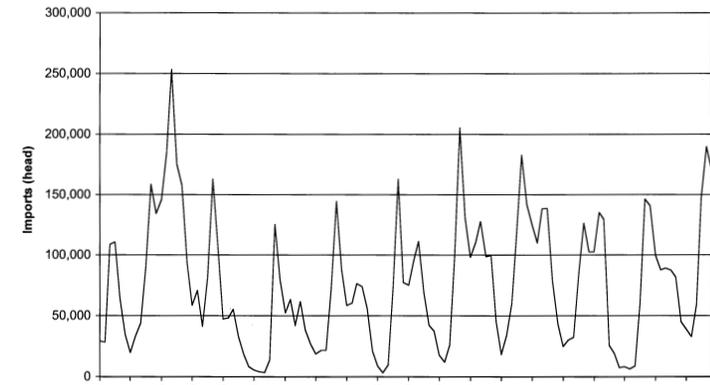


Fig. 6. Total U.S. Live Cattle Imports from Mexico by Month (1994-2003).

monthly and annual totals for U.S. imports of Mexican cattle from 1994 through 2003 for all ports of entry. For the 10-year period from 1994–2003, the third-highest volume year was 2003. Almost 1.13 million feeder cattle were imported into the United States from Mexico in that year.

HIGH VOLUME PORTS OF ENTRY

By grouping the ports of entry according to high or low import volume and examining the data for each individual port (presented in the Appendix), both general and unique trends among the ports of entry can be identified. As shown in Figure 4, the three ports with a significantly higher total volume of imports for the period January 1994–December 2003 are: Santa Teresa/El Paso (26.64%), Presidio (18.12%) and Nogales (14.28%). Although they are located in different geographic areas, these high-volume ports are similar. They have higher volumes of imports from October to May, with November and March being the highest-volume months of the year. The data indicate that 15.55% of the Nogales port of entry annual total volume of cattle imports entered the United States in November. By comparison, 21.79% and 16.89% of the Santa Teresa and Presidio total cattle imports entered the United States in November, respectively. The spring highs occur in March for the high-volume ports, with 13.52% of the annual total at Nogales, 12.45% at Santa Teresa, and 13.39% at Presidio entering the United States in that month. The summer months are lower, with July and August as the lowest points of the year in Santa Teresa (1.53% and 1.87%) and Presidio (2.00% and 1.86%). Nogales has

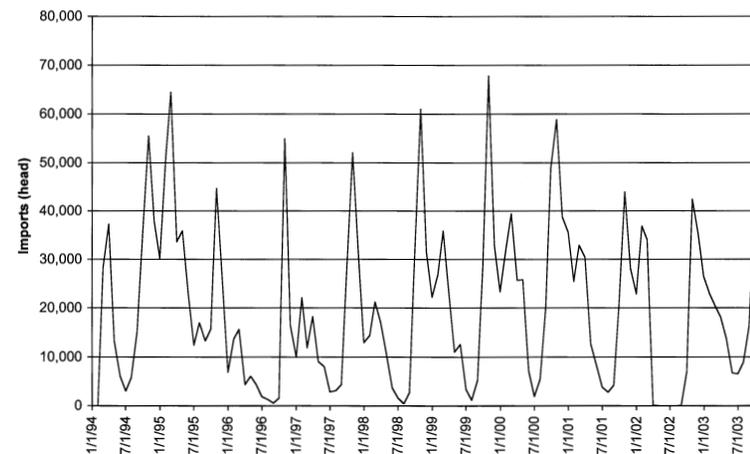


Fig. 7. Santa Teresa, NM Live Cattle Imports (1994-2003)

the lowest volumes in August and September (2.05% and 2.33%). Monthly imports for the period January 1994 through December 2003 for each high-volume port of entry are presented in Figures 7, 8 and 9.

LOW VOLUME PORTS OF ENTRY

The other six ports all represent relatively low percentages of Mexican cattle imports for the period 1994-2003 (Figure 4), with Del Rio having 9.45% of the 10-year total, Laredo with 8.78%, Douglas with 6.83%, San Luis with 5.95%, Eagle Pass with 5.33% and Columbus with 4.60% of the 10-year total. One distinct difference between these ports and the high-volume ports is that the low-volume ports have more variability in the high and low months. While July through September are still the low months, there are often groups of high-volume months that differ more from the other months instead of one month that stands out in particular. Some ports only have a high in one season; for example, Columbus crosses relatively large numbers of cattle in November (37.43%), Douglas in November (22.68%) and Laredo in March (14.34%). Monthly imports through low-volume ports of entry are presented in Figures 10 through 15 for the period January 1994 through December 2003.

Table 3. Total Monthly Live Cattle Imports from Mexico for All Ports (1994-2003)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Jan	29,146	145,841	47,259	52,294	58,510	75,126	97,939	124,516	102,524	99,509	832,664
Feb	28,304	184,659	48,137	63,380	60,295	95,385	110,201	109,900	134,982	87,574	922,817
Mar	108,502	253,200	55,352	41,999	76,342	111,118	127,769	138,146	129,291	89,004	1,130,723
Apr	110,683	175,013	32,805	61,607	73,854	68,576	98,397	138,674	25,693	87,245	872,547
May	63,854	157,593	18,678	38,261	55,937	42,211	99,430	78,238	19,125	81,523	654,850
Jun	34,566	93,511	8,165	26,813	20,838	37,477	45,331	43,428	7,408	45,103	362,640
Jul	19,827	58,531	5,480	18,704	8,701	17,925	18,260	24,923	8,114	39,099	219,564
Aug	33,005	70,738	3,893	21,694	3,258	11,985	33,965	30,123	6,356	32,819	247,836
Sep	44,030	41,267	3,314	21,977	9,694	25,992	60,118	32,447	8,924	58,986	306,749
Oct	90,179	80,705	13,643	72,218	74,350	100,010	116,295	82,826	60,646	147,737	838,609
Nov	158,693	162,840	125,156	144,377	162,799	205,573	182,722	126,171	146,132	189,682	1,604,145
Dec	134,186	105,851	79,444	87,681	77,228	130,374	141,717	102,516	140,738	170,453	1,170,188
Total	854,975	1,529,749	441,326	651,005	681,806	921,752	1,132,144	1,031,908	789,933	1,128,734	9,163,332

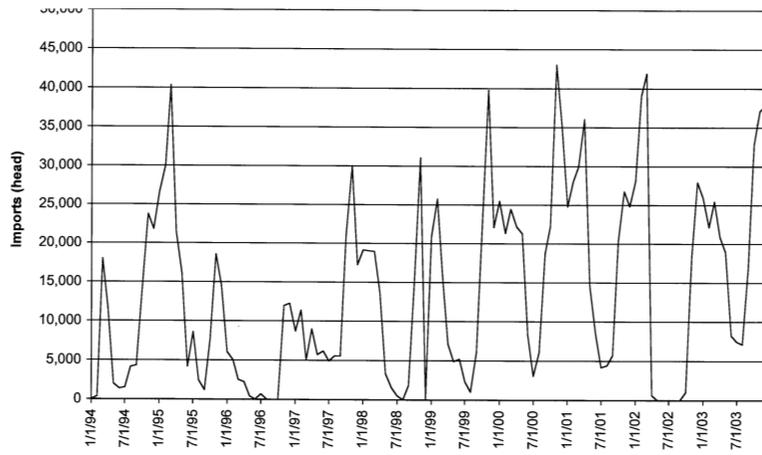


Fig. 8. Presidio, TX Live Cattle (1994-2003)

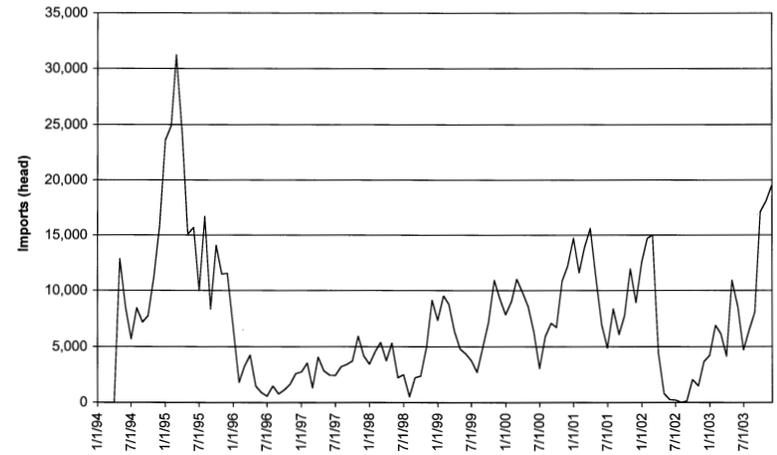


Fig. 10. Del Rio, TX Live Cattle Imports (1994-2003)

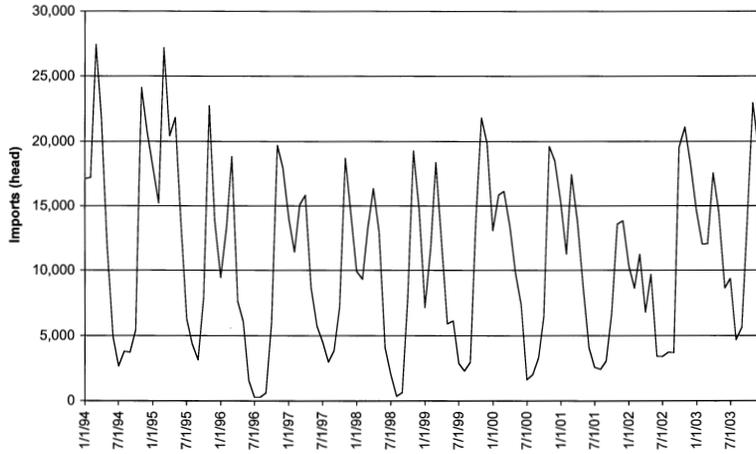


Fig. 9. Nogales, AZ Live Cattle (1994-2003)

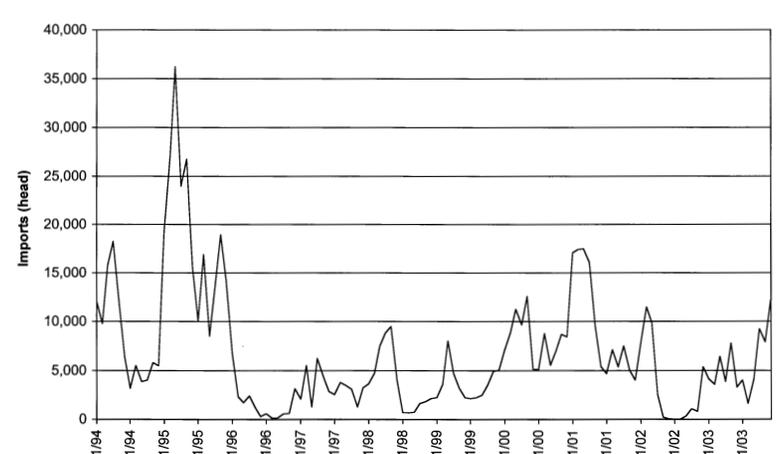


Fig. 11. Laredo, TX Live Cattle Imports (1994-2003)

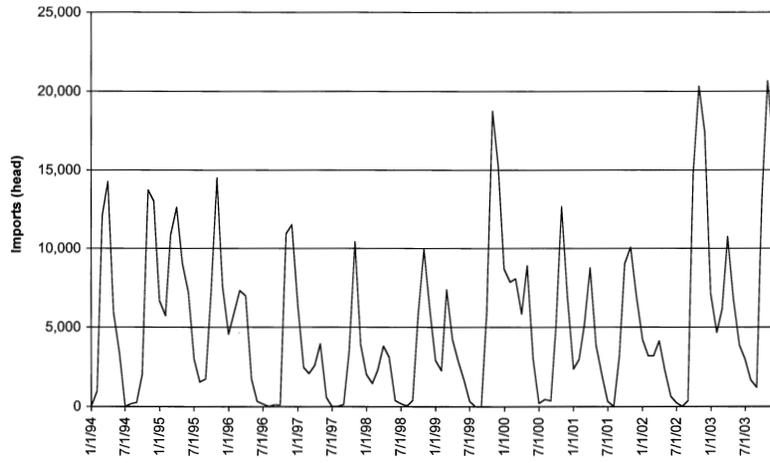


Fig. 12. Douglas, AZ Live Cattle Imports (1994-2003)

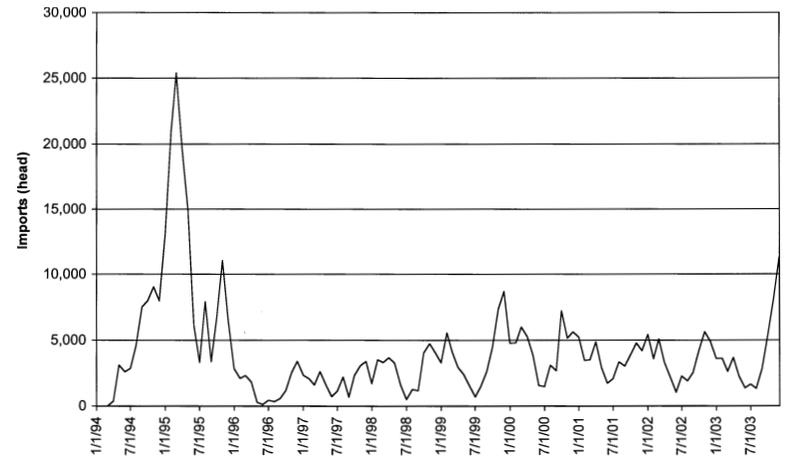


Fig. 14. Eagle Pass, AZ Live Cattle Imports (1994-2003)

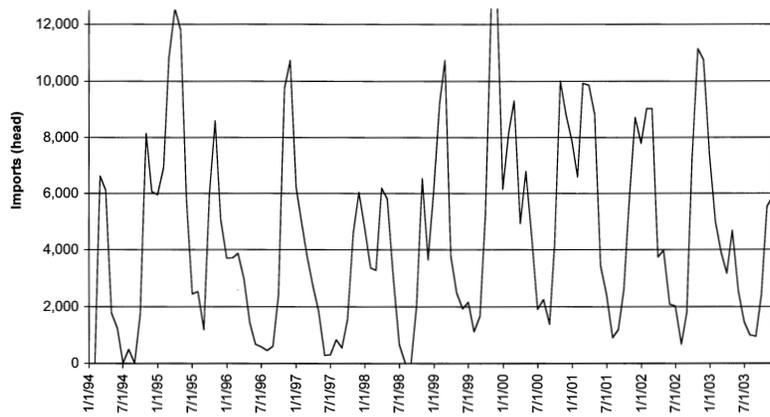


Fig. 13. San Luis, AZ Live Cattle Imports (1994-2003)

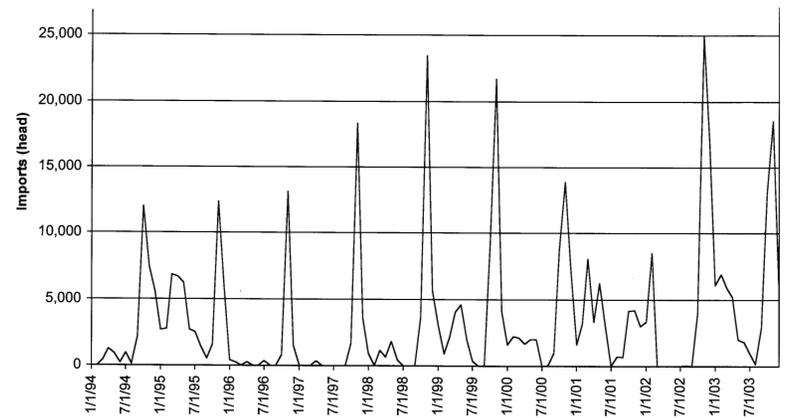


Fig. 15. Columbus, NM Live Cattle Imports (1994-2003)

2003 DATA

Data for U.S. imports of Mexican cattle in 2003 provide a snapshot of the current situation. The distribution of cattle imports by port of entry follows the long-term trend with Nogales, Santa Teresa and Presidio being the three high-volume ports (Figure 16). Santa Teresa remains the highest-volume port with 24.19% of the 1,128,734 head that were imported in 2003. Presidio follows with 23.10% of total imports, and Nogales is third with 13.75% of the total (Table 4).

Table 4. 2003 U.S. Live Cattle Imports

Port of Entry	Head	% Total
Douglas	95,760	8.48%
Nogales	155,238	13.75%
San Luis	43,922	3.89%
Columbus	69,737	6.18%
Santa Teresa	273,017	24.19%
Del Rio	114,650	10.16%
Eagle Pass	47,618	4.22%
Laredo	68,043	6.03%
Presidio	260,749	23.10%
Yearly Total	1,128,734	100.00%

Source: USDA, APHIS, Veterinary Services

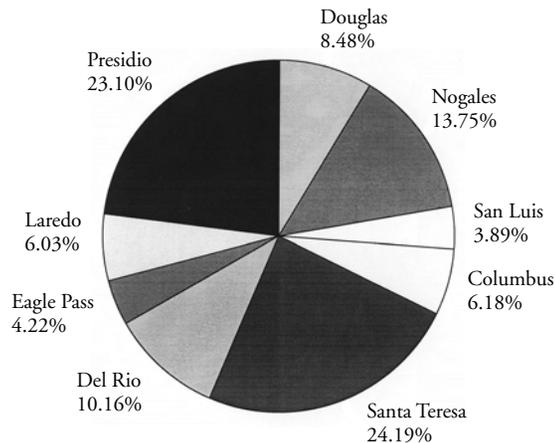


Fig. 16. 2003 U.S. Live Cattle Imports from Mexico by Port (2003 total=1,228,734 head)

The monthly distribution of 2003 imports also follows the overall trends, with the eight months from October to May being the high-volume period (Figure 17). Approximately 45% of total imports entered the United States during the months of October, November and December (Table 5).

Table 5. 2003 U.S. Live Cattle Imports

Month	Head	% Total
January	99,509	8.82%
February	87,574	7.76%
March	89,004	7.89%
April	87,245	7.73%
May	81,523	7.22%
June	45,103	4.00%
July	39,099	3.46%
August	32,819	2.91%
September	58,986	5.23%
October	147,737	13.09%
November	189,682	16.80%
December	170,453	15.10%
Yearly Total	1,128,734	100.00%

Source: USDA, APHIS, Veterinary Services

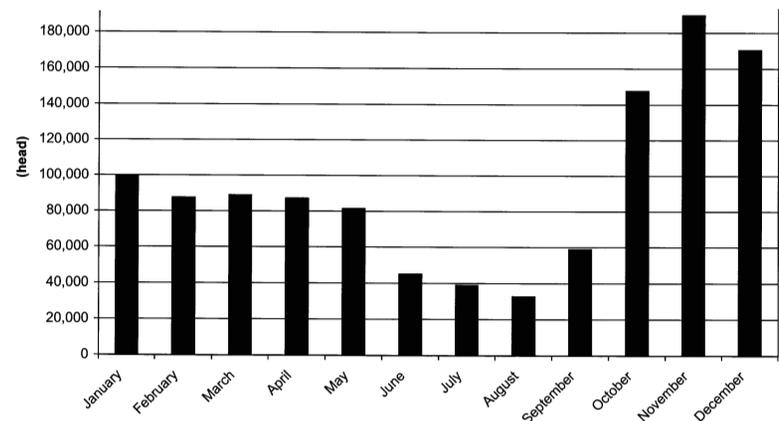


Fig. 17. 2003 U.S. Live Cattle Imports from Mexico by Month (2003 total=1,128,734 head)

UPDATED REGRESSION MODELS

Mitchell (2000) estimated separate simple regression models for each of the nine live cattle ports of entry along the U.S.-Mexico border. The objective of the research was to provide insight into factors influencing cattle imports into the United States at each point of entry. Mitchell's (2000) models were estimated using monthly data for the period January 1994–December 1998. The model equations were specified with monthly numbers of live cattle imported at each port as the dependent variable, with different independent variables selected for each model equation. The ratio of U.S. live cattle nominal price to Mexican live cattle nominal price (in U.S. dollars), a linear trend variable, and cumulative, lagged rainfall (over 12 months) in the Mexican states of cattle origin were used in the models when those variables showed significance. The rainfall lags were set up such that the rainfall observation for January 1995 was the sum of rainfall from January 1994 through December 1994, while the rainfall reported for February 1995 was the sum of rainfall from February 1994 through January 1995, and so on. Data on Mexican pasture conditions are not available thus, measurements of accumulated rainfall serve as proxies for grazing conditions on the rangelands of northern Mexico.

Monthly dummy variables were used to account for seasonal fluctuations in cattle shipments. The dummy variable values for high-volume shipping months were coded as “ones”, which had the effect of shifting the regression line up in months with significantly higher numbers of cattle crossings. The U.S. nominal cattle price was for 500-pound feeder cattle marketed at Amarillo, Texas. The Mexican nominal cattle price was for equivalent cattle marketed in Mexico City. The linear trend variable with values from 0 to 120 accounted for obvious upward or downward trends in cattle crossings at some ports of entry.

The original explanatory models (Mitchell 2000) were re-estimated using monthly data for the period January 1994–December 2003. The first re-estimations indicated that the Mitchell models needed to be reformulated due to reduced goodness of fit. Stepwise regression procedures were applied to the full complement of monthly dummy variables in order to evaluate the explanatory power of the different monthly variables (with statistical significance set at $\alpha = .10$). The nine updated regression models were selected using backward stepwise selections to identify the significant

monthly dummy variables. This process began with all monthly dummy variables in the models and retained only the variables that were significant at $\alpha = .10$. For theoretical purposes, the price ratio and rainfall variables were present in all re-estimated models with the exception of the Laredo model. The stepwise regression procedure was also applied to the trend variable, which was found to be significant in only two of the nine models, Eagle Pass and Laredo. Definitions of explanatory variables are presented in Table 6. Estimation results for the updated models are shown in Table 7. All estimation was conducted using SASTM software. All data used in the models are presented in the Appendix.

The single equation regression models explained at least 54% of the variability in monthly cattle crossings at each port of entry. The relationship between the U.S.-Mexico live cattle price ratio and the independent variables (e.g., numbers of animals imported) was consistently positive, with a greater price ratio associated with increased movement of cattle into the United States.

The signs on the rainfall variables were mixed, and with the exception of the Presidio model, none of the rainfall variable coefficients were significantly different from zero. The earlier research

Table 6. Explanatory Variable Definitions

Variable Name	Variable Definition
pr	U.S. cattle prices/Mexican cattle prices
rsum4chi	Cumulative and lagged rainfall for Chihuahua for the last 12 months
rsum4coa	Cumulative and lagged rainfall for Coahuila for the last 12 months
rsum4dur	Cumulative and lagged rainfall for Durango for the last 12 months
rsum4sin	Cumulative and lagged rainfall for Sinaloa for the last 12 months
rsum4son	Cumulative and lagged rainfall for Sonora for the last 12 months
trend	Linear variable
jan	Monthly dummy variable for the month of January
feb	Monthly dummy variable for the month of February
mar	Monthly dummy variable for the month of March
apr	Monthly dummy variable for the month of April
may	Monthly dummy variable for the month of May
jun	Monthly dummy variable for the month of June
jul	Monthly dummy variable for the month of July
aug	Monthly dummy variable for the month of August
sep	Monthly dummy variable for the month of September
oct	Monthly dummy variable for the month of October
nov	Monthly dummy variable for the month of November
dec	Monthly dummy variable for the month of December

Table 7. Regression model results by port of entry.

Independent Variable	Douglas			Nogales			San Luis		
	Estimated Coefficient	t - statistic	p - value	Estimated Coefficient	t - statistic	p - value	Estimated Coefficient	t - statistic	p - value
Intercept	5190.78	2.34	0.0212	7543.52	2.77	0.0067	541.83	0.37	0.7157
pr	5591.15	3.33	0.0012	6140.28	3.41	0.0010	6304.82	5.32	<.0001
rsum4chi	***	***	***	***	***	***	***	***	***
rsum4coa	***	***	***	***	***	***	***	***	***
rsum4dur	***	***	***	***	***	***	***	***	***
rsum4sin	***	***	***	0.91	0.23	0.8170	***	***	***
rsum4son	-7.11	-1.88	0.0628	***	***	***	-2.21	-0.83	0.4089
trend	***	***	***	***	***	***	***	***	***
jan	-5693.97	-4.10	<.0001	-4381.80	-3.29	0.0014	-2525.56	-2.97	0.0038
feb	-6826.68	-4.89	<.0001	-4971.17	-3.73	0.0003	-2651.53	-3.09	0.0026
mar	-5040.40	-3.61	0.0005	***	***	***	-1796.29	-2.10	0.0388
apr	-4074.89	-2.93	0.0042	-3129.02	-2.35	0.0208	-3247.28	-3.81	0.0002
may	-5831.38	-4.21	<.0001	-5818.49	-4.37	<.0001	-3333.17	-3.93	0.0002
jun	-8283.07	-5.98	<.0001	-10585.00	-7.95	<.0001	-5841.67	-6.89	<.0001
jul	-9593.34	-6.93	<.0001	-12890.00	-9.68	<.0001	-6904.29	-8.15	<.0001
aug	-9854.67	-7.13	<.0001	-13817.00	-10.37	<.0001	-7199.43	-8.51	<.0001
sep	-9272.86	-6.70	<.0001	-13194.00	-9.87	<.0001	-7052.51	-8.34	<.0001
oct	-2910.93	-2.10	0.0380	-6288.83	-4.70	<.0001	-4329.61	-5.12	<.0001
nov	4073.09	2.95	.0041	3687.21	2.76	0.0069	***	***	***
dec	***	***	***	***	***	***	***	***	***
Adjusted R2	0.6432			0.7469			0.6316		

Table 7. Regression model results by port of entry.

Independent Variable	Douglas			Nogales			San Luis		
	Estimated Coefficient	t - statistic	p - value	Estimated Coefficient	t - statistic	p - value	Estimated Coefficient	t - statistic	p - value
Intercept	2520.62	1.03	0.3035	-12891.00	-2.00	0.0479	-24900.00	-7.71	<.0001
pr	3524.09	2.28	0.0251	30859.00	7.82	<.0001	22071.00	12.12	<.0001
rsum4chi	-4.52	-1.29	0.2015	-8.70	-0.96	0.3409	***	***	***
rsum4coa	***	***	***	***	***	***	***	***	***
rsum4dur	***	***	***	***	***	***	9.08	1.94	0.0549
rsum4sin	***	***	***	***	***	***	***	***	***
rsum4son	***	***	***	***	***	***	***	***	***
trend	***	***	***	***	***	***	***	***	***
jan	-3742.99	-2.97	0.0038	-6789.18	-2.22	0.0286	***	***	***
feb	-3316.17	-2.61	0.0104	***	***	***	***	***	***
mar	-3140.73	-2.47	0.0151	***	***	***	***	***	***
apr	-3490.84	-2.76	0.0069	***	***	***	***	***	***
may	-3318.98	-2.64	0.0098	-9210.36	-3.01	0.0033	***	***	***
jun	-4474.57	-3.56	0.0006	-13494.00	-4.42	<.0001	-2359.82	-1.81	0.0739
jul	-5297.15	-4.22	<.0001	-18667.00	-6.11	<.0001	-3479.17	-2.66	0.0090
aug	-5412.17	-4.32	<.0001	-22707.00	-7.42	<.0001	-5006.31	-3.83	0.0002
sep	-5016.37	-4.00	0.0001	-21246.00	-6.93	<.0001	-2944.11	-2.25	0.0266
oct	***	***	***	-17316.00	-5.63	<.0001	-2676.94	-2.04	0.0442
nov	11109.00	8.87	<.0001	27881.00	9.08	<.0001	***	***	***
dec	***	***	***	6098.04	1.99	0.0498	***	***	***
R2	0.6582			0.7751			0.6180		

Table 7. Regression model results by port of entry.

Independent Variable	Douglas			Nogales			San Luis		
	Estimated Coefficient	t - statistic	p - value	Estimated Coefficient	t - statistic	p - value	Estimated Coefficient	t - statistic	p - value
Intercept	-10766.00	-4.50	<.0001	-20685.00	-8.81	<.0001	-30103.00	-4.81	<.0001
pr	12531.00	9.43	<.0001	24130.00	14.04	<.0001	27392.00	7.92	<.0001
rsum4chi									
rsum4coa	2.71	0.67	0.5036				34.53	3.45	0.0008
rsum4dur									
rsum4sin									
rsum4son									
trend	-35.03	-4.00	0.0001	-74.31	-7.66	<.0001			
jan									
feb									
mar									
apr									
may	-1772.75	-1.85	0.0674				-6574.98	-2.53	0.0130
jun	-3541.84	-3.70	0.0004	-3329.45	-2.76	0.0067	-11074.00	-4.33	<.0001
jul	-3606.96	-3.76	0.0003	-4236.81	-3.51	0.0006	-15570.00	-6.10	<.0001
aug	-2203.65	-2.30	0.0238	-2193.22	-1.82	0.0721	-16312.00	-6.38	<.0001
sep	-2146.75	-2.23	0.0282	-2524.22	-2.08	0.0398	-16285.00	-6.36	<.0001
oct									
nov									
dec									
R2		0.5449			0.6770			0.6675	

found more statistically significant rainfall effects and more variability in the rainfall coefficient signs (Mitchell 2000). A positive sign on the rainfall coefficient indicates that increased precipitation is correlated with increased exports of cattle, due to the greater forage production. However, a negative relationship between cumulative precipitation and cattle exports is also logical given the nature of cattle production in northern Mexico and responses to drought and peso depreciation. During periods of drought, the cattle producers engage in herd reduction or liquidation, and exports increase as a result. The period over which the models were re-estimated was predominated by drought, with intermittent favorable rainfall conditions. The negative signs on the rainfall coefficients may reflect this situation, although as stated above, the majority of the variables were statistically insignificant in the individual re-estimated models.

The trend variable was significant in the Eagle Pass and Laredo models. These are both low volume ports with large decreases in cattle crossings since the peak period of 1995. The monthly dummy variables in the re-estimated models reveal the same tendencies found by Mitchell (2000). These intercept shift variables reflect the marketing patterns that exist in the northern Mexico export cattle industry (e.g., Mexican producers begin shipping animals to the United States immediately following the first fall freeze), and are also related to seasonal forage availability.

The goodness of fit (Adjusted R2) of all the re-estimated models was lower than that achieved by Mitchell (2000), using a more limited data set. The Mexican economy and agricultural sector were impacted by economic instability and currency depreciation during the period for which the models were originally estimated (1994–1998). This period also saw the implementation of the North American Free Trade Agreement and severe drought. The Mexican economy was more stable during the period 1999–2003, although peso depreciation and drought continued. Procedures for exporting cattle from Mexico to the United States changed as a result of increased efforts to control and eradicate bovine tuberculosis in the two countries. The discovery of bovine spongiform encephalopathy in Canada in early 2003 also impacted cattle and beef prices throughout North America that year. There may be additional variables that should be incorporated into the port-of-entry explanatory models presented here; however, data related to range cattle production conditions remain limited.

SUMMARY AND CONCLUSION

The objective of this research was to update and re-estimate simple regression models developed by Mitchell (2000), which were intended to give the USDA-APHIS information on each individual port of entry to allow for better allocation of inspection services, budget concerns and personnel needs. Mitchell's nine models were specified with monthly imports of Mexican cattle at a specific port of entry as a function of relative U.S.-Mexico light cattle prices, cumulative precipitation (rolling, over the preceding year), and monthly dummy variables. The models were re-estimated with twice the amount of data that were available when they were first estimated. The explanatory power of the new models was slightly weaker than the explanatory power of the earlier models (based on Adjusted R² values). Another objective of this report was to compile all data used in the estimations, as these data are not readily accessible. All data used in the estimations are included in the report.

Improved econometric analysis of U.S. imports of Mexican cattle is limited by the amount and type of data available. Pasture conditions are a key factor in determining marketing patterns for Mexican cattle. Pasture conditions are represented by a proxy variable in this research, and some of the deterioration in models' explanatory power may be due to the inadequacy of the proxy variable (e.g., precipitation). The models presented here captured the strong seasonal marketing patterns that exist in U.S.-Mexico live cattle trade. The figures and charts illustrate the spatial and temporal distributions of U.S. imports of Mexican cattle over the last 10 years. This report provides a snapshot of U.S. imports of Mexican cattle as of early 2004. Future imports of Mexican cattle will likely be influenced by livestock market conditions in both the United States and Mexico, which in turn will be affected by economic conditions in the two countries. Additional econometric analysis should incorporate variables related to U.S. cattle market conditions, thus capturing the factors that pull Mexican cattle into the U.S. beef market.

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APPENDIX A—IMPORT DATA BY PORT OF ENTRY

Source: United States Department of Agriculture, Animal Plant and Health Inspection Service, Veterinary Services

Douglas, AZ Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	0	0.00%	6,663	7.58%	4,548	9.15%	6,338	17.59%	2,037	5.71%	2,926	
Feb	976	1.48%	5,730	6.52%	5,990	12.05%	2,471	6.86%	1,467	4.11%	2,271	
Mar	12,077	18.34%	10,850	12.35%	7,310	14.70%	2,094	5.81%	2,302	6.45%	7,392	
Apr	14,263	21.66%	12,618	14.36%	6,978	14.03%	2,597	7.21%	3,824	10.72%	4,243	
May	5,950	9.04%	9,045	10.29%	1,745	3.51%	3,961	10.99%	3,119	8.75%	2,906	
Jun	3,377	5.13%	7,205	8.20%	331	0.67%	570	1.58%	373	1.05%	1,680	
Jul	0	0.00%	2,992	3.40%	169	0.34%	0	0.00%	177	0.50%	323	
Aug	160	0.24%	1,549	1.76%	0	0.00%	17	0.05%	40	0.11%	0	
Sep	253	0.38%	1,755	2.00%	113	0.23%	134	0.37%	402	1.13%	0	
Oct	2,017	3.06%	7,406	8.43%	88	0.18%	3,505	9.73%	5,788	16.23%	5,998	
Nov	13,732	20.86%	14,501	16.50%	10,939	22.00%	10,426	28.94%	9,943	27.88%	18,743	
Dec	13,030	19.79%	7,564	8.61%	11,518	23.16%	3,917	10.87%	6,192	17.36%	15,192	
Total	65,835	100.00%	87,878	100.00%	49,729	100.00%	36,030	100.00%	35,664	100.00%	61,674	

Nogales, AZ Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	17,097	10.65%	18,078	10.37%	9,448	9.30%	13,989	11.44%	9,929	8.95%	7,160	
Feb	17,199	10.71%	15,214	8.73%	13,315	13.11%	11,421	9.34%	9,307	8.39%	11,736	
Mar	27,428	17.09%	27,167	15.58%	18,834	18.55%	15,085	12.34%	13,254	11.95%	18,381	
Apr	21,673	13.50%	20,431	11.72%	7,602	7.49%	15,813	12.93%	16,350	14.75%	12,117	
May	11,815	7.36%	21,829	12.52%	6,052	5.96%	8,703	7.12%	13,019	11.74%	5,902	
Jun	4,894	3.05%	13,425	7.70%	1,564	1.54%	5,722	4.68%	4,068	3.67%	6,110	
Jul	2,665	1.66%	6,277	3.60%	274	0.27%	4,536	3.71%	2,062	1.86%	2,884	
Aug	3,779	2.35%	4,349	2.49%	273	0.27%	2,986	2.44%	353	0.32%	2,301	
Sep	3,713	2.31%	3,141	1.80%	606	0.60%	3,838	3.14%	627	0.57%	2,962	
Oct	5,397	3.36%	7,926	4.55%	5,974	5.88%	7,145	5.84%	7,897	7.12%	13,584	
Nov	24,122	15.03%	22,737	13.04%	19,695	19.39%	18,705	15.30%	19,282	17.39%	21,813	
Dec	20,746	12.92%	13,766	7.90%	17,915	17.64%	14,351	11.73%	14,736	13.29%	19,852	
Total	160,528	100.00%	174,340	100.00%	101,552	100.00%	122,294	100.00%	110,884	100.00%	124,802	

San Luis, AZ Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	0	0.0%	5,948	7.47%	3,703	9.05%	6,209	18.48%	4,787	12.19%	6,088	
Feb	0	0.0%	6,933	8.71%	3,716	9.08%	4,916	14.64%	3,359	8.56%	9,216	
Mar	6,616	20.6%	10,804	13.58%	3,873	9.46%	3,740	11.13%	3,276	8.34%	10,733	
Apr	6,117	19.0%	12,556	15.78%	2,966	7.24%	2,723	8.11%	6,194	15.78%	3,771	
May	1,777	5.5%	11,796	14.82%	1,443	3.52%	1,845	5.49%	5,798	14.77%	2,481	
Jun	1,227	3.8%	5,746	7.22%	680	1.66%	286	0.85%	2,976	7.58%	1,923	
Jul	0	0.0%	2,442	3.07%	589	1.44%	307	0.91%	662	1.69%	2,163	
Aug	497	1.5%	2,531	3.18%	453	1.11%	842	2.51%	0	0.00%	1,124	
Sep	0	0.0%	1,188	1.49%	604	1.48%	541	1.61%	0	0.00%	1,678	
Oct	1,739	5.4%	5,984	7.52%	2,424	5.92%	1,546	4.60%	2,031	5.17%	5,231	
Nov	8,143	25.3%	8,595	10.80%	9,754	23.83%	4,594	13.68%	6,529	16.63%	12,556	
Dec	6,067	18.9%	5,062	6.36%	10,734	26.22%	6,041	17.98%	3,647	9.29%	13,299	
Total	32,183	100.00%	79,585	100.00%	40,939	100.00%	33,590	100.00%	39,259	100.00%	70,263	

Douglas, AZ (Continued)

1999	2000		2001		2002		2003		Total	
	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head
4.74%	8,675	12.76%	2,386	4.37%	4,228	5.97%	7,140	7.46%	44,941	7.18%
3.68%	7,847	11.54%	2,979	5.45%	3,212	4.54%	4,660	4.87%	37,603	6.01%
11.99%	8,064	11.86%	5,139	9.40%	3,214	4.54%	6,133	6.40%	64,575	10.32%
6.88%	5,827	8.57%	8,748	16.00%	4,151	5.87%	10,753	11.23%	74,002	11.82%
4.71%	8,902	13.09%	3,867	7.07%	2,271	3.21%	6,770	7.07%	48,536	7.75%
2.72%	2,999	4.41%	2,016	3.69%	625	0.88%	3,876	4.05%	23,052	3.68%
0.52%	201	0.30%	318	0.58%	243	0.34%	2,992	3.12%	7,415	1.18%
0.00%	449	0.66%	0	0.00%	0	0.00%	1,680	1.75%	3,895	0.62%
0.00%	361	0.53%	3,166	5.79%	356	0.50%	1,207	1.26%	7,747	1.24%
9.73%	5,014	7.37%	9,016	16.49%	14,716	20.80%	13,138	13.72%	66,686	10.65%
30.39%	12,684	18.65%	10,077	18.44%	20,314	28.71%	20,650	21.56%	142,009	22.68%
24.63%	6,988	10.27%	6,947	12.71%	17,434	24.64%	16,761	17.50%	105,543	16.86%
100.00%	68,011	100.00%	54,659	100.00%	70,764	100.00%	95,760	100.00%	626,004	100.00%

Nogales, AZ (Continued)

1999	2000		2001		2002		2003		Total	
	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head
5.74%	13,079	10.30%	15,284	13.58%	10,340	8.63%	14,665	9.45%	129,069	9.86%
9.40%	15,835	12.47%	11,253	10.00%	8,626	7.20%	12,024	7.75%	125,930	9.62%
14.73%	16,121	12.70%	17,415	15.47%	11,243	9.39%	12,031	7.75%	176,959	13.52%
9.71%	13,394	10.55%	13,764	12.23%	6,795	5.67%	17,541	11.30%	145,480	11.11%
4.73%	9,775	7.70%	8,628	7.67%	9,689	8.09%	14,535	9.36%	109,947	8.40%
4.90%	7,323	5.77%	4,065	3.61%	3,417	2.85%	8,631	5.56%	59,219	4.52%
2.31%	1,613	1.27%	2,582	2.29%	3,393	2.83%	9,369	6.04%	35,655	2.72%
1.84%	2,002	1.58%	2,419	2.15%	3,723	3.11%	4,663	3.00%	26,848	2.05%
2.37%	3,306	2.60%	3,043	2.70%	3,692	3.08%	5,630	3.63%	30,558	2.33%
10.88%	6,439	5.07%	6,692	5.95%	19,506	16.29%	13,739	8.85%	94,299	7.20%
17.48%	19,607	15.44%	13,572	12.06%	21,094	17.62%	22,946	14.78%	203,573	15.55%
15.91%	18,482	14.56%	13,823	12.28%	18,231	15.22%	19,464	12.54%	171,366	13.09%
100.00%	126,976	100.00%	112,540	100.00%	119,749	100.00%	155,238	100.00%	1,308,903	100.00%

San Luis, AZ (Continued)

1999	2000		2001		2002		2003		Total	
	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head
8.66%	6,149	8.99%	7,864	11.53%	7,782	11.23%	7,411	16.87%	55,941	10.25%
13.12%	8,195	11.98%	6,583	9.65%	9,031	13.03%	4,977	11.33%	56,926	10.43%
15.28%	9,295	13.59%	9,924	14.55%	9,031	13.03%	3,910	8.90%	71,202	13.05%
5.37%	4,930	7.21%	9,859	14.45%	3,747	5.41%	3,172	7.22%	56,035	10.27%
3.53%	6,790	9.93%	8,825	12.94%	3,972	5.73%	4,684	10.66%	49,411	9.06%
2.74%	4,472	6.54%	3,416	5.01%	2,082	3.00%	2,535	5.77%	25,343	4.64%
3.08%	1,911	2.79%	2,429	3.56%	2,016	2.91%	1,466	3.34%	13,985	2.56%
1.60%	2,247	3.29%	903	1.32%	680	0.98%	1,003	2.28%	10,280	1.88%
2.39%	1,377	2.01%	1,192	1.75%	1,805	2.61%	951	2.17%	9,336	1.71%
7.44%	4,191	6.13%	2,614	3.83%	7,252	10.47%	2,406	5.48%	35,418	6.49%
17.87%	10,005	14.63%	5,908	8.66%	11,140	16.08%	5,524	12.58%	82,748	15.17%
18.93%	8,817	12.89%	8,706	12.76%	10,748	15.51%	5,883	13.39%	79,004	14.48%
100.00%	68,379	100.00%	68,223	100.00%	69,286	100.00%	43,922	100.00%	545,629	100.00%

Columbus, NM Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	0	0.00%	2,683	5.13%	400	2.40%	0	0.00%	914	2.42%	3,090	
Feb	0	0.00%	2,763	5.28%	241	1.45%	0	0.00%	0	0.00%	917	
Mar	401	1.29%	6,821	13.04%	0	0.00%	0	0.00%	1,155	3.06%	2,143	
Apr	1,254	4.05%	6,671	12.76%	267	1.60%	346	1.44%	655	1.74%	4,032	
May	906	2.92%	6,200	11.86%	0	0.00%	0	0.00%	1,840	4.88%	4,608	
Jun	196	0.63%	2,701	5.17%	0	0.00%	0	0.00%	439	1.16%	1,943	
Jul	948	3.06%	2,507	4.79%	341	2.05%	0	0.00%	0	0.00%	350	
Aug	112	0.36%	1,418	2.71%	0	0.00%	0	0.00%	0	0.00%	0	
Sep	2,151	6.94%	514	0.98%	0	0.00%	0	0.00%	0	0.00%	0	
Oct	12,005	38.74%	1,571	3.00%	794	4.77%	1,686	7.04%	3,622	9.60%	9,110	
Nov	7,421	23.94%	12,356	23.63%	13,112	78.69%	18,325	76.52%	23,443	62.12%	21,692	
Dec	5,598	18.06%	6,085	11.64%	1,508	9.05%	3,592	15.00%	5,672	15.03%	4,093	
Total	30,992	100.00%	52,290	100.00%	16,663	100.00%	23,949	100.00%	37,740	100.00%	51,978	

Santa Teresa, NM Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	0	0.00%	30,155	8.20%	6,833	5.37%	9,885	4.91%	12,939	6.18%	22,169	
Feb	0	0.00%	51,185	13.92%	13,636	10.71%	22,059	10.96%	14,342	6.85%	26,825	
Mar	28,279	11.92%	64,424	17.52%	15,613	12.26%	11,884	5.90%	21,218	10.14%	35,822	
Apr	37,261	15.70%	33,610	9.14%	4,322	3.40%	18,224	9.05%	17,004	8.13%	23,298	
May	13,181	5.56%	35,877	9.75%	6,043	4.75%	9,041	4.49%	10,733	5.13%	11,028	
Jun	6,059	2.55%	22,863	6.22%	4,312	3.39%	8,005	3.98%	3,647	1.74%	12,554	
Jul	2,989	1.26%	12,379	3.37%	1,868	1.47%	2,851	1.42%	1,622	0.78%	3,356	
Aug	5,760	2.43%	16,970	4.61%	1,275	1.00%	3,085	1.53%	421	0.20%	1,139	
Sep	15,093	6.36%	13,261	3.61%	535	0.42%	4,335	2.15%	2,728	1.30%	5,215	
Oct	35,437	14.93%	15,681	4.26%	1,539	1.21%	28,088	13.95%	32,050	15.32%	28,708	
Nov	55,491	23.39%	44,640	12.14%	54,914	43.14%	52,038	25.85%	61,061	29.18%	67,794	
Dec	37,728	15.90%	26,742	7.27%	16,414	12.89%	31,802	15.80%	31,493	15.05%	32,862	
Total	237,278	100.00%	367,787	100.00%	127,304	100.00%	201,297	100.00%	209,258	100.00%	270,770	

Del Rio, TX Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	0	0.00%	23,573	11.40%	6,723	25.46%	2,752	6.92%	3,420	7.39%	7,339	
Feb	0	0.00%	24,895	12.04%	1,797	6.81%	3,541	8.90%	4,557	9.85%	9,535	
Mar	0	0.00%	31,205	15.09%	3,194	12.10%	1,301	3.27%	5,378	11.63%	8,765	
Apr	0	0.00%	24,201	11.71%	4,245	16.08%	4,063	10.21%	3,722	8.05%	6,365	
May	12,872	16.64%	15,078	7.29%	1,463	5.54%	2,855	7.18%	5,314	11.49%	4,800	
Jun	8,472	10.95%	15,684	7.59%	881	3.34%	2,447	6.15%	2,226	4.81%	4,331	
Jul	5,673	7.33%	9,977	4.83%	559	2.12%	2,412	6.06%	2,488	5.38%	3,735	
Aug	8,449	10.92%	16,689	8.07%	1,464	5.54%	3,214	8.08%	506	1.09%	2,705	
Sep	7,154	9.25%	8,348	4.04%	763	2.89%	3,416	8.59%	2,210	4.78%	4,958	
Oct	7,733	10.00%	14,081	6.81%	1,114	4.22%	3,712	9.33%	2,374	5.13%	7,141	
Nov	11,210	14.49%	11,467	5.55%	1,626	6.16%	5,918	14.88%	4,936	10.67%	10,922	
Dec	15,779	20.40%	11,539	5.58%	2,577	9.76%	4,149	10.43%	9,119	19.72%	9,260	
Total	77,342	100.00%	206,737	100.00%	26,406	100.00%	39,780	100.00%	46,250	100.00%	79,856	

Columbus, NM (Continued)

1999	2000		2001		2002		2003		Total	
	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head
5.94%	1,608	3.79%	1,620	4.24%	3,330	5.76%	6,075	8.71%	19,720	4.67%
1.76%	2,226	5.24%	3,189	8.35%	8,484	14.66%	6,900	9.89%	24,720	5.86%
4.12%	2,120	4.99%	8,065	21.13%	0	0.00%	5,890	8.45%	26,595	6.30%
7.76%	1,674	3.94%	3,330	8.72%	0	0.00%	5,195	7.45%	23,424	5.55%
8.87%	2,013	4.74%	6,235	16.33%	0	0.00%	1,980	2.84%	23,782	5.64%
3.74%	1,995	4.70%	3,029	7.93%	0	0.00%	1,912	2.74%	12,215	2.90%
0.67%	0	0.00%	0	0.00%	0	0.00%	965	1.38%	5,111	1.21%
0.00%	25	0.06%	705	1.85%	49	0.08%	147	0.21%	2,456	0.58%
0.00%	976	2.30%	663	1.74%	0	0.00%	2,890	4.14%	7,194	1.71%
17.53%	8,687	20.47%	4,146	10.86%	3,965	6.85%	13,033	18.69%	58,619	13.90%
41.73%	13,868	32.67%	4,190	10.98%	24,963	43.15%	18,522	26.56%	157,892	37.43%
7.87%	7,252	17.09%	3,003	7.87%	17,065	29.50%	6,228	8.93%	60,096	14.25%
100.00%	42,444	100.00%	38,175	100.00%	57,856	100.00%	69,737	100.00%	421,824	100.00%

Santa Teresa, NM (Continued)

1999	2000		2001		2002		2003		Total	
	% of the Year	Number of Head	Monthly % of the Year	Number of Head	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
8.19%	23,258	7.11%	35,582	14.30%	22,814	12.78%	26,372	9.66%	190,007	7.78%
9.91%	32,102	9.81%	25,412	10.21%	36,810	20.62%	22,849	8.37%	245,220	10.04%
13.23%	39,437	12.05%	32,841	13.20%	33,986	19.04%	20,414	7.48%	303,918	12.45%
8.60%	25,676	7.85%	30,395	12.21%	105	0.06%	18,050	6.61%	207,945	8.52%
4.07%	25,735	7.86%	12,588	5.06%	0	0.00%	13,702	5.02%	137,928	5.65%
4.64%	7,192	2.20%	8,265	3.32%	0	0.00%	6,711	2.46%	79,608	3.26%
1.24%	1,889	0.58%	3,806	1.53%	0	0.00%	6,506	2.38%	37,266	1.53%
0.42%	5,420	1.66%	2,781	1.12%	0	0.00%	8,854	3.24%	45,705	1.87%
1.93%	20,079	6.14%	4,187	1.68%	79	0.04%	16,329	5.98%	81,841	3.35%
10.60%	48,896	14.94%	20,978	8.43%	6,905	3.87%	40,968	15.01%	259,250	10.62%
25.04%	58,876	17.99%	43,927	17.65%	42,438	23.77%	50,801	18.61%	531,980	21.79%
12.14%	38,714	11.83%	28,082	11.28%	35,400	19.83%	41,461	15.19%	320,698	13.14%
100.00%	327,274	100.00%	248,844	100.00%	178,537	100.00%	273,017	100.00%	2,441,366	100.00%

Del Rio, TX (Continued)

1999	2000		2001		2002		2003		Total	
	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
9.19%	7,850	7.98%	14,732	12.10%	12,547	22.72%	4,210	3.67%	83,146	9.60%
11.94%	9,032	9.19%	11,609	9.53%	14,712	26.64%	6,878	6.00%	86,556	9.99%
10.98%	11,013	11.20%	13,839	11.37%	14,999	27.16%	6,119	5.34%	95,813	11.06%
7.97%	9,810	9.98%	15,621	12.83%	4,443	8.04%	4,146	3.62%	76,616	8.84%
6.01%	8,545	8.69%	11,107	9.12%	790	1.43%	10,912	9.52%	73,736	8.51%
5.42%	6,301	6.41%	6,932	5.69%	237	0.43%	8,553	7.46%	56,064	6.47%
4.68%	3,046	3.10%	4,859	3.99%	190	0.34%	4,701	4.10%	37,640	4.34%
3.39%	5,897	6.00%	8,382	6.88%	0	0.00%	6,396	5.58%	53,702	6.20%
6.21%	7,079	7.20%	6,087	5.00%	131	0.24%	8,076	7.04%	48,222	5.57%
8.94%	6,696	6.81%	7,732	6.35%	2,048	3.71%	17,109	14.92%	69,740	8.05%
13.68%	10,867	11.05%	11,949	9.81%	1,478	2.68%	18,081	15.77%	88,454	10.21%
11.60%	12,198	12.40%	8,915	7.32%	3,659	6.62%	19,469	16.98%	96,664	11.16%
100.00%	98,334	100.00%	121,764	100.00%	55,234	100.00%	114,650	100.00%	866,353	100.00%

Eagle Pass, TX Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	0	0.00%	12,977	9.35%	2,837	15.89%	2,339	9.84%	1,708	5.21%	3,288	
Feb	0	0.00%	20,937	15.09%	2,098	11.75%	2,074	8.73%	3,519	10.72%	5,561	
Mar	0	0.00%	25,393	18.30%	2,310	12.94%	1,595	6.71%	3,312	10.09%	4,085	
Apr	371	0.81%	19,556	14.09%	1,820	10.19%	2,619	11.02%	3,665	11.17%	2,935	
May	3,120	6.77%	14,893	10.73%	283	1.58%	1,646	6.93%	3,262	9.94%	2,398	
Jun	2,593	5.63%	6,106	4.40%	100	0.56%	723	3.04%	1,581	4.82%	1,506	
Jul	2,866	6.22%	3,317	2.39%	431	2.41%	1,122	4.72%	496	1.51%	695	
Aug	4,611	10.01%	7,900	5.69%	315	1.76%	2,194	9.23%	1,277	3.89%	1,499	
Sep	7,509	16.31%	3,369	2.43%	563	3.15%	660	2.78%	1,173	3.57%	2,634	
Oct	7,975	17.32%	6,755	4.87%	1,159	6.49%	2,343	9.86%	4,048	12.34%	4,462	
Nov	9,024	19.59%	11,049	7.96%	2,555	14.31%	3,062	12.88%	4,728	14.41%	7,359	
Dec	7,984	17.34%	6,527	4.70%	3,384	18.95%	3,389	14.26%	4,043	12.32%	8,680	
Total	46,053	100.00%	138,779	100.00%	17,855	100.00%	23,766	100.00%	32,812	100.00%	45,102	

Laredo, TX Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	12,049	11.78%	19,184	8.31%	6,731	34.02%	2,078	5.22%	3,632	7.94%	2,218	
Feb	9,779	9.56%	27,008	11.71%	2,301	11.63%	5,518	13.87%	4,720	10.31%	3,576	
Mar	15,733	15.39%	36,184	15.68%	1,714	8.66%	1,268	3.19%	7,491	16.37%	7,998	
Apr	18,239	17.84%	23,991	10.40%	2,381	12.04%	6,226	15.65%	8,825	19.28%	4,699	
May	12,240	11.97%	26,752	11.59%	1,241	6.27%	4,500	11.31%	9,487	20.73%	3,206	
Jun	6,397	6.26%	15,586	6.76%	297	1.50%	2,866	7.20%	3,977	8.69%	2,224	
Jul	3,163	3.09%	10,038	4.35%	563	2.85%	2,531	6.36%	685	1.50%	2,121	
Aug	5,508	5.39%	16,888	7.32%	113	0.57%	3,770	9.47%	661	1.44%	2,213	
Sep	3,850	3.77%	8,506	3.69%	130	0.66%	3,466	8.71%	729	1.59%	2,475	
Oct	4,006	3.92%	13,600	5.89%	551	2.79%	3,071	7.72%	1,626	3.55%	3,489	
Nov	5,806	5.68%	18,928	8.20%	608	3.07%	1,262	3.17%	1,806	3.95%	4,910	
Dec	5,474	5.35%	14,060	6.09%	3,153	15.94%	3,234	8.13%	2,130	4.65%	5,045	
Total	102,244	100.00%	230,725	100.00%	19,783	100.00%	39,790	100.00%	45,769	100.00%	44,174	

Presidio, TX Port of Entry Monthly Live Cattle Imports and Percentages (1994-2003)

	1994		1995		1996		1997		1998		1999	
	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year
Jan	0	0.00%	26,580	13.87%	6,036	14.69%	8,704	6.67%	19,144	15.42%	20,848	
Feb	350	0.34%	29,994	15.65%	5,043	12.27%	11,380	8.72%	19,024	15.32%	25,748	
Mar	17,968	17.53%	40,352	21.06%	2,504	6.09%	5,032	3.86%	18,956	15.27%	15,799	
Apr	11,505	11.22%	21,379	11.16%	2,224	5.41%	8,996	6.89%	13,615	10.96%	7,116	
May	1,993	1.94%	16,123	8.41%	408	0.99%	5,710	4.38%	3,365	2.71%	4,882	
Jun	1,351	1.32%	4,195	2.19%	0	0.00%	6,194	4.75%	1,551	1.25%	5,206	
Jul	1,523	1.49%	8,602	4.49%	686	1.67%	4,945	3.79%	509	0.41%	2,298	
Aug	4,129	4.03%	2,444	1.28%	0	0.00%	5,586	4.28%	0	0.00%	1,004	
Sep	4,307	4.20%	1,185	0.62%	0	0.00%	5,587	4.28%	1,825	1.47%	6,070	
Oct	13,870	13.53%	7,701	4.02%	0	0.00%	21,122	16.18%	14,914	12.01%	22,287	
Nov	23,744	23.16%	18,567	9.69%	11,953	29.09%	30,047	23.02%	31,071	25.02%	39,784	
Dec	21,780	21.24%	14,506	7.57%	12,241	29.79%	17,206	13.18%	196	0.16%	22,091	
Total	102,520	100.00%	191,628	100.00%	41,095	100.00%	30,509	100.00%	124,170	100.00%	173,133	

Eagle Pass, TX (Continued)

	1999		2000		2001		2002		2003		Total	
	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head
7.29%	4,750	9.23%	5,209	12.13%	5,417	12.89%	3,606	7.57%	42,131	8.63%		
12.33%	4,808	9.35%	3,465	8.07%	3,586	8.54%	3,600	7.56%	49,648	10.17%		
9.06%	5,994	11.65%	3,509	8.17%	5,082	12.10%	2,619	5.50%	53,899	11.04%		
6.51%	5,260	10.23%	4,855	11.30%	3,296	7.85%	3,674	7.72%	48,051	9.84%		
5.32%	3,838	7.46%	2,892	6.73%	2,208	5.26%	2,248	4.72%	36,788	7.53%		
3.34%	1,562	3.04%	1,725	4.02%	1,031	2.45%	1,365	2.87%	18,292	3.75%		
1.54%	1,465	2.85%	2,081	4.85%	2,272	5.41%	1,649	3.46%	16,394	3.36%		
3.32%	3,090	6.01%	3,358	7.82%	1,904	4.53%	1,318	2.77%	27,466	5.62%		
5.84%	2,686	5.22%	3,021	7.03%	2,547	6.06%	2,855	6.00%	27,017	5.53%		
9.89%	7,219	14.03%	3,864	9.00%	4,155	9.89%	5,317	11.17%	47,297	9.68%		
16.32%	5,136	9.99%	4,773	11.11%	5,625	13.39%	8,103	17.02%	61,414	12.57%		
19.25%	5,629	10.94%	4,199	9.78%	4,887	11.63%	11,264	23.65%	59,986	12.28%		
100.00%	51,437	100.00%	42,951	100.00%	42,010	100.00%	47,618	100.00%	488,383	100.00%		

Laredo, TX (Continued)

	1999		2000		2001		2002		2003		Total	
	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head
5.02%	7,050	7.20%	17,071	14.64%	7,914	20.01%	4,129	6.07%	82,056	10.20%		
8.10%	8,838	9.03%	17,402	14.92%	11,478	29.02%	3,567	5.24%	94,187	11.71%		
18.11%	11,249	11.50%	17,472	14.98%	9,854	24.91%	6,417	9.43%	115,380	14.34%		
10.64%	9,663	9.87%	16,052	13.77%	2,543	6.43%	3,851	5.66%	96,470	11.99%		
7.26%	12,554	12.83%	9,557	8.20%	195	0.49%	7,781	11.44%	87,513	10.88%		
5.03%	5,128	5.24%	5,391	4.62%	16	0.04%	3,280	4.82%	45,162	5.61%		
4.80%	5,087	5.20%	4,676	4.01%	0	0.00%	4,003	5.88%	32,867	4.09%		
5.01%	8,757	8.95%	7,131	6.12%	0	0.00%	1,602	2.38%	46,661	5.80%		
5.60%	5,529	5.65%	5,347	4.59%	314	0.79%	4,098	6.02%	34,444	4.28%		
7.90%	6,902	7.05%	7,483	6.42%	1,073	2.71%	9,226	13.56%	51,027	6.34%		
11.12%	8,681	8.87%	5,005	4.29%	801	2.03%	7,908	11.62%	55,715	6.93%		
11.42%	8,420	8.60%	4,019	3.45%	5,366	13.57%	12,163	17.88%	63,064	7.84%		
100.00%	97,858	100.00%	116,606	100.00%	39,554	100.00%	68,043	100.00%	804,546	100.00%		

Presidio, TX (Continued)

	1999		2000		2001		2002		2003		Total	
	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head	Monthly % of the Year	Number of Head
12.04%	25,520	10.15%	24,768	10.86%	28,152	17.94%	25,901	9.93%	185,653	11.18%		
14.87%	21,318	8.48%	28,008	12.28%	39,043	24.88%	22,119	8.48%	202,027	12.17%		
9.13%	24,476	9.73%	29,942	13.12%	41,882	26.69%	25,471	9.77%	222,382	13.39%		
4.11%	22,163	8.81%	36,050	15.80%	613	0.39%	20,863	8.00%	144,524	8.70%		
2.82%	21,278	8.46%	14,539	6.37%	0	0.00%	18,911	7.25%	87,209	5.25%		
3.01%	8,359	3.32%	8,589	3.76%	0	0.00%	8,240	3.16%	43,685	2.63%		
1.33%	3,048	1.21%	4,172	1.83%	0	0.00%	7,448	2.86%	33,231	2.00%		
0.58%	6,078	2.42%	4,444	1.95%	0	0.00%	7,138	2.74%	30,823	1.86%		
3.51%	18,725	7.45%	5,741	2.52%	0	0.00%	16,950	6.50%	60,390	3.64%		
12.87%	22,251	8.85%	20,301	8.90%	1,026	0.65%	32,801	12.58%	156,273	9.41%		
22.98%	42,998	17.10%	26,770	11.73%	18,279	11.65%	37,147	14.25%	280,360	16.89%		
12.76%	35,217	14.01%	24,822	10.88%	27,948	17.81%	37,760	14.48%	213,767	12.88%		
100.00%	251,431	100.00%	228,146	100.00%	156,943	100.00%	260,749	100.00%	1,660,324	100.00%		

APPENDIX B—INDEPENDENT VARIABLES

DATE	MXCATPR	USCATPR	PR	RAINCHIH	RAINDUR	RAINCOA	RAINSONO	RAINSINA
Jan-94	71.48	89.88	1.26	1.20	3.50	12.90	1.00	0.00
Feb-94	71.51	90.00	1.26	1.00	0.10	3.10	4.00	0.00
Mar-94	73.41	94.10	1.28	5.50	11.00	10.20	1.90	4.20
Apr-94	72.05	93.50	1.30	4.00	5.20	2.60	1.10	1.40
May-94	72.19	88.30	1.22	3.70	1.80	8.50	0.10	0.00
Jun-94	71.28	84.00	1.18	30.40	44.00	86.80	16.90	39.70
Jul-94	72.48	84.67	1.17	114.10	79.00	50.70	77.80	184.40
Aug-94	71.42	83.70	1.17	106.50	92.60	23.40	113.20	230.80
Sep-94	71.30	79.88	1.12	72.20	61.00	56.20	81.00	72.10
Oct-94	70.39	77.63	1.10	32.00	52.60	31.90	24.40	60.20
Nov-94	70.53	78.80	1.12	43.30	7.50	12.60	75.40	87.70
Dec-94	69.59	80.33	1.15	63.60	14.70	21.90	116.20	63.70
Jan-95	41.59	83.70	2.01	5.30	1.50	2.00	14.10	2.20
Feb-95	42.17	81.38	1.93	29.80	3.20	11.20	43.20	7.80
Mar-95	40.70	79.75	1.96	2.60	0.00	16.20	4.10	0.00
Apr-95	45.37	78.38	1.73	0.20	0.00	4.80	0.70	0.00
May-95	44.27	76.00	1.72	1.70	1.70	72.30	0.00	0.00
Jun-95	43.64	76.38	1.75	29.60	39.30	12.70	1.30	10.90
Jul-95	45.36	71.83	1.58	79.40	67.90	42.20	55.10	131.30
Aug-95	45.43	67.40	1.48	78.50	97.60	48.20	101.90	185.80
Sep-95	45.63	65.00	1.42	94.50	75.80	80.90	76.00	149.50
Oct-95	42.75	63.50	1.49	7.00	2.10	23.60	9.40	0.70
Nov-95	43.93	62.50	1.42	9.10	1.40	24.50	17.60	1.30
Dec-95	48.25	61.50	1.27	9.60	7.10	12.80	3.70	1.30
Jan-96	53.82	57.80	1.07	3.50	1.80	1.00	0.00	0.70
Feb-96	54.12	62.65	1.16	2.80	0.90	1.60	2.60	0.50
Mar-96	54.95	57.19	1.04	0.00	0.00	0.20	0.20	0.00
Apr-96	55.62	55.19	0.99	0.90	4.60	19.10	0.20	1.10
May-96	56.64	58.22	1.03	0.30	5.30	43.30	0.30	0.00
Jun-96	54.83	59.81	1.09	75.90	67.10	18.10	13.20	29.50
Jul-96	54.67	63.03	1.15	88.20	61.50	33.10	142.10	206.10
Aug-96	55.23	64.62	1.17	153.50	153.40	106.10	89.60	246.00
Sep-96	57.44	61.17	1.06	76.80	95.20	49.60	64.10	131.60
Oct-96	55.79	59.02	1.06	7.30	50.90	42.30	8.00	20.30

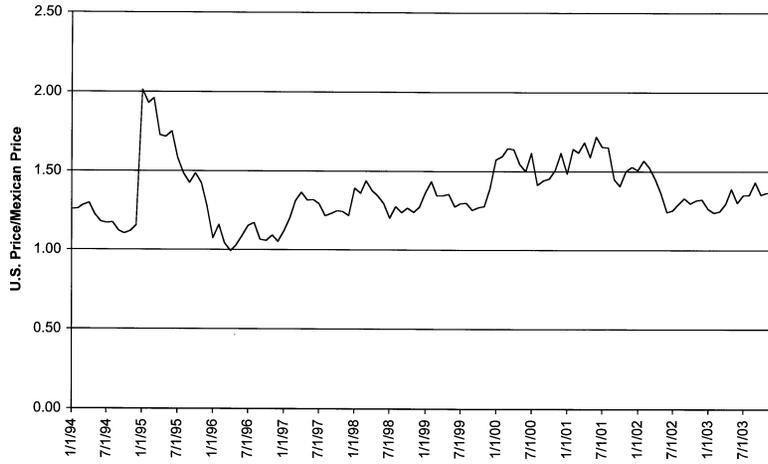
DATE	MXCATPR	USCATPR	PR	RAINCHIH	RAINDUR	RAINCOA	RAINSONO	RAINSINA
Nov-96	58.29	63.57	1.09	30.70	9.30	9.40	6.70	40.00
Dec-96	60.97	64.11	1.05	0.00	2.30	2.60	0.00	0.10
Jan-97	64.15	71.80	1.12	7.80	27.10	7.70	3.20	30.90
Feb-97	63.68	76.57	1.20	7.80	6.20	24.50	8.20	1.00
Mar-97	64.12	84.06	1.31	12.40	15.00	61.30	3.20	3.50
Apr-97	64.91	88.56	1.36	32.80	22.50	31.50	11.60	33.60
May-97	65.94	86.65	1.31	24.20	19.20	66.20	11.20	7.00
Jun-97	65.78	86.78	1.32	37.90	50.60	77.20	7.20	32.40
Jul-97	67.36	87.13	1.29	97.80	82.50	25.90	59.90	116.90
Aug-97	68.16	82.84	1.22	110.10	56.50	17.30	134.00	148.70
Sep-97	68.94	84.86	1.23	68.30	65.90	43.20	56.40	160.60
Oct-97	63.52	79.25	1.25	5.90	12.60	35.00	3.40	24.60
Nov-97	65.48	81.39	1.24	20.70	21.80	17.80	37.50	64.80
Dec-97	67.86	82.57	1.22	29.70	13.30	9.60	59.80	46.60
Jan-98	65.15	90.67	1.39	0.10	0.20	3.20	0.00	0.00
Feb-98	64.50	87.66	1.36	11.80	5.30	5.20	33.00	18.00
Mar-98	65.30	93.94	1.44	6.80	0.10	18.10	10.30	2.80
Apr-98	65.25	89.86	1.38	0.00	0.40	0.20	0.30	0.10
May-98	63.30	85.10	1.34	0.10	0.00	0.60	0.00	0.00
Jun-98	61.27	79.32	1.29	16.20	25.00	32.80	20.90	11.30
Jul-98	62.15	74.71	1.20	80.10	69.40	10.30	104.30	151.00
Aug-98	56.32	71.83	1.28	80.90	100.00	144.30	97.20	190.10
Sep-98	54.83	67.89	1.24	36.40	37.50	56.10	55.50	211.30
Oct-98	56.35	71.33	1.27	0.00	0.00	0.00	16.40	0.00
Nov-98	58.14	72.04	1.24	0.00	0.00	0.00	6.50	0.00
Dec-98	59.11	75.14	1.27	0.00	0.00	0.00	2.30	0.00
Jan-99	57.70	78.69	1.36	0.00	0.00	0.10	0.00	0.00
Feb-99	60.12	86.26	1.43	0.02	0.00	0.00	0.14	0.00
Mar-99	63.01	84.76	1.35	3.25	0.18	22.95	1.27	0.91
Apr-99	64.33	86.50	1.34	3.55	0.21	17.84	2.90	0.00
May-99	61.66	83.53	1.35	2.93	4.69	39.28	0.00	0.00
Jun-99	63.83	81.38	1.28	29.98	96.33	121.54	20.23	83.11
Jul-99	64.57	83.63	1.30	73.15	83.63	30.86	103.57	191.59
Aug-99	64.67	83.98	1.30	76.83	46.45	84.92	79.52	157.82

DATE	MXCATPR	USCATPR	PR	RAINCHIH	RAINDUR	RAINCOA	RAINSONO	RAINSINA
Sep-99	65.34	81.95	1.25	44.07	33.11	10.02	45.12	91.33
Oct-99	64.03	84.31	1.27	2.08	1.89	13.71	10.48	26.98
Nov-99	66.15	81.45	1.28	1.31	5.80	0.24	0.00	0.94
Dec-99	65.44	90.99	1.39	1.82	2.94	2.64	2.06	0.72
Jan-00	60.59	95.38	1.57	0.30	0.04	0.46	0.08	0.00
Feb-00	60.62	96.75	1.60	0.09	0.45	15.80	0.64	0.00
Mar-00	59.74	98.32	1.65	4.17	0.07	18.46	20.80	1.41
Apr-00	60.10	98.56	1.64	0.56	2.55	9.58	0.00	0.00
May-00	61.42	94.88	1.54	6.83	20.51	29.20	2.46	0.70
Jun-00	65.36	98.08	1.50	75.22	80.22	88.40	48.30	113.08
Jul-00	61.84	100.00	1.62	67.24	61.14	16.85	75.37	158.83
Aug-00	63.04	89.12	1.41	39.08	60.67	25.93	60.22	151.01
Sep-00	61.35	88.48	1.44	24.40	47.98	48.13	39.58	104.63
Oct-00	63.38	92.12	1.45	61.42	36.31	82.94	87.96	117.18
Nov-00	64.86	97.93	1.51	26.74	8.30	42.87	16.72	43.90
Dec-00	64.58	104.49	1.62	0.56	0.98	9.41	0.05	1.18
Jan-01	66.21	98.39	1.49	9.40	1.60	15.00	21.80	5.00
Feb-01	63.83	104.88	1.64	18.00	0.40	10.20	10.10	12.10
Mar-01	64.80	104.94	1.62	5.50	11.60	24.70	5.00	24.00
Apr-01	64.14	107.99	1.68	5.90	11.90	16.50	8.30	0.00
May-01	62.87	100.00	1.59	11.40	8.80	22.80	2.20	1.10
Jun-01	62.48	107.50	1.72	34.70	27.60	26.20	20.30	42.00
Jul-01	63.00	104.25	1.65	110.30	70.80	23.40	97.00	155.40
Aug-01	63.12	104.25	1.65	79.10	61.30	40.90	59.30	148.80
Sep-01	65.49	95.00	1.45	32.60	32.60	81.90	107.00	108.80
Oct-01	64.98	91.43	1.41	7.00	16.90	12.70	10.40	20.20
Nov-01	64.26	96.42	1.50	6.10	2.80	17.80	0.50	2.40
Dec-01	64.08	97.95	1.53	2.90	4.80	13.00	5.50	8.80
Jan-02	64.00	96.53	1.51	9.60	2.10	1.10	7.30	6.30
Feb-02	63.52	99.66	1.57	18.70	13.70	6.30	20.20	18.30
Mar-02	63.20	96.51	1.53	2.80	0.00	1.50	0.80	0.00
Apr-02	64.17	93.43	1.46	1.60	3.10	20.70	0.00	0.20
May-02	66.80	90.91	1.36	11.70	25.30	49.00	0.00	0.00
Jun-02	68.79	85.38	1.24	19.70	31.70	35.40	1.00	1.80

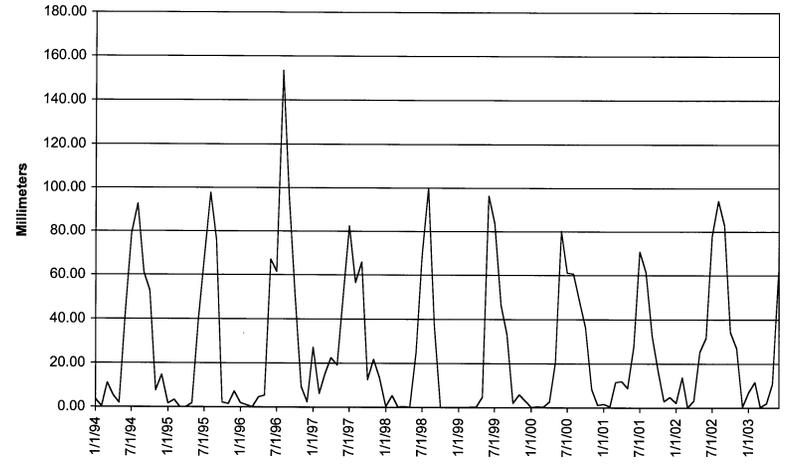
DATE	MXCATPR	USCATPR	PR	RAINCHIH	RAINDUR	RAINCOA	RAINSONO	RAINSINA
Jul-02	69.39	86.92	1.25	126.10	78.10	97.40	56.10	112.90
Aug-02	68.69	88.79	1.29	85.90	94.20	16.60	65.70	136.20
Sep-02	69.90	92.86	1.33	36.60	83.00	70.20	41.50	169.20
Oct-02	69.74	90.39	1.30	22.30	34.30	113.80	1.90	25.10
Nov-02	70.35	92.65	1.32	3.00	27.00	19.20	6.10	7.90
Dec-02	70.59	93.36	1.32	18.90	0.30	2.60	26.20	11.70
Jan-03	73.22	92.47	1.26	6.80	7.00	8.80	0.70	0.60
Feb-03	75.71	93.64	1.24	28.80	11.70	17.00	37.50	23.40
Mar-03	75.53	94.20	1.25	0.80	0.10	9.70	6.10	1.30
Apr-03	73.75	95.50	1.29	3.40	2.00	7.30	2.00	1.30
May-03	71.51	99.25	1.39	11.00	10.80	56.40	2.20	0.30
Jun-03	73.81	96.00	1.30	36.40	61.50	45.70	10.00	16.80
Jul-03	73.24	98.78	1.35	94.10	101.20	95.30	69.50	129.80
Aug-03	74.92	101.23	1.35	73.80	64.20	42.10	95.40	147.90
Sep-03	76.13	108.98	1.43	47.70	129.40	117.80	68.90	180.40
Oct-03	78.77	106.51	1.35	67.60	46.90	84.50	20.50	26.70
Nov-03	80.38	109.79	1.37	4.00	107.00	5.20	5.30	2.40
Dec-03	83.98	114.39	1.36	0.00	0.00	1.90	1.30	0.00

Variable Name	Variable Definition
MXCATPR	Mexican cattle price (\$/cwt)
USCATPR	U.S. cattle price (\$/cwt)
PR	U.S. cattle price/Mexican cattle price
RAINCHIH	Rainfall for Chihuahua (mm)
RAINDUR	Rainfall for Durango (mm)
RAINCOA	Rainfall for Coahuila (mm)
RAINSONO	Rainfall for Sonora (mm)
RAINSINA	Rainfall for Sinaloa (mm)

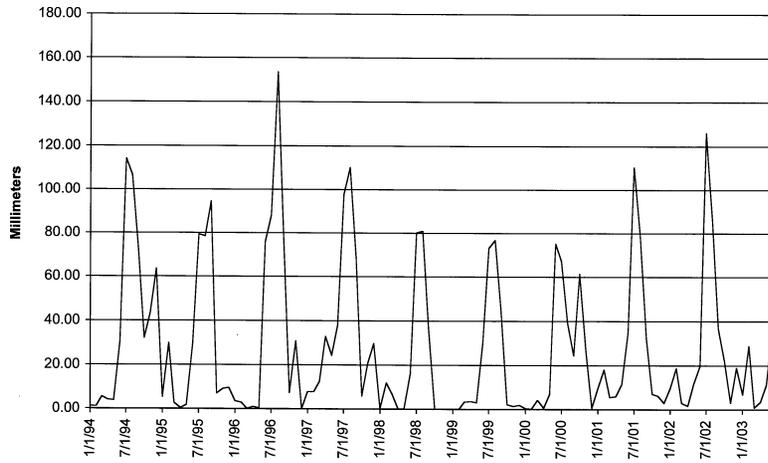
**APPENDIX C—CHARTS OF
INDEPENDENT VARIABLES**



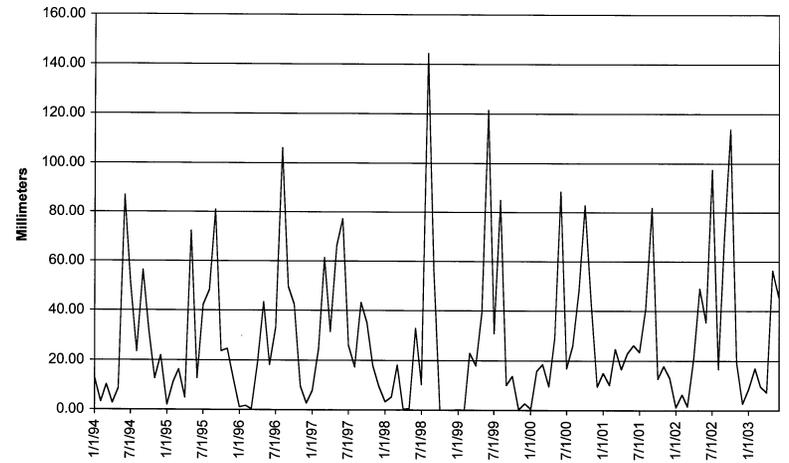
Price Ratio of U.S. Cattle Price to Mexican Cattle Price (1994-2003)



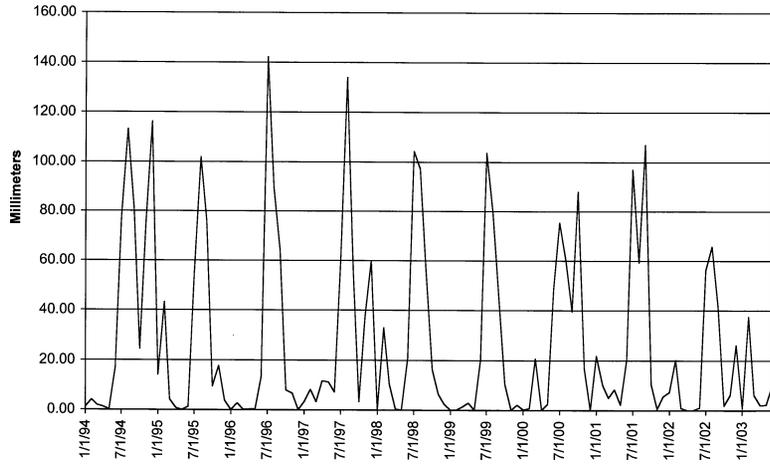
Rainfall in Durango, MX (1994-2003)



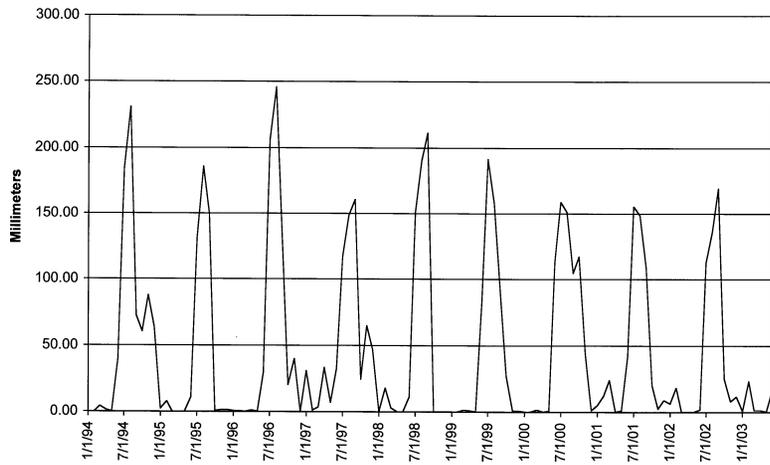
Rainfall in Chihuahua, MX (1994-2003)



Rainfall in Coahuila, MX (1994-2003)



Rainfall in Sonora, MX (1994-2003)



Rainfall in Sinaloa, MX (1994-2003)